LYNWOOD
UNIFIED SCHOOL DISTRICT

Bid No. 14MOT26

Firebaugh High School HVAC Units Replacement at Administration/Library and Gym Buildings – DSA #03-125870

Mandatory Site Visit: Tuesday, March 31 2026, 10:00am PST

Location:

Firebaugh High School
5246 Martin Luther King Jr. Blvd.,
Lynwood, CA 90262

Bid Due Date/Time/Place: Tuesday, April 21, 2026; 11:00am PST

Location: **Lynwood Unified School District**
Purchasing Department, 2nd Floor
11321 Bullis Road
Lynwood, CA 90262
Attn: Porfiria Mora

The District reserves the right to change and/or modify the submittal schedule.

Scheduled Activities	Dates	Time
BID Advertised – 1st Advertisement	**Thursday, March 19, 2026**	
BID Advertised – 2nd Advertisement	**Thursday, March 26, 2026**	
Mandatory Pre-bid Conference & Job Walk	**Tuesday, March 31, 2026**	10:00am
Pre-Qual Package due	**Friday, April 17, 2026**	12:00pm
Deadline for RFI's	**Thursday, April 9, 2026**	12:00pm
Deadline for Addenda.	**Tuesday, April 14, 2026**	
BIDs Due	**Tuesday, April 21, 2026**	11:00am
Notice of Intent to Award	**Thursday, April 30, 2026**	
Board of Education Meeting for Award	**Thursday, May 14, 2026**	
Notice to Award	**Friday, May 15, 2026**	
Notice to Proceed	**Tuesday, May 26, 2026**	
Construction Start	**Monday, June 15, 2026**	
Substantial Complete	**Friday, August 7, 2026**	

NOTICE IS HEREBY GIVEN that Lynwood Unified School District, acting by and through its Board of Education, will receive up to, but not later than the above-stated date and time, Bid Proposals for the Work of the Project described above.

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NOTICE INVITING BIDS

LYNWOOD UNIFIED SCHOOL DISTRICT

NOTICE IS HEREBY GIVEN that the Lynwood Unified School District, acting by and through its Governing Board, hereinafter referred to as "District", will receive prior to **11:00 a.m. on the 21st day of April, 2026** sealed bids for the award of a Contract for the following:

BID NO. 14MOT26; FIREBAUGH HIGH SCHOOL HVAC UNITS REPLACEMENT AT ADMININSTRATION/LIBRARY AND GYM BUILDINGS – DSA #03-125870

Scope of Work Overview

This project consists of the **replacement of six (6) rooftop HVAC units** at **Firebaugh High School, 5246 Martin Luther King Jr Blvd, Lynwood, CA 90262**, including **three (3) units serving the Admin/Library Building and three (3) units serving the Gym Building**. The work includes removal and disposal of existing rooftop units, preparation of existing roof curbs and supports, and installation of the new HVAC equipment. The scope also includes associated **mechanical, electrical, and controls work**, including duct connections, electrical power and disconnects, condensate drainage piping, and integration with the building control system.

This Project is being let in accordance with the Uniform Public Construction Cost Accounting Act ("UPCCAA") (specifically, the formal bidding procedures in Section 22032(c)).

Prequalification of Bidders

As a condition of bidding for this Project, and in accordance with California Public Contract Code section 20111.5, prospective bidders are required to submit online prequalification documents by registering with Quality Bidders. These documents will be the basis for determining which bidders are qualified to bid on this Project.

Bids will not be accepted if a Contractor has not been prequalified. Prequalification are done online at **https://www.qualitybidders.com/users/sign_up**. Prequalification documents must be submitted by **Friday, April 17, 2026** at noon. Contractors will be notified by email of their prequalification rating within a reasonable period of time after submission of their prequalification documents, but not less than one day prior to the bid opening date.

As part of the bidding process, the Work is subject to the Community Workforce Agreement (CWA) between the District and the Los Angeles/Orange Counties Building and Trades Council. All Bidders must submit a completed and signed CWA Letter of Assent with their Bid Proposal.

Subcontractors must also submit the CWA Letter of Assent to perform any Work on this project.

There will be a **Mandatory Pre-Bid Conference and Job Walk on Tuesday, March 31, 2026 at 10:00 a.m.** at the entrance **to Firebaugh High School located at 5246 Martin Luther King Jr. Blvd. ., Lynwood, CA 90262,** and will continue to the following schools listed in the Project name. Any Contractor bidding on the Project who fails to attend the entire mandatory job walk and conference will be deemed a non-responsive bidder and will have its bid returned unopened. Attendees are asked to bring a business card as part of the sign-in.
The Bid documents are available at **https://www.mylusd.org/apps/pages/bids-and-rfps**

Each bidder shall be a licensed contractor pursuant to the California Business and Professions Code, and be licensed to perform the work called for in the Contract Documents. The successful bidder must possess a valid and **active C-20 Contractor's License** at the time of bid and throughout the duration of this Contract. The Contractor's California State License number shall be clearly stated on the bidder's proposal.

Subcontractors shall be licensed pursuant to California law for the trades necessary to perform the Work called for in the Contract Documents.

NOTE: Respondents who assisted in the preparation of getting materials or the Scope of Work for solicitation documents of this BID will NOT be eligible to compete for the award work because they will have an undue advantage to all others.

In accordance with California Public Contract Code section 22300, the District will permit the substitution of securities for any moneys withheld by the District to ensure performance under the Contract.

Each bidder's bid must be accompanied by one of the following forms of bidder's security: (1) cash; (2) a cashier's check made payable to the District; (3) a certified check made payable to the District; or (4) a bidder's bond executed by a California admitted surety as defined in Code of Civil Procedure section 995.120, made payable to the District in the form set forth in the Contract Documents. Such bidder's security must be in an amount not less than ten percent (10%) of the maximum amount of bid as a guarantee that the bidder will enter into the proposed Contract, if the same is awarded to such bidder, and will provide the required Performance and Payment Bonds, insurance certificates and any other required documents. In the event of failure to enter into said Contract or provide the necessary documents, said security will be forfeited.

The Contractor and all subcontractors shall comply with the requirements set forth in Division 2, Part 7, Chapter 1 of the Labor Code which are available from the Director of the State of CA Department of Industrial Relations.

A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in the Labor Code, unless currently registered and qualified to perform public work pursuant to Labor Code section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

The Contractor and all subcontractors shall furnish certified payroll records as required pursuant Labor Code section 1776. Monitoring and enforcement of the prevailing wage laws and related requirements will be performed by the Labor Commissioner/ Department of Labor Standards Enforcement (DLSE).

No bidder may withdraw any bid for a period of ninety (90) calendar days after the date set for the opening of bids.

Separate payment and performance bonds, each in an amount equal to 100% of the total Contract amount, are required, and shall be provided to the District prior to execution of the Contract and shall be in the form set forth in the Contract Documents.

All bonds (Bid, Performance, and Payment) must be issued by a California admitted surety as defined in California Code of Civil Procedure section 995.120.

Where applicable, bidders must meet the requirements set forth in Public Contract Code section 10115 et seq., Military and Veterans Code section 999 et seq. and California Code of Regulations, Title 2, Section 1896.60 et seq. regarding Disabled Veteran Business Enterprise ("DVBE") Programs.

Any request for substitutions pursuant to Public Contract Code section 3400 must be made at the time of Bid on the Substitution Request Form set forth in the Contract Documents and included with the bid.

Inquiries shall be sent in writing by email to: Porfiria Mora, Buyer, at pmora@mylusd.org and CC; at purchasingfinal@mylusd.org.

No telephone or facsimile machine will be available to bidders on the District premises at any time.

It is each bidder's sole responsibility to ensure its bid is timely delivered and received at the location designated as specified above. Any bid received at the designated location after the scheduled closing time for receipt of bids shall be returned to the bidder unopened.

Published: Downey Patriot
Published dates: Thursday, March 19, 2026 and Thursday, March 26, 2026

INSTRUCTIONS TO BIDDERS

1. Preparation of Bid Form. Proposals under these specifications shall be submitted on the blank forms furnished herewith at the time and place stated in the Notice Inviting Bids. All blanks in the bid form must be appropriately filled in, and all proposed prices must be stated clearly and legibly in both words and numerals. All bids must be signed by the bidder in permanent blue ink and submitted in sealed envelopes, bearing on the outside, the bidder's name, address, telephone number, and California Contractor's License number, and the name of the Project for which the bid is submitted. The District reserves the right to reject any bid if all of the above information is not furnished. It is each bidder's sole responsibility to ensure its bid is timely delivered and received at the location designated as specified above. Any bid received at the designated location after the scheduled closing time for receipt of bids shall be returned to the bidder unopened.

2. Bid Security. Each bid must be accompanied by one of the following forms of bidder's security: (1) cash; (2) a cashier's check made payable to the District; (3) a certified check made payable to the District; or (4) a bidder's bond executed by a California admitted surety as defined in Code of Civil Procedure section 995.120, made payable to the District, in the form set forth in the Contract Documents. Such bidder's security must be in an amount not less than ten percent (10%) of the maximum amount of such bidder's bid as a guarantee that the bidder will enter into the Contract, if the same is awarded to such bidder, and will provide the required Performance and Payment Bonds, insurance certificates and any other required documents. In the event that a bidder is awarded the Contract and such bidder fails to enter into said Contract or provide the surety bond or bonds within five (5) calendar days after award of the Contract to bidder, said security will be forfeited.

3. Signature. The bid form, all bonds, all designations of subcontractors, the Contractor's Certificate, the Agreement, and all Guarantees must be signed in permanent blue ink in the name of the bidder and must bear the signature in longhand of the person or persons duly authorized to sign the bid.

If bidder is a corporation, the legal name of the corporation shall first be set forth, together with two signatures: one from the President and one from the Secretary or Assistant Secretary. Alternatively, the signature of other authorized officers or agents may be affixed, if a certified copy of the resolution of the corporate board of directors authorizing them to do so is provided to the District. Such documents shall include the title of such signatories below the signature and shall bear the corporate seal.

If bidder is a partnership, the true name of the firm shall first be set forth, together with the names of all persons comprising the partnership or co-partnership. The bid must be signed by all partners comprising the partnership unless proof in the form of a certified copy of a statement of partnership acknowledging the signer to be a general partner is presented to the District, in which case the general partner may sign.

Bids submitted as joint ventures must so state and be signed by each joint venture.

Bids submitted by individuals must be signed by the bidder unless an up to date power- of-attorney is on file in the District office, in which case, said person may sign for the individual.

The above rules also apply in the case of the use of a fictitious firm name. In addition, however, where a fictitious name is used, it must be so indicated in the signature.

4. Modifications. Changes in or additions to the bid form, recapitulations of the work bid upon, alternative proposals, or any other modification of the bid form which is not specifically called for in the Contract Documents may result in the District's rejection of the bid as not being responsive to the Notice Inviting Bids. **No oral or telephonic modification of any bid submitted will be considered**.

5. Erasures, Inconsistent or Illegible Bids. The bid submitted must not contain any erasures, interlineations, or other corrections unless each such correction creates no inconsistency and is suitably authenticated by affixing in the margin immediately opposite the correction the signature or signatures of the person or persons signing the bid. In the event of inconsistency between words and figures in the bid price, words shall control figures. In the event that the District determines that any bid is unintelligible, inconsistent, or ambiguous, the District may reject such a bid as not being responsive to the Notice Inviting Bids.

6. Examination of Site and Contract Documents. Each bidder shall visit the site of the proposed work and become fully acquainted with the conditions relating to the construction and labor so that the facilities, difficulties, and restrictions attending the execution of the work under the Contract are fully understood. Bidders shall thoroughly examine and be familiar with the drawings and specifications and all others documents and requirements that are attached to and/or contained in the Project Manual or other documents issued to bidders. The failure or omission of any bidder to receive or examine any Contract Documents, form, instrument, addendum, or other document or to visit the site and become acquainted with conditions there existing shall not relieve any bidder from obligations with respect to the bid or to the contract. The submission of a bid shall be taken as prima facie evidence of compliance with this Section. Bidders shall not, at any time after submission of the bid, dispute, complain, or assert that there were any misunderstandings with regard to the nature or amount of work to be done.

7. Withdrawal of Bids. Any bid may be withdrawn, either personally or by written request, at any time prior to the scheduled closing time for receipt of bids. The bid security for bids withdrawn prior to the scheduled closing time for receipt of bids, in accordance with this paragraph, shall be returned upon demand therefore.

No bidder may withdraw any bid for a period of ninety (90) calendar days after the date set for the opening of bids.

8. Agreements, Insurance and Bonds. The Agreement form which the successful bidder, as Contractor, will be required to execute, and the forms and amounts of surety bonds and insurance endorsements which Contractor will be required to be furnished at the time of execution of the Agreement, are included in the bid documents and should be carefully examined by the bidder. The number of executed copies of the Agreement, the Performance Bond, and the Payment Bond required is three (3). Payment and Performance bonds must be executed by an admitted surety insurer as defined in Code of Civil Procedure 995.120.

9. Interpretation of Plans and Documents/Pre-Bid Clarification. If any prospective bidder is in doubt as to the true meaning of any part of the Contract Documents, or finds discrepancies in, or omissions, a written request for an interpretation or correction thereof may be submitted to the District. The bidder submitting the request shall be responsible for its prompt delivery. **Any interpretation or correction of the Contract Documents will only be made by Addendum duly issued, and a copy of such Addendum will be made available for each contractor receiving a set of the Contract Documents.** No person is authorized to make any oral interpretation of any provision in the Contract Documents, nor shall any oral interpretation be binding on the District. If discrepancies on drawings, specifications or elsewhere in the Contract Documents are not covered by addenda, bidder shall include in their bid methods of construction and materials for the higher quality and complete assembly. Each request for clarification shall be submitted in writing, via email, to only the following persons:

TO: Porfiria Mora, Buyer at pmora@mylusd.org
CC: purchasingfinal@mylusd.org

Each transmitted request shall contain the name of the person and/or firm filing the request, address, telephone, and fax number, Specifications and/or Drawing number. Bidder is responsible for the legibility of handwritten requests. Pre-bid clarification request shall be filed a minimum of **six (6)** days prior to bid opening. Requests received less than **six (6)** days before bid opening shall not be considered or responded to. A written response to timely pre-bid clarifications requests which materially affects the bidders price will be made by Addendum issued by the District not less than seventy-two (72) hours prior to bid opening.

10. Bidders Interested in More Than One Bid. No person, firm, or corporation shall be allowed to make, or file, or be interested in more than one prime bid for the same work unless alternate bids are specifically called for. A person, firm, or corporation that has submitted a proposal to a bidder, or that has quoted prices of materials to a bidder, is not thereby disqualified from submitting a proposal or quoting prices to other bidders or making a prime proposal.

11. Award of Contract. The Contract will be awarded to the lowest responsive responsible bidder by action of the governing Board. The District reserves the right to reject any or all bids, or to waive any irregularities or informalities in any bids or in the bidding. In the event an award is made to bidder, and such bidder fails or refuses to execute the Contract and provide the required documents within five (5) calendar days after award of the Contract to bidder, the District may award the Contract to the next lowest responsible and responsive bidder or release all bidders**. Each bid must conform and be responsive to the Contract Documents as defined in the General Conditions**.

12. Bid Protest

a) Submittal of Bid Protest. Any Bidder submitting a Bid Proposal to the District may file a protest of the District's intent to award the Contract provided that all of the following are complied with: (i) the bid protest is in writing; (ii) the bid protest is filed and received by the District's Assistant Superintendent, Business Services ("Assistant Superintendent") not more than five (5) calendar days after the date of issuance of the District's Notice of Intent to Award the Contract; and (iii) the written bid protest sets forth, in detail, all grounds for the bid protest, including without limitation all facts, supporting documentation, legal authorities and argument in support of the grounds for the bid protest; any matters not set forth in the written bid protest shall be deemed waived. All factual contentions must be supported by competent, admissible and credible evidence. Any bid protest not conforming to the foregoing shall be rejected by the District as invalid.

b) District Review and Disposition of Bid Protest. Provided that a bid protest is filed in strict conformity with the foregoing, the Assistant Superintendent or such individual(s) as may be designated by him/her ("Designee") will review and evaluate the basis of the bid protest. The Assistant Superintendent or Designee shall provide the Bidder submitting the bid protest with a written statement concurring with or denying the bid protest ("Bid Protest Response"). The Bid Protest Response is deemed the final action of the District and not subject to appeal or reconsideration by any other employee or officer of the District or the Board of Education of the District. The issuance of the Bid Protest Response by the Assistant Superintendent or the Designee is an express condition precedent to the institution of any legal or equitable proceedings relative to the bidding process, the District's intent to award the Contract, the District's disposition of any bid protest or the District's decision to reject all Bid Proposals. If any such legal or equitable proceedings are instituted and the District is named as a party thereto, the prevailing party(ies) shall recover from the other party(ies), as costs, all attorneys' fees and costs incurred in connection with any such proceeding, including any appeal arising therefrom. Each Bidder shall acknowledge in the Bid Proposal that the foregoing is a binding attorneys' fee agreement pursuant to Civil Code §1717 and shall be enforceable against the Bidder and the District.

13. Alternates. If alternate bids are called for, the Contract may be awarded at the election of the Governing Board to the lowest responsible and responsive bidder using the method and procedures outlined in the Notice Inviting Bids and as specified in the section entitled Alternate/Deductive Bid Alternates.

a. Subcontractor Listing for Alternates. If alternate bids are called for and the bidder intends to use different or additional subcontractors, a separate list of subcontractors must be submitted for each such alternate.

14. Evidence of Responsibility. Upon the request of the District, a bidder whose bid is under consideration for the award of the Contract shall submit promptly to the District satisfactory evidence showing the bidder's financial resources, surety and insurance claims experience, construction experience, completion ability, workload, organization available for the performance of the Contract, and other factors pertinent to a Project of the scope and complexity involved.

15. Listing Subcontractors. Each bidder shall submit with his bid, on the form furnished with the Contract Documents, a list of the names, license numbers, scopes of work, locations of the places of business, contact information, and Department of Industrial Relations ("DIR") registration numbers of each subcontractor who will perform work or labor or render service to the bidder in or about the project, or a subcontractor who under subcontract to the bidder, specially fabricates and installs a portion of the work, in an amount in excess of one-half of 1 percent of the bidder's total bid as required by the Subletting and Subcontracting Fair Practices Act (Public Contract Code section 4100, et seq.) Pursuant to Labor Code section 1725.5, all subcontractors (of any tier) performing work on this Project must be properly registered with DIR.

16. Workers' Compensation. In accordance with the provisions of Labor Code section 3700, the successful bidder as the Contractor shall secure payment of compensation to all employees. The Contractor shall sign and file with the District the following certificate prior to performing the work under this contract: "I am aware of the provisions of Section 3700 of the Labor Code, which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract." The form of such certificate is included as a part of the Bid Documents.

17. Contractor's License. To perform the work required by this notice, the Contractor must possess the Contractor's License as specified in the Notice Inviting Bids, and the Contractor must maintain the license throughout the duration of the contract. If, at the time of bid, bidder is not licensed to perform the Project in accordance with Division 3, Chapter 9, of the Business and Professions Code for the State of California and the Notice to Contractors calling for bids, such bid will not be considered and the Contractor will forfeit its bid security to the District.

18. Anti-Discrimination. It is the policy of the District that in connection with all work performed under contracts, there be no discrimination against any prospective or active employee engaged in the work because of race, color, ancestry, national origin, religious creed, sex, age, or marital status. The Contractor agrees to comply with applicable federal and California laws, including, but not limited to, the California Fair Employment and Housing Act, beginning with Government Code section 12900 and Labor Code section 1735. In addition, the Contractor agrees to require like compliance by any subcontractors employed on the work by such Contractor.

19. Preference for Materials and Substitutions.

a. One Product Specified. Unless the Plans and Specifications state that no Substitution is permitted, whenever the Contract Documents indicate any specific article, device, equipment, product, material, fixture, patented process, form, method, construction, or any specific name, make, trade name, or catalog number, with or without the words, "or equal," such specification shall be read as if the language "or equal" is incorporated.

b. Request for Substitution. Bidder may, unless otherwise stated, offer any material, process, article, etc., which is materially equal or better in every respect to that so indicated or specified ("Specified Item") and will completely accomplish the purpose of the Contract Document. If a bidder desires to offer a Substitution for a Specified Item, such bidder must make a request in writing on the District's Substitution Request Form ("Request Form") and submit the

completed Request Form with the bidder's bid. The Request Form must be accompanied by evidence as to whether the proposed substitution:

1) Is equal in quality, service, and ability to the Specified Item as demonstrated by a side by side comparison of key characteristics and performance criteria (CSI comparison chart);
2) Will entail no changes in detail, construction and scheduling of related work;
3) Will be acceptable in consideration of the required design and artistic effect;
4) Will provide no cost disadvantage to the District;
5) Will require no excessive or more expensive maintenance, including adequacy and availability of replacement parts; and
6) Will require no change in the Contract Time.

In completing the Request Form, the bidder must state with respect to each requested substitution whether the bidder will agree to provide the Specified Item in the event that the District denies the bidder's request for substitution of a Specified Item. In the event that bidder does not agree in the Request Form to provide the Specified Item and the District denies the requested Substitution, the bidder's bid shall be considered non-responsive and the District may award the Contract to the next lowest bidder or in its sole discretion, release all bidders. In the event that bidder has agreed in the Request Form to provide the Specified Item and the District denies bidder's requested substitution for a Specified Item, bidder shall execute the Agreement and provide the Specified Item without any additional cost or charge to the District, and if bidder fails to execute the Agreement with the Specified Item(s), bidder's bid bond will be forfeited.

After the bids are opened, the apparent lowest bidder shall provide, within five (5) calendar days of opening such bids, any and all Drawings, Specifications, samples, performance data, calculations, and other information as may be required to assist the Architect and the District in determining whether the proposed substitution is acceptable. The burden of establishing these facts shall be upon the bidder.

After the District's receipt of such evidence by the bidder, the District will make its final decision as to whether the bidder's request for Substitution for any Specified Items will be granted. The District shall have sole discretion in deciding as to whether a proposed request for Substitution is equal to or better than a Specified Item. Any request for Substitution which is granted by the District shall be documented and processed through a Change Order. The District may condition its approval of any Substitution upon delivery to the District of an extended warranty or other assurances of adequate performance of the Substitution. Any and all risks of delay due to DSA, or any other governmental agency having jurisdiction shall be on the bidder.

20. Disqualification of Bidders and Proposals. More than one proposal for the same work from any individual, firm, partnership, corporation, or association under the same or different names will not be accepted; and reasonable grounds for believing that any bidder is interested in more than one proposal for the work will be cause for rejecting all proposals in which such bidder is interested and the bidder will forfeit their bid security to the District.

21. Unbalanced or Altered Bids. Proposals in which the prices are obviously unbalanced, and those which are incomplete or show any alteration of form, or contain any additions or conditional or alternate bids that are not called for or otherwise permitted, may be rejected. A proposal on which the signature of the bidder has been omitted may be rejected. If, in the District's sole discretion, it determines any pricing, costs or other information submitted by a bidder may result in an unbalanced bid, the District may deem such bid non-responsive. A bid may be determined by the District to be unbalanced if the bid is based on prices significantly less than cost for some work and prices which are significantly overstated in relation to cost for other work, and if there is a reasonable doubt that the bid will result in the lowest overall cost to the District even though it may be the low evaluated bid, or if it is so unbalanced as to be tantamount to allowing an advanced payment.

22. Employment of Apprentices. The Contractor and all Subcontractors shall comply with the provisions of California Labor Code including, but not limited to sections 1777.5, 1777.6, and 1777.7 concerning the employment of apprentices. The Contractor and any Subcontractor under him shall comply with the requirements of said sections, including applicable portions of all subsequent amendments in the employment of apprentices; however, the Contractor shall have full responsibility for compliance with said Labor Code sections, for all apprenticeable occupations, regardless of any other contractual or employment relationships alleged to exist.

23. Non-Collusion Declaration. Public Contract Code section 7106 requires bidders to submit a declaration of non-collusion with their bids. This form is included with the bid documents and must be signed and dated by the bidder under penalty of perjury.

24. Wage Rates, Travel and Subsistence.

a. The Contractor and all subcontractors shall comply with the requirements set forth in Division 2, Part 7, Chapter 1 of the Labor Code. Pursuant to Labor Code section 1770 et seq., the District has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this work is to be performed for each craft, classification or type of worker needed to execute the contract. Copies are available from the District to any interested party on request and are also available from the Director of the Department of Industrial Relations. The Contractor shall obtain copies of the above-referenced prevailing wage sheets and post a copy of such wage rates at appropriate, conspicuous, weatherproof points at the Site.

b. Any worker employed to perform work on the Project and such work is not covered by any classification listed in the published general prevailing wage rate determinations or per diem wages determined by the Director of the Department of Industrial Relations, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to the employment of such person in such classification.

c. Holiday and overtime work, when permitted by law, shall be paid for at the rate set forth in the prevailing wage rate determinations issued by the Director of the Department of Industrial Relations or at least one and one-half (1½) times the specified basic rate of per diem wages, plus employer payments, unless otherwise specified in the Contract Documents or authorized by law.

d. These per diem rates, including holiday and overtime work, and employer payments for health and welfare, pension, vacation, and similar purposes, are on file at the administrative office of the District, located as noted above and are also available from the Director of the Department of Industrial Relations. It is the Contractor's responsibility to ensure the appropriate prevailing rates of per diem wages are paid for each classification. It shall be mandatory upon the Contractor to whom the Contract is awarded, and upon any subcontractor under such Contractor, to pay not less than the said specified rates to all workers employed by them in the execution of the Contract.

25. DIR Registration of Contractor and Subcontractors. A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in the Labor Code, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

This Project is a public works project as defined in Labor Code section 1720. Each contractor bidding on this Project and all subcontractors (of any tier) performing any portion of the Work must comply with the Labor Code sections 1725.5 and 1771.1 and must be properly and currently registered with DIR and qualified to perform public works pursuant

to Labor Code section 1725.5 throughout the duration of the Project. For more information and up to date requirements, contractors are recommended to periodically review the DIR's website at www.dir.ca.gov. Contractor shall be solely responsible for ensuring compliance with Labor Code section 1725.5 as well as any requirements implemented by DIR applicable to its services or its subcontractors throughout the term of the Agreement and in no event shall contractor be granted increased payment from the District or any time extensions to complete the Project as a result of contractor's efforts to maintain compliance with the Labor Code or any requirements implemented by the DIR. Failure to comply with these requirements shall be deemed a material breach of this Agreement and grounds for termination for cause. The contractor and all subcontractors shall furnish certified payroll records as required pursuant Labor Code section 1776 directly to the Labor Commissioner in accordance with Labor Code section 1771.4 on at least on a monthly basis (or more frequently if required by the District or the Labor Commissioner) and in a format prescribed by the Labor Commissioner. The District reserves the right to withhold contract payments if the District is notified, or determines as the result of its own investigation, that the contractor is in violation of any of the requirements set forth in Labor Code section 1720 et seq. at no penalty or cost to the District. Monitoring and enforcement of the prevailing wage laws and related requirements will be performed by the Labor Commissioner/ Department of Labor Standards Enforcement (DLSE).

26. No Telephone or Facsimile Availability. No telephone or facsimile machine will be available to bidders on the District premises at any time.

27. Obtaining Bidding Documents. Bidding Documents, may be obtained from:

Lynwood Unified School District
11321 Bullis Road, Lynwood, California, 90262

Website: https://www.mylusd.org/apps/pages/bids-and-rfps

Email: pmora@mylusd.org or cc:purchasingfinal@mylusd.org

Bidder shall utilize a complete set of Bidding Documents in preparing a bid. The failure or omission of bidder to receive any Bidding Document, form, instrument, Addendum, or other document shall not relieve bidder from any obligations with respect to the bid and/or Contract.

28. Addenda. Clarification or any other notice of a change in the Bidding Documents will be issued only by the District and only in the form of a written Addendum, transmitted by fax, e-mail, or available for pick up to all who are known by the issuing office to have received a complete set of Bidding Documents. Any other purported Addenda are void and unenforceable.

Bidder is responsible for ascertaining the disposition of all Addenda issued regardless of District notification and to acknowledge all Addenda in the submitted sealed bid prior to the bid opening. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for inspection. Each Addendum will be numbered, dated, and identified with the Project number. Oral statements or any instructions in any form, other than Addendum as described above, shall be void and unenforceable. Addenda issued by the District and not noted as being acknowledged by bidder as required in the Bid Form, may result in the bid being deemed non-responsive.

29. CUPCCAA. This Project is being let in accordance with the California Uniform Public Construction Cost Accounting ("CUPCCAA") set forth in Public Contract Code section 22000 et seq. Bidders shall comply with any requirements set forth in the CUPCCAA including all guidelines and requirements in the current California Uniform Construction Cost Accounting Commission Cost Accounting Policies and Procedures Manual. If applicable, only Contractors included on the District's Qualified List shall submit bids for the Project as set forth in the CUPCCAA.

30. Debarment. Bidder may also be subject to debarment, in addition to seeking remedies for False Claims under Government Code section 12650 et seq. and Penal Code section 72, the District may debar a Contractor pursuant to Article 15 of the General Conditions if the Board, or the Board may designate a hearing officer who, in his or her discretion, finds the Contractor has done any of the following:

a. Intentionally or with reckless disregard, violated any term of a contract with the District

b. Committed an act or omission which reflects on the Contractor's quality, fitness or capacity to perform work for the District;

c. Committed an act or offense which indicates a lack of business integrity or business honesty; or,

d. Made or submitted a false claim against the District or any other public entity (See Government Code section 12650, et seq., and Penal Code section 72)

CHECKLIST OF MANDATORY BID FORMS

(For Contractor's use and reference only. Additional documents may be required so bidders should carefully review all Contract Documents and Bid Documents)

- ❑ Designation of Subcontractors
- ❑ Bid Form
- ❑ Contractor's Certificate Regarding Workers Compensation
- ❑ Non-Collusion Declaration
- ❑ Bid Bond (or Bid Guarantee form if Security is other than Bid Bond)
- ❑ Substitution Request Form (If Substitution Request Form is not submitted then NO Substitutions will be allowed after the bids are opened)
- ❑ Acknowledgment of Bidding Practices Regarding Indemnity
- ❑ DVBE Participation Statement
- ❑ Contractor's Certificate Regarding Drug-Free Workplace
- ❑ Contractor's Certificate Regarding Alcoholic Beverage and Tobacco-Free Campus Policy
- ❑ Bidder Experience
- ❑ Background Check
- ❑ Certificate of Authorization
- ❑ Self Performance Declaration
- ❑ Letter of Assent

PROJECT NAME:	Firebaugh High School HVAC Units Replacement at Adm/Library & Gym		
PROJECT NUMBER:	14MOT26		
TO:	_____ & Porfiria Mora	EMAIL:	_____ & _____ pmora@mylusd.org

DATE:			
FROM:		EMAIL:	
DOCUMENT/DIVISION NUMBER:		DRAWING NUMBER:	

REQUESTED CLARIFICATION:

RESPONSE TO CLARIFICATION:

Attach additional numbered sheets as necessary; however, only one (1) request shall be contained on each submitted form.

DESIGNATION OF SUBCONTRACTORS

In compliance with the Subletting and Subcontracting Fair Practices Act (California Public Contract Code section 4100 et seq.,) and any amendments thereof, each Bidder shall set forth below: (a) the name, license number, and location of the place of business of each subcontractor who will perform work or labor or render service to the Contractor, who will perform work or labor or work or improvement to be performed under this Contract, or a subcontractor licensed by the State of California who, under subcontract to the Contractor, specially fabricates and installs a portion of the work or improvements according to detailed Drawings contained in the Plans and Specifications in an amount in excess of one-half of one percent of the Contractor's total bid; and (b) the portion and description of the work which will be done by each subcontractor under this Act. The Contractor shall list only one subcontractor for each such portion as is defined by the Contractor in this bid. All subcontractors shall be properly licensed by the California State Licensing Board.

If a Contractor fails to specify a subcontractor, or if a Contractor specifies more than one subcontractor for the same portion of work to be performed under the Contract in excess of one-half of one percent of the Contractor's total bid, the Contractor shall be deemed to have agreed that the Contractor is fully qualified to perform that portion, and that the Contractor alone shall perform that portion.

No Contractor whose bid is accepted shall (a) substitute any subcontractor, (b) permit any subcontractor to be voluntarily assigned or transferred or allow the relevant portion of the work to be performed by anyone other than the original subcontractor listed in the original bid, or (c) sublet or subcontract any portion of the work in excess of one-half of one percent of the Contractor's total bid where the original bid did not designate a subcontractor, except as authorized in the Subletting and Subcontracting Fair Practices Act.

Subletting or subcontracting of any portion of the work in excess of one-half of one percent of the Contractor's total bid where no subcontractor was designated in the original bid shall only be permitted in cases of public emergency or necessity, and then only after a finding, reduced to writing as a public record, of the authority awarding this Contract setting forth the facts constituting the emergency or necessity.

All subcontractors (of any tier) performing any portion of the Work must comply with the Labor Code sections 1725.5 and 1771.1 and must be properly and currently registered with the California Department of Industrial Relations and qualified to perform public works pursuant to Labor Code section 1725.5 throughout the duration of the Project.

NOTE: If alternate bids are called for and the bidder intends to use different or additional subcontractors on the alternates, a separate list of subcontractors must be provided for each such Alternate.

LYNWOOD
UNIFIED SCHOOL DISTRICT

DESIGNATION OF SUBCONTRACTORS FORM

Description & Portion of Work	Name of Subcontractor	Location & Place of Business	License Type and Number	*E-Mail & Telephone**	*DIR Registration Number**

Description & Portion of Work	Name of Subcontractor	Location & Place of Business	License Type and Number	*E-Mail & Telephone**	*DIR Registration Number**

* This information must be provided at the time of submission of bid or must be provided within 24 hours after the time set for the opening of bids. Bidders who choose to provide this information within 24 hours after the time set for the opening of bids are solely responsible to ensure the District receives this information in a timely manner. The District is not responsible for any problems or delays associated with emails, faxes, delivery, etc. Absent a verified fax or email receipt date and time by the District, the District's determination of whether the information was received timely shall govern and be determinative. Bidder shall not revise or amend any other information in this form submitted at the time of bid. The information submitted at the time of bid shall govern over any conflicts, discrepancies, ambiguities or other differences in any subsequent Subcontractor Designation Forms submitted by the bidder.

Proper Name of Bidder: _____

Date: _____

Name: _____

Signature of Bidder Representative: _____

Address: _____

Phone: _____

BID FORM

FIREBAUGH HIGH SCHOOL HVAC UNITS REPLACEMENT AT ADMININSTRATION/LIBRARY AND GYM BUILDINGS – DSA #03-125870

BID NO. 14MOT26

CONTRACTOR NAME & LICENSE #: _____

ADDRESS: _____

_____

TELEPHONE: ( ) _____

FAX: ( ) _____

EMAIL _____

1. Bid Proposal Price.

1.1. Base Bid Price. The undersigned Bidder, having become familiarized with the Contract Documents and the local conditions affecting the performance or cost of to perform the Work, the Bidder proposes and agrees to perform the Work of the Contract Documents including, without limitation, providing and furnishing any and all of the labor, materials, tools, equipment and services necessary to perform all obligations under the Contract Documents for the sum of:

_____Dollars ($_____).

1.2 Allowances. The District has established the following Allowance Amount for each Allowance Item set forth In the following

Allowance Item No.	Allowance Item Description	Allowance Amount
A-1	To include unit price items proposal listed on page 15A	$95,000
A-2	_____	$_____
A-3	_____	$_____
	Aggregate Allowance Amount	$95,000

1.3 Bid Proposal Price. The Bid Proposal Price is the sum of the Base Bid Price (Paragraph 1.1) plus Aggregate Amount (Paragraph 1.2) which is:

_____ Dollars ($_____).

To: Lynwood Unified School District, acting by and through its Governing Board, herein called "District".

1. Pursuant to and in compliance with your Notice Inviting Bids and other documents relating thereto, the undersigned bidder, having familiarize himself with the terms of the Contract, the local conditions affecting the performance of the Contract, the cost of the work at the place where the work is to be done, with the Drawings and Specifications, and other Contract Documents, hereby proposes and agrees to perform within the time stipulated, the Contract, including all of its component parts, and everything required to be performed, including its acceptance by the District, and to provide and furnish any and all labor, materials, tools, expendable equipment, and utility and transportation services necessary to perform the Contract and complete all of the Work in a workmanlike manner required in connection with the construction of:

Firebaugh High School HVAC Units Replacement at Administration/Library and Gym Buildings – DSA #03-125870

BID # 14MOT26

2 Addenda. The Bidder confirms that: (i) it has received and reviewed all Addenda issued by the District, if any, as set forth below; and (ii) that this Bid Proposal incorporates and is inclusive of, all items or other matters contained in all Addenda, if any, issued by or on behalf of the District. ***Failure of the Bidder to acknowledge all Addenda may result in rejection of the Bid Proposal for non-responsiveness.***

ADDENDUM NO.	ADDENDUM ISSUE DATE

In the event that the District desires to postpone giving the notice to proceed beyond this ninety (90) day period, it is expressly understood that with reasonable notice to the Contractor, giving the notice to proceed may be postponed by the District. It is further expressly understood by the notice to proceed may be postponed by the District. It is further expressly understood by the Contractor, that the Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of giving the notice to proceed.

If the Contractor believes that a postponement will cause a hardship to it, the Contractor may terminate the contract with written notice to the District within ten (10) days after receipt by the Contractor of the District's notice of postponement. Should the Contractor terminate the Contract as a result of a notice of postponement, the District shall have the authority to award the Contract to the next lowest responsible bidder, if applicable.

It is understood that the District reserves the right to reject any or all bids and/or waive any irregularities or informalities in this bid or in the bid process. The Contractor understands that it may not withdraw this bid for a period of ninety (90) days after the date set for the opening of bids.

4. Attached is bid security in the amount of not less than ten percent (10%) of the bid:

Bid bond (10% of the Bid), certified check, or cashier's check (circle one)

5. The required List of Designated Subcontractors is attached hereto.

6. The required Non-Collusion Declaration is attached hereto.

7. The Substitution Request Form, if applicable, is attached hereto.

8. It is understood and agreed that if written notice of the acceptance of this bid is mailed, telegraphed, or delivered to the undersigned after the opening of the bid, and within the time this bid is required to remain open, or at any time thereafter before this bid is withdrawn, the undersigned will execute and deliver to the District a Contract in the form attached hereto in accordance with the bid as accepted, and that he or she will also furnish and deliver to the District the Performance Bond and Payment Bond, all within five (5) calendar days after award of Contract, and that the work under the Contract shall be commenced by the undersigned bidder, if awarded the Contract, by the start date provided in the District's Notice to Proceed, and shall be completed by the Contractor in the time specified in the Contract Documents.

9. The names of all persons interested in the foregoing proposal as principals are as follows:

_____

_____

_____

_____

_____

(IMPORTANT NOTICE: If bidder or other interested person is a corporation, state the legal name of such corporation, as well as the names of the president, secretary, treasurer, and manager thereof; if a co-partnership, state the true names of the firm, as well as the names of all individual co-partners comprising the firm; if bidder or other interested person is an individual, state the first and last names in full.)

_____

10. PROTEST PROCEDURES. If there is a bid protest, the grounds shall be submitted as set forth in the Instructions to Bidders.

11. The undersigned bidder shall be licensed and shall provide the following California Contractor's license information:

License Number: _____

License Expiration Date: _____

Name on License: _____

Class of License: _____

DIR Registration Number: _____

If the bidder is a joint venture, each member of the joint venture must include the above information.

12. Time is of the essence regarding this Contract, therefore, in the event the bidder to whom the Contract is awarded fails or refuses to post the required bonds and return executed copies of the Agreement form within five (5) calendar days from the date of receiving the Notice of Award, the District may declare the bidder's bid deposit or bond forfeited as damages.

13. The bidder declares that he/she has carefully examined the location of the proposed Project, that he/she has examined the Contract Documents, including the Plans, General Conditions, Supplemental Conditions, Addenda, and Specifications, all others documents and requirements that are attached to and/or contained in the Project Manual, all other documents issued to bidders and read the accompanying instructions to bidders, and hereby proposes and agrees, if this proposal is accepted, to furnish all materials and do all work required to complete the said work in accordance with the Contract Documents, in the time and manner therein prescribed for the unit cost and lump sum amounts set forth in this Bid Form.

14. DEBARMENT. In addition to seeking remedies for False Claims under Government Code section 12650 et seq. and Penal Code section 72, the District may debar a Contractor pursuant to Article 15 of the General Conditions if the Board, or the Board may designate a hearing officer who, in his or her discretion, finds the Contractor has done any of the following:

a. Intentionally or with reckless disregard, violated any term of a contract with the District;

b. Committed an act or omission which reflects on the Contractor's quality, fitness or capacity to perform work for the District;

c. Committed an act or offense which indicates a lack of business integrity or business honesty; or

d. Made or submitted a false claim against the District or any other public entity. (See Government Code section 12650, et seq., and Penal Code section 72)

15. DESIGNATION OF SUBCONTRACTORS. In compliance with the Subletting and Subcontracting Fair Practices Act (California Public Contract Code section 4100 et seq.) and any

amendments thereof, each bidder shall list subcontractors on the District's form Subcontractor list. This subcontractor list shall be submitted with the bid and is a required form

I agree to receive service of notices at the e-mail address listed below.

I the below-indicated bidder, declare under penalty of perjury that the information provided and representations made in this bid are true and correct.

_____
Proper Name of Company

_____
Name of Bidder Representative

_____
Street Address

_____
City, State, and Zip

(_____)_____
Phone Number

(_____)_____
Fax Number

_____
E-Mail

By: _____ Date:_____
Signature of Bidder Representative

NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of authorized officers or agents and the document shall bear the corporate seal; if bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership; and if bidder is an individual, his signature shall be placed above.

All signatures must be made in permanent blue ink.



CONTRACTOR'S CERTIFICATE REGARDING WORKERS' COMPENSATION FORM

Labor Code section 3700 in relevant part provides:

Every employer except the State shall secure the payment of compensation in one or more of the following ways:

1. By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this State.

2. By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to employees.

3. For any county, city, city and county, municipal corporation, public district, public agency, or any political subdivision of the state, including each member of a pooling arrangement under a joint exercise of powers agreement (but not the state itself), by securing from the Director of Industrial Relations a certificate of consent to self-insure against workers' compensation claims, which certificate may be given upon furnishing proof satisfactory to the director of ability to administer workers' compensation claims properly, and to pay workers' compensation claims that may become due to its employees. On or before March 31, 1979, a political subdivision of the state which, on December 31, 1978, was uninsured for its liability to pay compensation, shall file a properly completed and executed application for a certificate of consent to self-insure against workers' compensation claims. The certificate shall be issued and be subject to the provisions of Section 3702.

I am aware of the provisions of Labor Code section 3700 which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provision before commencing the performance of the work of this Contract.

_____

(Signature)

_____

(Print)

_____

(Date)

In accordance with Article 5 (commencing at section 1860), Chapter 1, Part 7, Division 2 of the Labor Code, the above certificate must be signed and submitted with the Contractor's bid.

NON-COLLUSION DECLARATION

The undersigned declares:

I am the _____ [Title] of _____ [Name of Company], the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____ [Date], at _____ [City], _____ [State].

Signed: _____

Typed Name: _____

BID GUARANTEE FORM

(Use only when not using a Bid Bond)

Accompanying this proposal is a cashier's check payable to the order of the Lynwood Unified School District or a certified check payable to the order of the Lynwood Unified School District in an amount equal to ten percent (10%) of the base bid and alternates ($_____).

The proceeds of this check shall become the property of said District, if, this proposal shall be accepted by the District through the District's Governing Board, and the undersigned fails to execute a Contract with and furnish the sureties required by the District within the required time; otherwise, said check is to be returned to the undersigned.

_____

Bidder

Note: Use this form, in lieu of Bid Bond form, when a cashier's check or certified check is accompanying the bid

BID BOND FORM

KNOW ALL MEN BY THESE PRESENT that we, the undersigned, (hereafter called "Principal"), and _____ (hereafter called "Surety"), are hereby held and firmly bound unto the Lynwood Unified School District (hereafter called "District") in the sum of _____ ($_____) for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors, and assigns.

SIGNED this _____ day of _____, 20___.

The condition of the above obligation is such that whereas the Principal has submitted to the District a certain Bid, attached hereto and hereby made a part hereof, to enter into a Contract in writing for the construction of _____.

NOW, THEREFORE,

a. If said Bid is rejected, or

b. If said Bid is accepted and the Principal executes and delivers a Contract or the attached Agreement form within five (5) calendar days after acceptance (properly completed in accordance with said Bid), and furnishes bonds for his faithful performance of said Contract and for payment of all persons performing labor or furnishing materials in connection therewith,

Then this obligation shall be void; otherwise, the same shall remain in force and effect.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract, or the call for bids, or the work to be performed thereunder, or the specifications accompanying the same, shall in anyway affect its obligation under this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of said Contract, or the call for bids, or the work, or to the specifications.

In the event suit is brought upon this bond by the District and judgment is recovered, the Surety shall pay all costs incurred by the District in such suit, including without limitation, attorneys' fees to be fixed by the court.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, on the day and year first set forth above.

By _____
Principal's Signature

(Corporate Seal)

_____
Typed or Printed Name

_____
Principal's Title

By _____
Surety's Signature

(Corporate Seal)

_____
Typed or Printed Name

_____
Title

(Attached Attorney in Fact Certificate)

_____
Surety's Name

_____
Surety's Address

_____
Surety's Phone Number

IMPORTANT:

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code section 105, and if the work or project is financed, in whole or in part, with federal, grant, or loan funds, it must also appear on the Treasury Department's most current list (Circular 570 as amended).

THIS IS A REQUIRED FORM.

Any claims under this bond may be addressed to:

(Name and Address of Surety)

_____

_____

_____

(Name and Address of agent or representative for
service of process in California if different from above)

_____

_____

_____

(Telephone Number of Surety and agent or
representative for service of process in California).

_____

_____

_____

REQUEST FOR SUBSTITUTION AT TIME OF BID

Pursuant to Public Contract Code section 3400, bidder submits the following request to Substitute with the bid that is submitted. I understand that if the request to substitute is not "and/or equal" or is not accepted by District and I answer "no" I will not provide the specified item, then I will be held non-responsive and my bid will be rejected. With this understanding, I hereby request Substitution of the following articles, devices, equipment, products, materials, fixtures, patented processes, forms, methods, or types of construction:

	Specification Section	Specified Item	Requested Substituted Item	Contractor Agrees to Provide Specified Item if request to Substitute is Denied[1] (circle one)	District Decision (circle one)
1.				Yes No	Grant Deny
2.				Yes No	Grant Deny
3.				Yes No	Grant Deny
4.				Yes No	Grant Deny
5.				Yes No	Grant Deny
6.				Yes No	Grant Deny
7.				Yes No	Grant Deny
8.				Yes No	Grant Deny
9.				Yes No	Grant Deny
10.				Yes No	Grant Deny
11.				Yes No	Grant Deny
12.				Yes No	Grant Deny

This Request Form must be accompanied by evidence as to whether the proposed Substitution (1) is equal in quality, service, and ability to the Specified Item; (2) will entail no change in detail, construction,

[1] Bidder must state whether bidder will provide the Specified Item in the event the Substitution request is evaluate and denied. If bidder states that bidder will not provide the Specified Item the denial of a request to Substitute shall result in the rejection of the bidder as non-responsive. However, if bidder states that bidder will provide the Specified Item in the event that bidder's request for Substitution is denied, bidder shall execute the Agreement and provide the Specified Item(s). If bidder refuses to execute the Agreement due to the District's decision to require the Specified Item(s) at no additional cost, bidder's Bid Bond shall be forfeited.

and scheduling of related work; (3) will be acceptable in consideration of the required design and artistic effect; (4) will provide no cost disadvantage to the District; (5) will require no excessive or more expensive maintenance, including adequacy and availability of replacement parts; (6) will require no change of the construction schedule or milestones for the Project; and, (7) Contractor agrees to pay for any DSA Fees or other Governmental Plan check costs associated with this Substitution Request. (See General Conditions Section 3.6)

The undersigned states that the following paragraphs are correct:

1. The proposed Substitution does not affect the dimensions shown on the Drawings.

2. The undersigned will pay for changes to the building design, including Architect, engineering, or other consultant design, detailing, DSA plan check or other governmental plan check costs, and construction costs caused by the requested substitution.

3. The proposed substitution will have no adverse effect on other trades, the Contract Time, or specified warranty requirements.

4. Maintenance and service parts will be available locally for the proposed substitution.

5. In order for the Architect to properly review the substitution request, within five (5) days following the opening of bids, the Contractor shall provide samples, test criteria, manufacturer information, and any other documents requested by Architect or Architect's engineers or consultants, including the submissions that would ordinarily be required under Article 3.7 for Shop Drawings along with a document which provides a side by side comparison of key characteristics and performance criteria (often known as a CSI side by side comparison chart).

6. If Substitution Request is accepted by the District, Contractor is still required to provide a Submittal for the substituted item pursuant to Article 3.7 and shall provide required Schedule information (including schedule fragnets, if applicable) for the substituted item as required under Article 8.3.2.1. The approval of the Architect, Engineer, or District of the substitution request does not mean that the Contractor is relieved of Contractor's responsibilities for Submittals, Shop Drawings, and schedules under Article 3.7 and 8.3.2 if the Contractor is awarded the Project.

Name of Bidder: _____

By: _____

District: _____

By: _____

ACKNOWLEDGMENT OF BIDDING PRACTICES REGARDING INDEMNITY FORM

TO: Lynwood Unified School District

RE: Project Number _____

Construction Contract for _____

Please be advised that with respect to the above-referenced Project the undersigned Contractor on behalf of itself and all subcontractors hereby waives the benefits and protection of Labor Code section 3864, which provides:

"If an action as provided in this chapter is prosecuted by the employee, the employer, or both jointly against the third person results in judgment against such third person, the employer shall have no liability to reimburse or hold such third person harmless on such judgment or settlement in the absence of a written agreement to do so executed prior to the injury."

This Agreement has been signed by an authorized representative of the contracting party and shall be binding upon its successors and assignees. The undersigned further agrees to promptly notify the District of any changes of ownership of the contracting party or any subcontractor while this Agreement is in force.

_____

Contracting Party

_____

Name of Agent/Title

DISABLED VETERAN BUSINESS ENTERPRISE (DVBE) PARTICIPATION STATEMENT

Each bidder must complete this form in order to comply with the Lynwood Unified School District ("District") policy for participation of disabled veteran business enterprises (School District projects funded in whole or in part by the State of California pursuant to the Leroy F. Greene School Facilities Act of 1998. (Education Code §17070.10, *et seq*.)

Project Name: _____

Bid No.: _____

DSA No.: _____

The undersigned, on behalf of the Contractor named below, certifies that the Contractor has made reasonable efforts to secure participation by DVBE in the Contract to be awarded for the above-referenced Bid No., including participation by DVBE subcontractors and/or material suppliers. **Check only one of the following**:

- ❑ The Contractor was unable after reasonable efforts to secure DVBE participation in the Contract for the above-referenced Project/Bid No. However, the Contractor will use DVBE services if the opportunity arises at any time during construction of the Project. Upon completion of the Project, the Contractor will report to the District the total dollar amount of DVBE participation in any Contract awarded to Contractor, and in any change orders, for the above-referenced Project.

- ❑ The Contractor has secured DVBE participation in the Contract for the above referenced Project/Bid No., and anticipates that such DVBE participation will equal approximately _____dollars ($_____), which represents approximately _____percent (__%) of the total Contract for such Project. Upon completion of the Project, Contractor will report to the District the actual total dollar amount of DVBE participation in the Contract awarded to Contractor, and in any change orders, for such Project

Company: _____

Name: _____

Title: _____

Signature: _____

Date: _____

CONTRACTOR'S CERTIFICATE REGARDING DRUG-FREE WORKPLACE

This Drug-Free Workplace Certification form is required from all successful bidders pursuant to the requirements mandated by Government Code section 8350 et seq., the Drug-Free Workplace Act of 1990. The Drug-Free Workplace Act of 1990 requires that every person or organization awarded a contract or grant for the procurement of any property or service from any State agency must certify that it will provide a drug-free workplace by performing certain specified acts. In addition, the Act provides that each contract or grant awarded by a State agency may be subject to suspension of payments or termination of the contract or grant, and the Contractor or grantee may be subject to debarment from future contracting, if the contracting agency determines that specified acts have occurred.

Pursuant to Government Code section 8355, every person or organization awarded a contract or grant from a State agency shall certify that it will provide a drug-free workplace by doing all of the following:

1. Publishing a statement, notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's or organization's workplace, and specifying actions which will be taken against employees for violations of the prohibition.

2. Establishing a drug-free awareness program to inform employees about all of the following:

   a. The dangers of drug abuse in the workplace;
   b. The person's or organization's policy of maintaining a drug-free workplace;
   c. The availability of drug counseling, rehabilitation and employee-assistance programs; and
   d. The penalties that may be imposed upon employees for drug abuse violations;

3. Requiring that each employee engaged in the performance of the contract or grant be given a copy of the statement required by subdivision (a) and that, as a condition of employment on the contract or grant, the employee agrees to abide by the terms of the statement.

I, the undersigned, agree to fulfill the terms and requirements of Government Code section 8355 listed above and will (a) publish a statement notifying employees concerning the prohibition of controlled substance at the workplace, (b) establish a drug-free awareness program, and (c) require each employee engaged in the performance of the contact be given a copy of the statement required by section 8355(a) and require such employee agree to abide by the terms of that statement.

I also understand that if the Lynwood Unified School District determines that I have either (a) made a false certification herein, or (b) violated this certification by failing to carry out the requirements of Section 8355, that the contract awarded herein is subject to termination, suspension of payments, or both. I further understand that, should I violate the terms of the Drug-Free Workplace Act of 1990, I may be subject to debarment in accordance with the requirements of Section 8350 et seq.

I acknowledge that I am aware of the provisions of Government Code section 8350 et seq. and hereby certify that I will adhere to the requirements of the Drug-Free Workplace Act of 1990.

DATE:_____ _____

CONTRACTOR

By:_____

Signature

CONTRACTOR'S CERTIFICATE REGARDING ALCOHOLIC BEVERAGE AND TOBACCO-FREE CAMPUS POLICY

The Contractor agrees that it will abide by and implement the District's Alcoholic Beverage and Tobacco-Free Campus Policy, which prohibits the use of alcoholic beverages and tobacco products, of any kind and at any time, in District-owned or leased buildings, on DISTRICT property and in DISTRICT vehicles. The Contractor shall procure signs stating "ALCOHOLIC BEVERAGE AND TOBACCO USE IS PROHIBITED" and shall ensure that these signs are prominently displayed in all entrances to school property at all times.

DATE:_____

_____
CONTRACTOR

By:_____
Signature

SAMPLE CONTRACT

AGREEMENT FORM

THIS AGREEMENT, entered into this____ day of_____, 2026 in the County of Los Angeles of the State of California, by and between the Lynwood Unified School District, hereinafter called the "District", and _____, hereinafter called the "Contractor". Contractor acknowledges that this Project is being awarded in accordance with the California Uniform Public Construction Cost Accounting ("CUPCCAA") set forth in Public Contract Code section 22000 et seq. Bidders shall comply with any requirements set forth in the CUPCCAA including all guidelines and requirements in the current California Uniform Construction Cost Accounting Commission Cost Accounting Policies and Procedures Manual. Contractor shall cooperate with the District and provide any requested information or documents as requested by the District to comply with the CUPCCAA including, but not limited to, all Project cost data, invoices, accounting records, payroll records, etc.

WITNESSETH that the District and the Contractor for the consideration stated herein agree as follows:

Bid #14MOT26
Firebaugh High School
5246 Martin Luther King Jr.Blvd., Lynwood CA 90262

ARTICLE 1 - SCOPE OF WORK: The Contractor shall furnish all labor, materials, equipment, tools, and utility and transportation services, and perform and complete all work required in connection with **BID # 14MOT26, Firebaugh High School HVAC Units Replacement at Admin/Library and Gym Buildings**. ("Project") in strict accordance with the Contract Documents enumerated in Article 7 below. The Contractor shall be liable to the District for any damages arising as a result of a failure to comply with that obligation, and the Contractor shall not be excused with respect to any failure to so comply by an act or omission of the Architect, Engineer, Inspector, Division of the State Architect (DSA), or representative of any of them, unless such act or omission actually prevents the Contractor from fully complying with the Contract Documents and the Contractor protests, in accordance with the Contract Documents, that the act or omission is preventing the Contractor from fully complying with the Contract Documents. Such protest shall not be effective unless reduced to writing and filed with the District office within seven (7) days of the date of occurrence of such act or omission preventing the Contractor from fully complying with the Contract Documents.

ARTICLE 2 - TIME OF COMPLETION: The District may give notice to proceed within **fifty-five (55) days** of the award of the bid by the District. Once the Contractor has received a notice to proceed, the Contractor shall reach Substantial Completion (See Article 1.1.46) of the **Work within Fifty-Five (55) calendar days** from receipt of the Notice to Proceed. This shall be called Contract Time. (See Article 8.1.1). It is expressly understood that time is of the essence.

Contractor has thoroughly studied the Project and has satisfied itself that the time period for this Project was adequate for the timely and proper completion of the Project within each milestone and within the Contract time. Further, Contractor has included in the analysis of the time required for this Project, items set forth in General Conditions Article 8.3.2.1, Submittal Schedules, Rain Day Float, and Governmental Delay Float.

In the event that the District desires to postpone giving the notice to proceed beyond this ninety (90) day period, it is expressly understood that with reasonable notice to the Contractor, giving the notice to proceed may be postponed by the District. It is further expressly understood by the Contractor, that the Contractor shall not be entitled to any claim of additional compensation as a result of the District's postponement of giving the notice to proceed.

If the Contractor believes that a postponement will cause hardship to it, the Contractor may terminate the Contract with written notice to the District within ten (10) days after receipt by the Contractor of the District's notice of postponement. It is further understood by the Contractor that in the event that the Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay the Contractor for the work performed by the Contractor at the time of notification of postponement. Should the Contractor terminate the Contract as a result of a notice of postponement, the District shall have the authority to award the Contract to the next lowest responsible bidder.

ARTICLE 3 - LIQUIDATED DAMAGES: It being impracticable and infeasible to determine the amount of actual damage, it is agreed that the Contractor will pay the District the sum of **Four Hundred Dollars ($450.00)** per calendar day for each and every day of delay beyond the Contract Time set forth in Article 2 of this Agreement (inclusive of Milestones that are critical on the critical path or noted as critical to the District) as liquidated damages and not as a penalty or forfeiture. In the event Liquidated Damages are not paid, the Contractor further agrees that the District may deduct such amount thereof from any money due or that may become due the Contractor under the Contract (See Article 9.6 and 2.2 of the General Conditions).

ARTICLE 4 - CONTRACT PRICE: The District shall pay to the Contractor as full consideration for the faithful performance of the Contract, subject to any additions or deductions as provided in the Contract Documents, the sum of _____ DOLLARS ($_____), said sum being the total amount stipulated in the Bid Contractor submitted. Payment shall be made as set forth in the General Conditions.

Should any Change Order result in an increase in the Contract Price, the cost of such Change Order shall be agreed to in advance by the Contractor and the District, subject to the monetary limitations set forth in Public Contract Code section 20118.4. In the event that the Contractor proceeds with a Change in work without an agreement between the District and Contractor regarding the cost of a Change Order, the Contractor waives any Claim of additional compensation for such additional work.

ARTICLE 5 - HOLD HARMLESS AGREEMENT: Contractor shall defend, indemnify and hold harmless District, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors from all liabilities, claims, actions, liens, judgments, demands, damages, losses, costs or expenses of any kind arising from death, personal injury, property damage or other cause based or asserted upon any act, omission, or breach connected with or arising from the progress of Work or performance of service under this Agreement or the Contract Documents. As part of this indemnity, Contractor shall protect and defend, at its own expense, District, Architect, Construction Manager, Inspector, the State of California and their officers, employees, agents and independent contractors from any legal action including attorney's fees or other proceeding based upon such act, omission, breach or as otherwise required by this Article.

Furthermore, Contractor agrees to and does hereby defend, indemnify and hold harmless District, Architect, Construction Manager, Inspector, the State of California and their officers, employees, agents and independent contractors from every claim or demand made, and every liability, loss, damage, expense or attorney's fees of any nature whatsoever, which may be incurred by reason of (See Article 3.15).

(a) Liability for (1) death or bodily injury to persons; (2) damage or injury to, loss (including theft), or loss of use of, any property; (3) any failure or alleged failure to comply with any provision of law or the Contract Documents; or (4) any other loss, damage or expense, sustained by any person, firm or corporation or in connection with the Work called for in this Agreement or the Contract Documents, except for liability resulting from the sole or active negligence, or the willful misconduct of the District.

(b) Any bodily injury to or death of persons or damage to property caused by any act, omission or breach of Contractor or any person, firm or corporation employed by Contractor, either directly or by independent contract, including all damages or injury to or death of persons, loss (including theft) or loss of use of any property, sustained by any person, firm or corporation, including the District, arising out of or in any way connected with Work covered by this Agreement or the Contract Documents, whether said injury or damage occurs either on or off District property, but not for any loss, injury, death or damages caused by the sole or active negligence or willful misconduct of the District.

(c) Any dispute between Contractor and Contractor's subcontractors/supplies/ Sureties, including, but not limited to, any failure or alleged failure of the Contractor (or any person hired or employed directly or indirectly by the Contractor) to pay any Subcontractor or Materialman of any tier or any other person employed in connection with the Work and/or filing of any stop notice or mechanic's lien claims.

Contractor, at its own expense, cost, and risk, shall defend any and all claims, actions, suits, or other proceedings that may be brought or instituted against the District, its officers, agents or employees, on account of or founded upon any cause, damage, or injury identified herein Article 5 and shall pay or satisfy any judgment that may be rendered against the District, its officers, agents or employees in any action, suit or other proceedings as a result thereof (See Article 3.15).

The Contractor's and Subcontractors' obligation to defend, indemnify and hold harmless the Owner, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors hereunder shall include, without limitation, any and all claims, damages, and costs for the following: (1) any damages or injury to or death of any person, and damage or injury to, loss (including theft), or loss of use of, any property; (2) breach of any warranty, express or implied; (3) failure of the Contractor or Subcontractors to comply with any applicable governmental law, rule, regulation, or other requirement; (4) products installed in or used in connection with the Work; and (5) any claims of violation of the Americans with Disabilities Act ("ADA").

ARTICLE 6 - PROVISIONS REQUIRED BY LAW: Each and every provision of law and clause required to be inserted in this Contract shall be deemed to be inserted herein, and this Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted or is not inserted correctly, then upon application of either party the Contract shall forthwith be physically amended to make such insertion or correction (See Article 1.2.1.5).

ARTICLE 7 - COMPONENT PARTS OF THE CONTRACT: The Contract entered into by this Agreement consists of the following Contract Documents, all of which are component parts of the Contract as if herein set out in full or attached hereto.

Notice Inviting Bids
Instructions to Bidders
Designation of Subcontractors
Non-Collusion Declaration
Bid Guarantee Form

Bid Bond
Bid Form
Contractor's Certificate Regarding Worker's Compensation
Acknowledgment of Bidding Practices Regarding Indemnity
DVBE Participation Statement and Close-Out Forms
Agreement Form
Payment Bond
Performance Bond
Guarantee
Escrow Agreement for Security Deposit In Lieu of Retention
Workers' Compensation/Employers Liability Endorsement
General Liability Endorsement
Automobile Liability Endorsement
Contractor's Certificate Regarding Drug-Free Workplace
Contractor's Certificate Regarding Alcohol and Tobacco
Contractor's Certificate Regarding Background Checks
General Conditions
Supplementary and Special Conditions
Specifications
All Addenda as Issued
Drawings/Plans
Substitution Request Form
Requirements, Reports and/or Documents in the Project Manual or Other Documents Issued to Bidders

All of the above named Contract Documents are intended to be complementary. Work required by one of the above named Contract Documents and not by others shall be done as if required by all.

ARTICLE 8 - PREVAILING WAGES: Wage rates for this Project shall be in accordance with the general prevailing rate of holiday and overtime work in the locality in which the work is to be performed for each craft, classification, or type of work needed to execute the Contract as determined by the Director of the Department of Industrial Relations (See Article 13.7.2). Copies of schedules of rates so determined by the Director of the Department of Industrial Relations are on file at the administrative office of the District and are also available from the Director of the Department of Industrial Relations. Monitoring and enforcement of the prevailing wage laws and related requirements will be performed by the Labor Commissioner/ Department of Labor Standards Enforcement (DLSE).

The following are hereby referenced and made a part of this Agreement and Contractor stipulates to the provisions contained therein.

1. Chapter 1 of Part 7 of Division 2 of the Labor Code (Section 1720 et seq.)

2. California Code of Regulations, Title 8, Chapter 8, Subchapters 3 through 6 (Section 16000 et seq.)

ARTICLE 9 - RECORD AUDIT: In accordance with Government Code section 8546.7(and Davis Bacon, if applicable) and Article 13.11 of the General Conditions, records of both the District and the Contractor shall be subject to examination and audit for a period of five (5) years after a Final Retention Payment or the Recording of a Notice of Completion, whichever occurs first.

CONTRACTOR'S LICENSE: The Contractor must possess throughout the Project a **C-<u>20</u> Contractor's** License, issued by the State of California, which must be current and in good standing.

IN WITNESS WHEREOF, this Agreement has been duly executed by the above-named parties, on the day and year first above written.

Lynwood Unified School District

By:_____

By: _____
Purchasing and Contracts Director

Dated: _____

CONTRACTOR:

_____
Typed or Printed Name

_____
Title

_____
Signature

_____
Type or Printed Name

_____
Title (Authorized Officers or Agents)

_____
Signature

(CORPORATE SEAL)

PAYMENT BOND

(CALIFORNIA PUBLIC WORK)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the LYNWOOD UNIFIED SCHOOL DISTRICT (sometimes referred to hereinafter as "Obligee") has awarded to _____ (hereinafter designated as the "Principal" or "Contractor"), an agreement for the work described as follows: _____ (hereinafter referred to as the "Public Work"); and

WHEREAS, said Contractor is required to furnish a bond in connection with said Contract, and pursuant to California Civil Code section 9550;

NOW, THEREFORE, We, _____, the undersigned Contractor, as Principal; and _____, a corporation organized and existing under the laws of the State of _____, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the LYNWOOD UNIFIED SCHOOL DISTRICT and to any and all persons, companies, or corporations entitled by law to file stop notices under California Civil Code section 9100, or any person, company, or corporation entitled to make a claim on this bond, in the sum of _____ Dollars ($_____), such sum being not less than one hundred percent (100%) of the total amount payable by said Obligee under the terms of said Contract, for which payment will and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, its heirs, executors, administrators, successors, or assigns, or subcontractor, shall fail to pay any person or persons named in Civil Code section 9100; or fail to pay for any materials, provisions, or other supplies, used in, upon, for, or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Code, with respect to work or labor thereon of any kind; or shall fail to deduct, withhold, and pay over to the Employment Development Department, any amounts required to be deducted, withheld, and paid over by Unemployment Insurance Code section 13020 with respect to work and labor thereon of any kind, then said Surety will pay for the same, in an amount not exceeding the amount herein above set forth, and in the event suit is brought upon this bond, also will pay such reasonable attorneys' fees as shall be fixed by the court, awarded and taxed as provided in California Civil Code section 9550 et seq.

This bond shall inure to the benefit of any person named in Civil Code section 9100 giving such person or his/her assigns a right of action in any suit brought upon this bond.

It is further stipulated and agreed that the Surety of this bond shall not be exonerated or released from the obligation of the bond by any change, extension of time for performance, addition, alteration or modification in, to, or of any contract, plans, or specifications, or agreement pertaining or relating to any scheme or work of improvement herein above described; or pertaining or relating to the furnishing of labor, materials, or equipment therefor; nor by any change or modification of any terms of payment or extension of time for payment pertaining or relating to any scheme or work of improvement herein above described; nor by any rescission or attempted rescission of the contract, agreement or bond; nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond; nor by any fraud practiced by any

person other than the claimant seeking to recover on the bond; and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given; and under no circumstances shall the Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between the Obligee and the Contractor or on the part of any Obligee named in such bond; that the sole condition of recovery shall be that the claimant is a person described in California Civil Code section 9100, and who has not been paid the full amount of his or her claim; and that the Surety does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned.

IN WITNESS WHEREOF this instrument has been duly executed by the Principal and Surety above named, on the_____ day of _____, 20___.

PRINCIPAL/CONTRACTOR:

_____

By: _____

SURETY:

_____

By: _____
Attorney-in-Fact

IMPORTANT: THIS IS A REQUIRED FORM.

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code section 105, and if the work or project is financed, in whole or in part, with federal, grant or loan funds, Surety's name must also appear on the Treasury Department's most current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety)

_____

_____

Telephone:_____

(Name and Address of agent or representative for service for service of process in California)

_____

_____

Telephone: _____

STATE OF CALIFORNIA)
) ss.
COUNTY OF)

On _____, before me, _____, personally appeared _____, who proved on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) as the Attorney-in-Fact of _____ (Surety) and acknowledged to me that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

_____ (SEAL)

Notary Public in and for said State

Commission expires:_____

NOTE: A copy of the power-of-attorney to local representatives of the bonding company must be attached hereto.

PERFORMANCE BOND

(CALIFORNIA PUBLIC WORK)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the LYNWOOD UNIFIED SCHOOL DISTRICT (sometimes referred to hereinafter as "Obligee") has awarded to _____ (hereinafter designated as the "Principal" or "Contractor"), an agreement for the work described as follows: _____ (hereinafter referred to as the "Public Work"); and

WHEREAS, the work to be performed by the Contractor is more particularly set forth in that certain contract for said Public Work dated _____ _____, (hereinafter referred to as the "Contract"), which Contract is incorporated herein by this reference; and

WHEREAS, the Contractor is required by said Contract to perform the terms thereof and to provide a bond both for the performance and guaranty thereof.

NOW, THEREFORE, we, _____, the undersigned Contractor, as Principal, and _____, a corporation organized and existing under the laws of the State of _____, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the LYNWOOD UNIFIED SCHOOL DISTRICT in the sum of _____ Dollars ($_____), said sum being not less than one hundred percent (100%) of the total amount payable by said Obligee under the terms of said Contract, for which amount well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the bounded Contractor, his or her heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in said Contract and any alteration thereof made as therein provided, on his or her part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill guarantees of all materials and workmanship; and indemnify, defend and save harmless the Obligee, its officers and agents, as stipulated in said Contract, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that it shall not be exonerated or released from the obligation of this bond (either by total exoneration or pro tanto) by any change, extension of time, alteration in or addition to the terms of the contract or to the work to be performed there under or the specifications accompanying the same, nor by any change or modification to any terms of payment or extension of time for any payment pertaining or relating to any scheme of work of improvement under the contract. Surety also stipulates and agrees that it shall not be exonerated or released from the obligation of this bond (either by total exoneration or pro tanto) by any overpayment or underpayment by the Obligee that is based upon estimates approved by the Architect. The Surety stipulates and agrees that none of the aforementioned changes, modifications, alterations, additions, extension of time or actions shall in any way affect its obligation on this bond, and it does hereby waive notice of any such changes, modifications, alterations, additions or extension of time to the terms of the contract, or to the work, or the specifications as well notice of any other actions that result in the foregoing.

Whenever Principal shall be, and is declared by the Obligee to be, in default under the Contract, the Surety shall promptly either remedy the default, or shall promptly take over and complete the Contract through its agents or independent contractors, subject to acceptance and approval of such agents or independent contractors by Obligee as hereinafter set forth, in accordance with its terms and conditions and to pay and perform all obligations of Principal under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of Liquidated Damages; or, at Obligee's sole discretion and election, Surety shall obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Obligee of the lowest responsible bidder, arrange for a contract between such bidder and the Obligee and make available as Work progresses (even though there should be a default or succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the "balance of the Contract Price" (as hereinafter defined), and to pay and perform all obligations of Principal under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of Liquidated Damages. The term "balance of the Contract Price," as used in this paragraph, shall mean the total amount payable to Principal by the Obligee under the Contract and any modifications thereto, less the amount previously paid by the Obligee to the Principal, less any withholdings by the Obligee allowed under the Contract. Obligee shall not be required or obligated to accept a tender of a completion contractor from the Surety.

Surety expressly agrees that the Obligee may reject any agent or contractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Principal. Unless otherwise agreed by Obligee, in its sole discretion, Surety shall not utilize Principal in completing the Contract nor shall Surety accept a bid from Principal for completion of the work in the event of default by the Principal.

No final settlement between the Obligee and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

The Surety shall remain responsible and liable for all patent and latent defects that arise out of or relate to the Contractor's failure and/or inability to properly complete the Public Work as required by the Contract and the Contract Documents. The obligation of the Surety hereunder shall continue so long as any obligation of the Contractor remains.

Contractor and Surety agree that if the Obligee is required to engage the services of an attorney in connection with enforcement of the bond, Contractor and Surety shall pay Obligee's reasonable attorneys' fees incurred, with or without suit, in addition to the above sum.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including reasonable attorneys' fees to be fixed by the Court.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20___.

PRINCIPAL/CONTRACTOR:

_____

By: _____

SURETY:

_____

By: _____
Attorney-in-Fact

The rate of premium on this bond is _____ per thousand.

The total amount of premium charged: $_____ (This must be filled in by a corporate surety).

IMPORTANT: THIS IS A REQUIRED FORM.

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code section 105, and if the work or project is financed, in whole or in part, with federal, grant or loan funds, Surety's name must also appear on the Treasury Department's most current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety)

_____

_____

Telephone:_____

(Name and Address of agent or representative for service for service of process in California)

_____

_____

Telephone: _____

STATE OF CALIFORNIA)
) ss.
COUNTY OF)

On _____, before me, _____, personally appeared _____, who proved on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) as the Attorney-in-Fact of _____ (Surety) and acknowledged to me that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

_____ (SEAL)
Notary Public in and for said State

Commission expires:_____

NOTE: A copy of the power-of-attorney to local representatives of the bonding company must be attached hereto.

GUARANTEE

Guarantee for _____. We hereby guarantee that the _____, which we have installed in _____ _____ has been done in accordance with the Contract Documents, including without limitation, the drawings and specifications, and that the work as installed will fulfill the requirements included in the bid documents. The undersigned and its surety agrees to repair or replace any or all such work, together with any other adjacent work, which may be displaced in connection with such replacement, that may prove to be defective in workmanship or material within a period of _____One____ (___1___) year from the date of the Notice of Completion of the above-mentioned structure by the Lynwood Unified School District, ordinary wear and tear and unusual abuse or neglect excepted.

In the event the undersigned or its surety fails to comply with the above-mentioned conditions within a reasonable period of time, as determined by the District, but not later than ten (10) days after being notified in writing by the District or within forty eight (48) hours in the case of an emergency or urgent matter, the undersigned and its surety authorizes the District to proceed to have said defects repaired and made good at the expense of the undersigned and its surety, who will pay the costs and charges therefor upon demand. The undersigned and its surety shall be jointly and severally liable for any costs arising from the District's enforcement of this Guarantee.

Countersigned

_____ _____

(Proper Name) (Proper Name)

By: _____ By: _____

_____ _____

(Signature of Subcontractor or Contractor) (Signature of General Contractor if for Subcontractor)

Representatives to be contacted for service:

Name: _____

Address: _____

_____

Phone Number:_____

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between the Lynwood Unified School District, 11321 Bullis Road, Lynwood, CA 90262, hereinafter called "Owner", and _____ whose address is _____, hereinafter called "Contractor", and _____ whose address is _____, hereinafter called "Escrow Agent".

For the consideration hereinafter set forth, the Owner, Contractor and Escrow Agent agree as follows:

1. Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for Retention earnings required to be withheld by Owner pursuant to the Construction Contract entered into between the Owner and Contractor for ___ _____in the amount of _____ dated _____ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, the Owner shall make payments of the Retention earnings directly to the escrow agent. When Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the Owner within ten (10) days of deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as Retention under the terms of the Contract between the Owner and Contractor. Securities shall be held in the name of the Owner, and shall designate the Contractor as beneficial owner.

2. The Owner shall make progress payments to the Contractor for such funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

3. When the Owner makes payments of Retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until such time as the escrow created under this Contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

4. Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.

5. The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

6. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the Owner to the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

7. The Owner shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven (7) days' written notice to the Escrow Agent from the Owner of the notice of default under Article 2.2, Article 9.6 or Article 14, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.

8. Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payment of fees and charges.

9. Escrow Agent shall rely on the written notifications from the Owner and the Contractor pursuant to Sections (5) to (8), inclusive, of this Agreement and the Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

10. The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of Owner:

_____

Title

_____

Name

_____

Signature

_____

Address

On behalf of Contractor:

_____

Title

_____

Name

_____

Signature

_____

Address

On behalf of Agent:

_____

Title

Name

Signature

Address

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date set forth above.

OWNER	CONTRACTOR
Title	Title
Name	Name
Signature	Signature

INSURANCE DOCUMENTS & ENDORSEMENTS

The following insurance endorsements and documents must be provided to the Lynwood Unified School District within five (5) calendar days after receipt of notification of award. If the apparent low bidder fails to provide the documents required below, the District may award the Contract to the next lowest responsible and responsive bidder or release all bidders, and the bidder's bid security will be forfeited. All insurance provided by the bidder shall fully comply with the requirements set forth in Article 11 of the General Conditions.

1. General Liability Insurance: Certificate of Insurance with all specific insurance coverages set forth in Article 11 of the General Conditions, proper Project description, designation of the District as the Certificate Holder, a statement that the insurance provided is primary to any insurance obtained by the District and minimum of 30 days' cancellation notice. Bidder shall also provide required additional insured endorsement(s) designating all parties required in Article 11 of the General Conditions. The additional insured endorsement shall be an ISO CG 20 10 (04/13), or an ISO CG 20 38 (04/13), or their equivalent as determined by the District in its sole discretion.

Incidents and claims are to be reported to the insurer at:

Attn: _____
(Title) (Department)

_____
(Company)

_____
(Street Address)

_____
(City) (State) (Zip Code)

(_____) _____
(Telephone Number)

2. Workers' Compensation/ Employer's Liability Insurance: Certificate of Workers' Compensation Insurance meeting the coverages and requirements set forth in Article 11 of the General Conditions, minimum of 30 days' cancellation notice, proper Project description, waiver of subrogation and any applicable endorsements.

3. Automobile Liability Insurance: Certificate of Automobile Insurance meeting the coverages and requirements set forth in Article 11 of the General Conditions, minimum 30 days' cancellation notice, any applicable endorsements and a statement that the insurance provided is primary to any insurance obtained by the District.

Incidents and claims are to be reported to the insurer at:

Attn: _____

(Title) (Department)

_____

(Company)

_____

(Street Address)

_____

(City) (State) (Zip Code)

(_____) _____

(Telephone Number)

DATE: _____ _____

CONTRACTOR

By: _____

Signature

DISABLED VETERAN BUSINESS ENTERPRISE (DVBE) CONTRACTOR CLOSE-OUT STATEMENT

The Contractor shall complete this form, as a condition to Final Payment, for purposes of reporting participation by Disabled Veteran Business Enterprises (DVBE) in the Contract for the Project/Bid No. specified below.

Project Name: _____

Bid No.: _____

DSA No.: _____

* Categories of work include: (1) construction services (specify services that DVBE will provide); (2) architecture and engineering services; (3) procurement of materials, supplies and equipment; and (4) information technology.

The undersigned, on behalf of the Contractor, certifies that DVBE participation on the Contract for Bid No. _____equaled _____ dollars ($_____), which represents approximately percent (___%) of the total Contract price including change orders for the Project.

Company: _____

Name:_____

Title: _____

Signature: _____

Date: _____

CONTRACTOR CERTIFICATION REGARDING BACKGROUND CHECKS

(Modernization Projects)

_____ certifies that it has performed one of the following:
[Name of contractor/consultant]

❑ Pursuant to Education Code section 45125.1, Contractor has conducted criminal background checks, through the California Department of Justice, of all employees providing services to the _____ District, pursuant to the contract/purchase order dated _____, and that none have been convicted of serious or violent felonies, as specified in Penal Code sections 1192.7(c) and 667.5(c), respectively.

As further required by Education Code section 45125.1, attached hereto as Attachment "B" is a list of the names of the employees of the undersigned who may come in contact with pupils.

OR

❑ Pursuant to Education Code section 45125.2, Contractor will ensure the safety of pupils by one or more of the following methods:

❑ 1. The installation of a physical barrier at the worksite to limit contact with pupils.

❑ 2. Continual supervision and monitoring of all employees of the entity by an employee of the entity whom the Department of Justice has ascertained has not been convicted of a violent or serious felony.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

Date_____, 20___

_____
[Name of Contractor/Consultant]

_____
By its:_____

ATTACHMENT B

CONTRACTOR CERTIFICATION REGARDING BACKGROUND CHECKS

(INSERT NAMES OF EMPLOYEES WHO MAY COME IN CONTACT WITH PUPILS)

NAME	DATE OF DOJ VERIFICATION

SELF-PERFORMANCE DECLARATION

(To be executed by Bidder and submitted with Bid Proposal)

PROJECT NAME: [Insert School Name] Modernization / New Construction

PROJECT NUMBER: [Insert Project #]

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1. DECLARATION OF COMPLIANCE

The undersigned Bidder hereby certifies that it will perform, with its own organization and with workers under its own direct supervision and control, work amounting to not less than **forty percent (40%)** of the total original Contract Price.

2. CALCULATION OF SELF-PERFORMANCE

To demonstrate compliance, the Bidder shall complete the table below. **"Self-Performed Work" is defined as work involving the Bidder's own labor force, equipment, and overhead, excluding all costs associated with subcontractors.**

Description of Scope / Trade (e.g., Concrete, Framing, Demo)	License Class	Estimated Dollar Value
Scope 1:		$
Scope 2:		$
Scope 3:		$
Scope 4:		$
TOTAL VALUE OF SELF-PERFORMED WORK:		**$**

3. VERIFICATION FORMULA

The District will verify the percentage using the following formula:

$$\frac{\text{Total Value of Self-Performed Work}}{\text{Total Base Bid Amount}} \times 100 = \text{Self-Performance } \%$$

Note: "Specialty Items" as defined in the Special Provisions (e.g., HVAC units, elevators, hazardous waste abatement) may be excluded from the Total Base Bid Amount for the purposes of this calculation at the District's sole discretion.

4. ACKNOWLEDGMENTS

- **Direct Supervision:** The Bidder certifies that "own organization" includes only workers employed and paid directly by the Prime Contractor and utilized on its payroll.
- **Audit Rights:** The District reserves the right to audit certified payroll records (CPRs) and daily sign-in sheets during construction to ensure the 60% threshold is maintained.
- **Substitution:** Any shift in work from "Self-Performed" to "Subcontracted" after the bid award must be approved in writing by the District and must comply with **Public Contract Code § 4107**.

BIDDER NAME: _____

BY (Signature): _____

NAME/TITLE: _____

DATE: _____

CALIFORNIA CONTRACTOR LICENSE #: _____

The "Non-Responsive" Disqualification

1. **Authority: PCC § 20111 & § 20111.5** A bid is "responsive" if it promises to do exactly what the bid documents require. **If the bid documents mandate** a **Self-Performance Declaration showing 40% work, and the bidder either leaves the form blank or submits a list showing they are subcontracting 70% of the work, the district can reject the bid "on its face."**

2. The "Non-Responsible" Disqualification

Authority: PCC § 1103 A bidder is "responsible" if they have the **capacity, experience, and fitness to perform the work.** By setting a 60% threshold, the District is effectively defining "responsibility" as having a large enough in-house workforce to handle the majority of the project.

- **PCC § 1103 Definition:** Defines a "Responsible Bidder" as one who has demonstrated the "quality, fitness, capacity, and experience to satisfactorily perform the public works contract."

BID NO. 14MOT26; FIREBAUGH HIGH SCHOOL HVAC UNITS REPLACEMENT AT ADMININSTRATION/LIBRARY AND GYM BUILDINGS – DSA #03-125870

SPECIAL CONDITIONS

AND

GENERAL CONDITIONS

SPECIAL PROVISIONS/SPECIAL CONDITIONS

1. **Application of Special Conditions**. These Special Conditions form a part of the Contract Documents for the Work generally described as: **ID# 14MOT26 Firebaugh HVAC Units Replacement at Admin and Gym Bldgs. Project - 5246 Martin Luther King Jr Blvd, Lynwood, CA 90262.**

2. **Notice to Proceed; Commencement of Contract Time**. The Contractor shall commence Work and the Contract Time shall be deemed to commence on the date stated in the Notice to Proceed issued by or on behalf of the District to the Contractor. The Contractor shall achieve Substantial Completion of the Work within the Contract Time set forth in the Agreement.

3. **Project Manager**. The Project Manager for the Work is **Susan Trevizo.**

4. **Liquidated Damages**.
   4.1. Liquidated Damages Scheduled. If the Contractor does not achieve Completion of the Work, the Contractor shall be assessed Liquidated Damages in the amount of Four hundred fifty Dollars ($450.00) per day, until completion of the work is achieved.

5. **Hours and Days of Work at the Site**.
   5.1 Noise Ordinance Work Hours/Days. In addition to requirements established in other portions of the Contract Documents and by the Laws, the Contractor's performance of Work at the Site shall comply with and limited by roofing activity limitations and/or roofing noise limitations established by ordinance, rule or regulation by the City of Lynwood. The foregoing notwithstanding, the Contractor is solely responsible for: (i)determining municipal ordinances, rules or regulations relating to roofing activities/ roofing noise limitations; and (ii)compliance with such ordinances, rules or regulations without adjustment of the Contract Price or the Contract Time.
   The City of Lynwood Noise Ordinance is enforced between 7:00pm - 7:00am.

   5.2 Limitations on Work Hours/Days.
   Work activities at the Site will be limited or prohibited on days (i) devoted to student testing or when testing of students may be adversely affected by Work activities at the Site; or (ii)when other special events or functions are scheduled. The contractor shall familiarize itself with District activities at the Site to avoid Work activity interferences or disturbances to such District activities. The Contractor's roofing schedule shall take into account District activities which limit or preclude Work activities at the Site.

6. **Insurance Coverage Limits**.
   6.1 Contractor Insurance. Pursuant to Article 6 of the General Conditions, the Contractor shall obtain and maintain the following insurance coverages with minimum coverage limits as set forth below:

Policy of Insurance	Minimum Coverage Limits
Commercial General Liability Insurance	Per Occurrence: $1,000,000.00
	Aggregate: $2,000,000.00
Workers Compensation	In accordance with the Laws
Employers Liability	One Million Dollars ($1,000,000)
Contractor's Pollution Liability	Per Occurrence: N/A
	Aggregate: N/A

6.2 Subcontractor Insurance. Pursuant to Article 6 of the General Conditions, each Subcontractor shall obtain and maintain the following insurance coverages with minimum coverage limits as set forth below:

Policy of Insurance	Minimum Coverage Limits
Commercial General Liability Insurance	Per Occurrence: **$1,000,000.00**
	Aggregate: **$ 2,000,000.00**
Workers Compensation	In accordance with the Laws
Employers Liability	One Million Dollars ($1,000,000)
Contractor's Pollution Liability (As applicable, if Subcontractor's work involves SWPPP, the removal of asbestos, the removal/replacement of underground tanks or the removal of toxic chemicals and substances)	Per Occurrence: N/A.
	Aggregate: N/A

6.3 Additional Insured. "The Lynwood Unified School District, its Board, officers, agents and employees are named additional insured." The wording indicated above must be included in all ISOforms.

7. **District Provided Temporary Utilities**. Pursuant to Article 4.3.4 of the General Conditions, during the Contractor's performance of the Work, the District will provide the Contractor with utility services. If the District provides any utility services for use by the Contractor: (i) the District may discontinue, limit or condition use of such services by a Contractor if the District reasonably determines that the Contractor has wasted such utilities, and (ii) the District shall not be liable to the Contractor, nor shall the Contract Time or the Contract Price be increased if any District provided temporary utility service is discontinued or disrupted for any reason other than the District's non-payment of undisputed utility charges. If provided by the District, the Contractor may use the temporary electrical power and domestic potable water service in connection with the Work provided that: (i) the District may discontinue, limit or condition use of such services by a Contractor if the District reasonably determines that the Contractor has wasted such utilities, and (ii) the District shall not be liable to the Contractor, nor shall the Contract Time or the Contract Price be increased if any District provided temporary utility service is discontinued or disrupted for any reason other than the District's non-payment of undisputed utility charges. Notwithstanding any provision of the Contract Documents to the contrary, the Contractor shall not use District provided water supply in connection with any earthwork or grading operations; water supply for earthwork or grading operations shall be obtained by the Contractor, without adjustment of the Contract Time or the Contract Price, from an offsite source or mobile water delivery service. Further, notwithstanding the District providing a point of connection for the Contractor's telephone/data service at the Site, the Contractor is solely responsible for the payment of utility service charges therefor.

8. **Critical Submittals**. Critical Submittals are Contractor prepared shop drawings, product data or samples that are critical to the achieving Substantial Completion of the Work within the Contract Time. Critical Submittals may include, but not be limited to, steel shop drawings, concrete precast panel shop drawings, DSA required Deferred Approval submittals, or any submittals in conjunction with roofing activities within the first thirty (30) days of the roofing Schedule or long lead fabrication/procurement item requiring Submittals. Notwithstanding any provision of the Contract Documents to the contrary, Critical Submittals must be submitted by the Contractor within thirty
(30) calendar days of the commencement date for the Work as set forth in the Notice to Proceed issued by or on behalf of the District. If there is a dispute or disagreement between the District and the Contractor as to whether any Submittal is deemed a Critical

Submittal, the determination of the Project Manager and the Architect shall be final and binding on the Contractor and the District.

9. **Contractor Personnel Parking**. Personnel of the Contractor, Subcontractors and others performing Work at the Site will be allowed to park, with a valid District parking permit, in the parking spaces at a location designated by the District. Parking permit charges, if any, shall be borne and paid by the Contractor without adjustment of the Contract Price. The foregoing notwithstanding, the extent or location of parking for such personnel may be modified by the District as reasonably necessary to facilitate and accommodate necessary parking for the District's activities and functions in and about the Site. Neither the Contract Price nor the Contract Time shall be adjusted as a result of any such District

10. **Site Perimeter Fencing**. As required by the Contract Documents, the Contractor shall install a site perimeter fence with fabric privacy screen. All fencing shall be securely and safely installed, and shall include proper access gates, supports, braces and shall not be a tripping or safety hazard to the public. Safety barricades, flags, reflectors, cones or other safety equipment shall be provided for a safe and orderly demarcation of the Contractor's areas of control and the public's interaction with it. Provide reflectors on fencing in driveway or parking lot areas to ensure fencing is highly visible to vehicles at night. Without adjustment of the Contract Time or the Contract Price, the Contractor shall maintain all fencing in good condition and clear of any graffiti or damage. The Contractor shall remove or relocate such fencing as necessary to assure staff/student/public safety while maintaining a positive isolation barrier between the public and the Site, and as directed by the District or the Roofing Manager, and shall perform all repairs as needed after removal and as caused by the fence or any other damages as a result of Contractor's use of the Site or adjacent areas.

11. **Project Signage and Barricades**. In addition to safety signage required per General Conditions 4.9.3, the Contractor shall furnish and install and maintain additional project signage as set forth in the Contract Documents. Contractor shall provide temporary utilities, barricade, enclosures, temporary signs, storage units, chutes, hoist, scaffolds railing, and other facilities or services as required. Prior to Application for Final Payment, Contractor shall remove all temporary facilities, utilities and equipment from the site. Contractor shall clean, repair and/or reconstruct, as necessary, the site so as to restore it to the condition as found at the point of Notice to Proceed.

12. **Mark-Ups on Changes to the Work**. In the event of Changes to the Work, pursuant to Article 9 of the General Conditions, the mark-up for all overhead (including home and field office overhead), general conditions costs and profit, shall not exceed the percentage of allowable direct actual costs for performance of the Change as set forth below.

12.1 Subcontractor Performed Changes. For the portion of any Change performed by Subcontractors of any tier, the percentage mark-up on allowable actual direct labor and materials costs incurred by all Subcontractors, the foregoing mark-up shall not be applied to the Subcontractor mark-up.

12.2 Blank Intentionally

12.3 Bond Premium Costs. A bond premium expense in an amount equal to the lesser of the Contractor's actual bond premium rate of the total actual direct costs of labor and materials (before Subcontractor and Contractor mark-ups) will be allowed.

12.4 Exclusions from Mark-Up of Actual Costs. Mark-ups on the actual cost of materials/equipment incorporated into a Change or for purchase/rental of roofing Equipment shall not be applied to any portion of such costs which are for sales, use or other taxes arising out of the purchase of materials/equipment and/or for purchase/rental of roofing Equipment.

13. Rain Days. Pursuant to Article 7.4.1 of the General Conditions, the number of Rainy Days(including inclement weather) for this Contract is **7days.** Include a critical path activity entitled "Remaining Inclement Weather Days" on the initial Contract Schedule. This activity shall have an initial duration of seven (7) work days and shall be the last activity in the schedule prior to the activity entitled "Completion". All predecessor activities must pass through the Inclement Weather day's activity. The contractor shall request use of the Inclement Weather Day when a critical path activity has been delayed due to inclement weather. This request must occur in the same month as the inclement weather delay and must be approved by a Change Order. Inclement Weather Delays to non-critical activities will note considered. If, at completion, there are inclement weather days still remaining, the Completion date shall not be adjusted. If at or near completion, additional inclement weather days are required, the completion date shall be adjusted accordingly by processing a Change Order for a non-compensable time extension.

14. Blank Intentionally

15. Waste and Recycling Report Log. As required by the Laws, the District collects data and submits reports of all waste and recycling streams. As a part of this effort, the District requires the Contractor to submit reports on all roofing generated waste, including soils exports, roofing generated debris, and all general roofing debris ("Waste/Recycling Report").

SPECIAL PROVISIONS/SPECIAL CONDITIONS

SP-1. Contractor License Requirement – C-20 Prime Contractor

A. The Contractor submitting a bid for this Project shall possess, at the time of bid and throughout the duration of the Contract, a valid and active California Contractor's License classification C-20 (Warm-Air Heating, Ventilating, and Air-Conditioning Contractor) issued by the California Contractors State License Board (CSLB).

B. The C-20 licensed Contractor shall serve as the Prime Contractor and shall be fully responsible for the execution, coordination, and completion of all Work under this Contract, including but not limited to mechanical, electrical, controls, and associated scope required for proper installation and operation of the HVAC systems.

C. All work outside the scope of the C-20 license, including but not limited to electrical work, controls/EMS systems, or other specialty trades, shall be performed by properly licensed subcontractors holding the appropriate California Contractor's License classifications (e.g., C-10 Electrical Contractor), in full compliance with applicable laws and regulations.

D. The Contractor shall ensure that all subcontractors are duly licensed, qualified, and experienced in their respective trades. Upon request by the District or Construction Manager, the Contractor shall provide documentation verifying all required licenses prior to commencement of Work.

E. Failure to maintain the required license classification or to comply with these requirements may result in rejection of the bid, suspension of Work, or termination of the Contract, at no additional cost to the District.

SP-2. $95,000 Allowance

The Contractor shall include an allowance in the amount of **Ninety-Five Thousand Dollars ($95,000)** as part of the Base Bid. This allowance is established to address **unforeseen conditions that may arise during construction** and that could not be reasonably identified during the design phase or pre-bid investigations.

The purpose of this allowance is to provide the **DISTRICT with a controlled mechanism to address field conditions promptly**, minimize delays to the construction schedule, and maintain continuity of the work without requiring extended change order processing for minor or time-sensitive issues.

Unforeseen conditions may include, but are not limited to:

- Structural modifications required to support new equipment, not indicated in the Contract Documents.
- Electrical system upgrades or adjustments necessary to accommodate new equipment loads, not indicated in the Contract Documents.
- Mechanical system modifications, including ductwork adjustments or transitions, not indicated in the Contract Documents.
- Roof repairs or modifications identified during removal or installation of equipment, not indicated in the Contract Documents.
- Conflicts with existing utilities or building systems not indicated in the Contract Documents.
- Hazardous materials or environmental conditions discovered during construction.
- Existing field conditions differing from the information shown in the Contract Documents.

All work performed under this allowance **shall be authorized in writing by the DISTRICT prior to commencement**. The Contractor shall not proceed with allowance-related work without written direction from the DISTRICT or the DISTRICT's Construction Manager.

The allowance shall be **clearly identified as a separate line item in the Contractor's Schedule of Values (SOV)**. The Contractor shall provide appropriate documentation for any work performed under this allowance, including labor, materials, equipment, and associated costs, as requested by the DISTRICT.

Any portion of the allowance **not used during the course of the Project shall be returned to the DISTRICT through a deductive Change Order at project closeout**.

SP-3. Owner-Furnished HVAC Equipment (OFCI)

The HVAC units are Owner-Furnished and Contractor-Installed (OFCI) and are currently stored at the following locations:

1. 11300 Wright Rd, Lynwood, CA 90262

2. 2850 East Del Amo Boulevard, Carson, California 90221.

a. The Contractor shall be fully responsible for all handling, loading, transportation, delivery, unloading, staging, protection, and installation of the HVAC equipment at the Project Site.

b. If applicable, the Owner may furnish prefabricated mechanical roof curbs included in the approved procurement submittal. The Contractor shall coordinate with the manufacturer or prefabricator to receive the prefabricated curbs, including all handling, transportation, delivery, unloading, staging, and installation necessary for completion of the Work.

The Contractor shall verify curb dimensions, equipment compatibility, and installation requirements prior to installation. Any additional materials, accessories, or field modifications required for proper installation shall be provided by the Contractor at no additional cost to the Owner.

SP-4. Commissioning and Operational Follow-Up for Owner-Furnished Equipment (OFCI)

A. The Contractor shall install and place into operation all Owner-Furnished, Contractor-Installed (OFCI) equipment in accordance with the manufacturer's requirements, installation instructions, and the Contract Documents.

B. Following installation and start-up, the Contractor shall coordinate with the equipment manufacturer and/or authorized representative to verify that the equipment is properly installed, operational, and performing as intended.

C. The Contractor shall provide operational follow-up and coordination with the manufacturer for a period of not less than thirty (45) days after start-up, or until the equipment is confirmed to be fully functional and accepted by the District, whichever occurs later.

During this period, the Contractor shall:

1. Monitor system operation and verify proper performance of the installed equipment.
2. Respond to operational issues or malfunctions related to installation or system integration.
3. Coordinate with the manufacturer or authorized service representative to troubleshoot and resolve equipment performance issues.
4. Perform necessary adjustments, balancing, calibration, and start-up corrections required for proper system operation.

5. Provide qualified personnel to support testing, commissioning, and verification activities as required by the District or Construction Manager.

SP-5. Pre-Bid Site Logistics Coordination.

If site logistics coordination or access arrangements are required prior to the bid, the Contractor shall coordinate with the District's Construction Manager.

All pre-bid logistics coordination requests, including site access, staging considerations, or delivery constraints, shall be directed to:

Wagdy Mosaad
Project Manager
Phone: 949.406.7301

SP-6. Project Time Schedule.

A. The Contractor shall **coordinate the sequence of Work activities, manpower, materials, and equipment** necessary to complete the Work within the time durations identified below. All Work shall be performed in accordance with the **approved construction schedule** and coordinated with the **District and Construction Manager** to minimize disruption to school operations.

B. The Contractor shall prepare and submit a **detailed construction schedule within ten (10) calendar days of the Notice to Proceed**, incorporating the milestone sequence shown in the **attached Construction Milestone Schedule**, and demonstrating completion of the Work within the required **Contract Time**.

Phase / Milestone	Activity	From	To
1	Pre-Construction Meeting	May 7, 2026	May 7, 2026
2	Notice to Proceed Issued	May 25, 2026	May 25, 2026
3	Contractor Submit HVAC Submittals (equipment, controls, electrical, shop drawings, ,cranes ……etc.)	May 26, 2026	June 10, 2026
4	Mobilization & Site Setup	June 15, 2026	June 18, 2026
5	Demolition of Existing HVAC Equipment	June 19, 2026	June 26, 2026
6	HVAC Equipment Installation and Associated Electrical Work	June 27, 2026	July 20, 2026
7	Testing, Start-Up, and System Verification	July 21, 2026	August 3, 2026
8	Punch List-Closeout& Project Completion	August 4, 2026	August 7, 2026

C. **Failure to complete the Work within the required durations** shall be subject to the **Contract Time requirements and Liquidated Damages provisions** identified in the Contract Documents.

SP-7. EMS System Installation – Certified Contractor Requirement

A. The Contractor shall utilize a **manufacturer-certified and authorized subcontractor** for the installation, programming, and commissioning of the Energy Management System (EMS). The

subcontractor shall be currently certified by the EMS manufacturer and regularly engaged in the installation of the specified EMS platform.

B. The certified subcontractor shall have **demonstrated experience with the specified EMS system and similar K-12 or commercial installations** and shall be authorized by the manufacturer to perform system configuration, integration, and commissioning services.
C. All EMS installation work, including controls wiring, device installation, system programming, network integration, testing, and commissioning, shall be performed under the supervision of the certified subcontractor in accordance with the manufacturer's requirements and recommendations.
D. Upon request, the Contractor shall **provide documentation verifying the subcontractor's certification and authorization by the manufacturer** prior to commencement of EMS work.

Failure to utilize a certified and authorized subcontractor may result in rejection of the work and shall be corrected at no additional cost to the DISTRICT.

SP-8. Cooperation. Contract shall recognize that the District Administration will remain in operation during progress of the work. Contractor shall cooperate at all times with the administration to provide minimum inconvenience to the District's employees and visitors on the site. Adequate notice shall be given to the administration of any interruption of utilities or services required for the proper completion of the work. Contractor shall notify District 72 hours in advance of interrupting any utilities including heating, Air Conditioning, Plumbing and Electrical.

SP-9. Weekly Meeting. Contractor shall attend and participate in weekly coordination meetings with the District, Design Team and other parties associated with the Work, as required. The purpose of these meetings is to review the status of the Work, identify and resolve issues, and coordinate upcoming activities and pending tasks.

SP-10. Protection.

A. All existing improvements adjacent to work shall be protected from damage. Contractor shall exercise all required precautions necessary to protect the District's property from damage. The contractor shall be responsible for and bear all expenses for any damage to District's property occasioned on account of operations under the contract. Contractor shall provide temporary gates and barricades to protect work areas. Such protection shall remain in place during the extent of this Contract, or

SP-11. Special Clean-Up. When Contractor is required to perform work in rooms or areas after regular working hours, in these rooms or areas, the following cleaning shall be done upon completion of work each day:

A. Remove debris and unused materials on a daily basis.
B. Contractor shall cleanup all debris, resulting from roofing and roof deck removal, that may fall onto ceiling(s) below. Building P has the original ceiling and a suspended ceiling beneath it.
C. Contractor shall perform all work so as to avoid unnecessary inconvenience on the School Site Facilities Buildings, staff and students.
D. The Contractor shall clean all soils and debris from construction vehicles and cover both earth and debris loads prior to leaving the project site.
E. Cleanup and dust palliation shall be performed as required and all rubbish and debris shall be disposed of frequently off district property.
F. The contractor is responsible of dust control on and off the Project site. When work operations produce dust the Project site and/or streets shall be sprinkled with water to minimize the generation of dust.

SP-12. Work Site Designation for Staging Areas, Temporary Facilities and Parking:

A. The Contractor shall be responsible for installing and maintaining barricades to protect workers and the public.

B. Contractor shall provide temporary utilities, barricades, enclosures, temporary signs, storage units, chutes, hoist, scaffolds, railing, and other facilities or services as required.

C. Prior to Application for Final Payment, the Contractor shall remove all temporary facilities, utilities and equipment from the site. Contractor shall clean, repair and/or reconstruct, as necessary, the site so as to restore it to the condition as found at the point of Notice to Proceed.

D. Contractor shall not use the District's trash containers.

E. Contractor's trash bins are to be covered with lids and locked to prevent vandalism

F. All contractor and subcontractors shall park off site unless otherwise approved by the District

G. Contractor shall not block or obstruct intersections, traffic lanes, driveways or parking lot entrances.

H. When moving equipment, Contractor to provide a Spotter and backup warning devices.

I. Temporary fencing shall be erected around construction and work areas or as directed by the district.

J. Contractor shall provide Construction traffic control including flagmen as necessary during deliveries. Contractor to provide flagmen and other traffic control personnel at any other location as may be deemed necessary by the construction manager-for safety of all students, staff and visitors. Contractor will follow a predetermined route for access and exit to the campus and shall direct/park all haul vehicles as directed by the Program Management Team.

SP-13. Badges for Construction Related Work.

A. The Contractor shall provide identification Badges and vest for all employees and subcontractors working in the project.

B. Identification shall include the Name of Construction Company, the Name of the Project, Name and Picture of person and title.

C. Guest Budges shall include the Name of the Construction Company, the Name of the Project and the word "Guest"

SP-14. Security. In addition to the security requirements set forth elsewhere in the Contract Documents, the Contractor must adhere to the following:

A. Locked Door Policy. No building, room or site gate shall be left unsecured for any period of time when not occupied by the Contractor and/or after the Contractor's daily work hours.

B. Parking Facilities. Any movement of vehicles on district property, including trucks and passenger vehicles for construction purposes, shall be approved by district authorities. Parking in parking lots, if required, shall be arranged in advance with proper authorities.

SP-15. Protection ofPersons and Property

A. The Contractor shall be responsible for all damages to persons or property that occur as a result of its fault or negligence in connection with the prosecution of this Contract and shall take all necessary measures and be responsible for the proper care and protection of all materials delivered to and from the site and work performed until completion and final acceptance by the District. All work shall be solely at the Contractor's risk, with the exception of damage to the work caused by "acts of God" as defined in Public Contract Code Section 7105(b)(2).

B. Contractor shall take, and require all subcontractors to take, all necessary precautions for the safety of workers on the site and shall comply with all applicable federal, state, local and other safety laws, standards, orders, rules, regulations, and building codes to prevent accidents or injury to persons on, about, or adjacent to premises where Work is being performed and to provide a safe and healthful

place of employment. In addition to meeting all requirements of OSHA, Cal-OSHA, state, and local codes. Contractor shall furnish, erect and properly maintain at all times, as directed by the District or Project Manager or required by conditions and progress of work, all necessary safety devices, safeguards, construction canopies, signs, audible devices for protection of the blind, safety rails, belts and nets, barriers, lights, and watchmen for protection of workers and the public, and shall post danger signs warning against hazards created by such features in the course of construction.

C. The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

D. Requirements forExisting Sites.

Contractor shall (unless waived by the District in writing):

a. When performing Roofing on existing sites, become informed and take into specific account the maturity of the students on the site. Contractor shall perform Work which may interfere with school routine before or after school hours, enclose the working area with a substantial barricade, and arrange Work to cause a minimum amount of inconvenience and danger to students and faculty in their regular school activities. The Contractor shall comply with specifications and directives of the District regarding the timing of certain construction activities in order to avoid unnecessary interference with school functioning.

b. Provide substantial barricades around any shrubs or trees indicated to be preserved.

c. Deliver materials to building area over route designated by the District through the

    i. Project Manager.

d. Take preventive measures to minimize objectionable dust, noise, or other

    i. Disturbances.

e. Take preventive measures to prevent disturbing or covering any surveymarkers,

    i. Monuments or other devices marking property boundaries or corners. If such markers are disturbed by accident, they shall be replaced by an approved land surveyor or civil engineer and all maps and records required therefrom shall be filed with the County and local authorities, at no cost to the District. All filing and plan check fees shall be paid by the Contractor.

f. Provide to the District on request, the Contractor's written safety program and

    i. Safety plan for each site.

g. Covering and Cleaning: Cover and protect the District's property within the project limits, as required to prevent soiling or damage by dust, dirt, water, fumes, or otherwise as deemed necessary by the District or Project Manager.

h. Repair or replace any damage to existing structures, improvements and equipment caused by Contractor's operations, at Contractor's expense.

i. Repair or replace damaged work with new materials, to restore the damaged areas and surfaces

j.

equal to and matching, the conditions which existed prior to damage, or at start of the work of this Contract, at no cost to the District.

k. Prior to start of work, Contractor, District and Construction Manager shall conduct an on-site inspection of existing conditions and the Contractor shall clearly document and report damaged conditions to the District. Items not reported to the District at time of inspection will be assumed to be the result of Contractor's work, whose responsibility it will be to repair or replace those items. Contractors shall include, along with his report to the District, digital, dated photographs. SP-8.Working Hours.

Work hours are subject to standard construction hours per the Noise Ordinance set by the City of Lynwood. Contractor is expected to work days and times as necessary, to complete the work within the specified time of completion without any additional cost to the District**.**

Firebaugh High School

Legal and Local Holidays: Friday, June 19, 2026 and Saturday, July 4, 2026
Summer Recess TBD " Summer school will be held at the site."
7:30 – 4:30 P.M. Monday - Friday

Other Important Dates:
First Day of School: Wednesday, August 12, 2026
Teacher work day: Monday, August 10, and Tuesday, August 11, 2026

0.8.1 During performance of this Contract, the school site will remain occupied at various buildings on campus. Work outside buildings will be permitted during work hours, provided that they are not disruptive and safe access to and exits from buildings are maintained while students and office personal are on site temporary barriers shall be erected around construction and work areas.

0.8.2 If any work performed during business hours (7:00 a.m. to 4:30 p.m.) is found to be disruptive (as determined by the District), the contractor will be required to re-schedule subject work to occur during non-working hours and or weekends without any additional cost to the District.

0.8.2 Alternate shift is defined as work performed after business hours. Business hours are from 7:00 AM to 4:30 PM, Monday through Friday.

0.8.3 Work hours are subject to standard construction hours per the Noise Ordinance set by the City of Lynwood. Contractor is expected to work weekends and holidays, as necessary, to complete the work within the specified time of completion without any additional cost to the District. At the District's request, Contractor shall modify the working hours for the Contract without adjustment of the Contract Time or Contract Price. (Reference General Conditions Article 8.2).

SP-16. Operational Constraints

A. The Contractor is required to furnish all materials, labor, equipment, power, and maintenance to provide temporary power during power shutdowns. During the remodel and renovation project and for taps into existing feeders, shutdown of feeders and services may be necessary. These shutdowns may have to occur after normal working hours and extended schedules and or weekend or holidays due to district activities to prevent interruption to critical operations. All

shutdowns must be carefully coordinated with the district. Temporary power shall be provided to maintain services to critical loads such as computers, freezers, coolers, fire alarm, security, etc.

SP-17. Work Sequence
Conduct work smoothly without interfering or delaying work under this contract or other contacts of other parties with the District.

SP-18. District's Project Manager
The District's Project Manager is Susan Trevizo.

SP-19. Award of Contract.
The district reserves the right to reject any or all bids, or to waive any irregularities or informalities in any bids or in the bidding.

SP-20. Number of Contract Documents.
The number of executed copies of the **Agreement is Two (2),** the number of **Performance Bonds and Payment Bonds** required is **Two (2).**

SP-21. Site Examination. Before bidding on this work, the Contractor shall make a careful examination of the premises and existing equipment and services. By act of submitting a proposal from the work indicated in this contract, the Contractor shall be deemed to have made such study and examination, and that he is familiar with and accepts all conditions at the site.

Part 1 GENERAL

1.01. MEASUREMENTS ANDDRAWINGS

A. Drawings or measurements included with Contract Documents are for the convenience of the Contractor. The Contractor shall **field verify all existing dimensions, elevations, clearances, and site conditions prior to fabrication, procurement of materials, or commencement of Work**. Any discrepancies between Contract Documents and field conditions shall be reported to the District Project Manager for clarification prior to proceeding with the Work.

1.02. SUBMITTAL REQUIREMENTS

A. Prior to mobilization and commencement of construction activities, the Contractor shall submit the following documents for review and approval by the District and Construction Manager:
   - Material Submittals and Product Data
   - Baseline Construction Schedule
   - Construction Site Logistics Plan
   - Schedule of Values (SOV)
   - Shop Drawings as required by the Contract Documents

Submittals shall be provided in accordance with the Contract Documents and shall be reviewed prior to fabrication, delivery, or installation of materials.

1.03. CONSTRUCTION LOGISTICS PLAN

A. The Contractor shall submit a Site Logistics Plan for review and approval by the District and Construction Manager prior to mobilization. The plan shall include, but not be limited to:
   - Construction fencing limits
   - Contractor parking locations

- Access and delivery routes
- Equipment staging and laydown areas
- Temporary facilities (including portable toilets and storage units)
- Emergency access routes

No construction staging shall occur until the logistics plan has been approved.

1.04. CODES AND ORDINANCES

A. All work covered by these Contract Documents is to be done in full accord with national, state and local codes, ordinances, and safety regulations as are in effect at time of Contract award.

1.05. CONTRACTOR'S PROPERTY

A. Purchaser's insurance policy covers work and equipment in place in the building and approved and accepted by Consultant and Owner. All material and equipment stored on site and not actually installed is not included in Owner's policy and such material and equipment shall be covered under Contractor's Property Damage and/or theft Insurance.

1.06. LABOR LAWS

A. Contractor and its Subcontractors performing work under this Contract shall comply with applicable provisions of all federal, state, and local labor laws.

1.07. ASSIGNMENTS OF PAYMENT

A. Neither party to this Contract shall assign Contract or sublet it as a whole without written consent of the other party, nor shall Contractor assign any payment due him or to become due to him hereunder without previous written consent of Owner.

1.10. ADVERTISING

A. Advertising privileges will be retained by Owner. It is the duty of the Contractor to keep premises free from posters, signs, decorations, etc., unless specifically approved by Owner.

1.11. PROTECTION OF WORK AND PROPERTY

A. Contractor shall continuously maintain adequate protection of all its work from damage and shall protect Owner property from injury or loss arising out of this Contract. Contractor shall make good any such damages, injury, or loss, except such as may be directly caused by agents, subcontractors, or employees of the Owner. Design of barricades in public areas shall be approved by Owner prior to fabrication and installation.

B. If Contract includes work which would be disruptive during normal business operations or would be dangerous to building occupants, said work shall be performed during hours as building management dictates. Examples of such work include, without limitation, saw cutting of concrete, jack hammering, welding, metal cutting, pouring concrete, erecting steel or hoisting equipment over occupied portions of the building, or performing tests. Contractor shall perform such work during off-hours and shall include all costs in its quotation.

C. Contractor shall install a suitable protective covering on all finished floors (whether marble, wood, carpet or other) in areas where work is being performed. No material handling equipment shall be

permitted on or over finished floors unless said floors have been protected in a manner approved by building management.

D. Portable fire extinguishers shall be provided throughout the Contractor's area of work and shall be placed so as to be accessible at all times. Extinguishers shall be multi-purpose dry chemical type, provided on a basis of one 2A-20BC rated unit for each 3,000 square feet of floorarea. Extinguishers to remain the property of the Contractor.

E. Contractor shall at all times maintain work areas so that all portions are accessible to fire department personnel and apparatus. Fire hydrants and fire department connections to building sprinkler systems must be kept free from obstruction at all times.

F. Contractor shall keep the noise level below 80 dB level during normal building hours. When it is necessary to produce noise above this level, the Contractor shall advise building management of such needs and times will be scheduled as directed. The Contractor shall anticipate and schedule excessive noise-generating procedures and include allowance for the same in its quotation and schedule.

1.12. HAZARDOUS MATERIALS COMPLIANCE

A. If hazardous materials including asbestos-containing materials (ACM) or lead-containing materials are identified within the Project limits, the Contractor shall comply with all applicable federal, state, and local regulations including but not limited to:
   1. **SCAQMD Rule 1403**
   2. **Cal/OSHA regulations**
   3. **EPA and DOT waste handling requirements**

The Contractor shall submit all required notifications, waste manifests, transport records, and disposal documentation to the District within **five (5) working days of material transport or disposal**.

1.13. ASBESTOS DISTURBANCE PROCEDURES

A. In the event asbestos-containing materials are unexpectedly disturbed or damaged, the Contractor shall:
   1. Immediately stop Work in the affected area.
   2. Isolate and secure the area.
   3. Notify the District Project Manager and Environmental Consultant immediately.
   4. Resume work only after written authorization is provided by the District.

1.14. WORK AREA SAFETY CONTROLS

A. The **Contractor** shall maintain a **safe work environment** for **students, staff, visitors, and District personnel** at all times during the performance of the **Work**. All **construction areas** shall be clearly identified and secured with **temporary fencing, barricades, cones, caution tape, warning signs, or other protective measures** necessary to prevent **unauthorized access**.

B. The **Contractor** shall maintain **safe pedestrian access** at all times and shall not block or obstruct **means of egress, fire lanes, or accessible paths of travel**. When **construction activities** occur near **occupied areas or pedestrian circulation**, the Contractor shall implement appropriate **safety controls**, including **spotters, temporary barriers, or suspension of work operations** until the area is clear.

C. All **Work activities** shall be **coordinated with the District and Construction Manager** to minimize disruption to **school operations**. The **Contractor** shall immediately correct any **unsafe condition** identified by the **District or Construction Manager**. Failure to maintain proper **safety controls** may result in **suspension of Work** until adequate measures are implemented, without adjustment to the **Contract Time** or **Contract Price**.

D. The **Contractor shall submit a Project Safety Plan** to the **District and Construction Manager** for **review and acceptance prior to mobilization**. The Safety Plan shall outline the **procedures, controls, and responsibilities** necessary to maintain a **safe work environment**, including but not limited to **site safety protocols, worker protection measures, hazard communication, emergency procedures, and compliance with applicable OSHA and Cal/OSHA regulations**.

1.15. ACCIDENT REPORTS

A. In the event of accidents of any kind, the Contractor shall furnish the Owner with copies of all accident reports. Reports shall be sent without delay and at same time that they are forwarded to any other parties.

1.16. STORAGE OF MATERIALS

A. Contractor shall confine storage of materials on job site to limits approved by Owner and shall not unnecessarily encumber premises or overload any portion of building with materials to a greater extent than structure design load.

1.17. MATERIALS AND WORKMANSHIP

A. All materials and equipment furnished shall be new and best quality. Installation shall be accurate, workmanlike, and subject to approval of the Project Manager. All materials and equipment provided shall conform to regulations of enforcement bodies having jurisdiction. Contractor shall furnish material samples for approval.

1.18. SUPERVISION

A. Contractor shall assign a competent Project Manager, superintendent, and on-site foreman for a project satisfactory to the Owner and Project Manager. Such persons shall represent Contractor and all instructions given to them shall be binding as if given to Contractor.

1.19. ROUTINE BUSINESS

A. After award of Contract all business relating to required work shall be transacted through Project Manager unless otherwise directed.

1.20. LIENS AND AFFIDAVITS

A. Neither final payment nor any part of billing retention shall become due until Contractor shall deliver to Owner a complete release of all liens arising out of this Contract, or receipts marked paid in full in lieu thereof. In addition, the Contractor shall furnish an affidavit to the Owner that so far as he has knowledge or information, releases or receipts include all labor and materials for which a lien could be filed. If any lien remains unsatisfied after all payments are made by Owner, Contractor shall refund to Owner all monies the latter may be compelled to pay in discharging such a lien, including all costs and reasonable attorney's fees.

1.21. CLAIMS FOR EXTRACOST

A. Contractor claims for extra cost due to additions or changes to required work shall be submitted to Project Manager in writing within a reasonable time after such additions or changes identified or are

requested and, in any event, before proceeding with required work. No such claim shall be valid unless so made. Maximum charge for additions/changes to work shall be Contractor cost +10% handling fee + 15% for overhead and profit. Contractors' cost shall be verifiable from actual supplier invoices, purchase orders, time tickets, etc. Contractor shall make no additions, changes alterations, or omissions, or perform extra work, without receipt of written authorization of Owner.

1.22. DELAYS AND EXTENSION OF TIME

A. If Contractor progress is delayed due to acts of Owner, Project Manager, acts of other Contractors, fire, floods, strikes, or other casualties beyond the control or without fault or negligence of Contractor, time for completion of the work shall be extended for a period determined byOwner/

Project Manager to be equivalent to time of such delay. Contractor must notify the Project Manager, in writing, of such delay within 48 hours after delay commences or no extension of time will be granted. Extension of time without written request within said period on one or more occasions shall not be deemed a waiver of provisions of this article.

1.23. PROGRESS OFWORK

A. Upon award, verbally or in writing, Contractor shall reconfirm in writing the starting and completion schedule including equipment delivery dates based upon the information submitted on its bid form.

B. Contractor shall submit, in writing, monthly reports with payment request, including current equipment delivery dates and anticipated completion dates for individual units and groups of units.

1.24. PROJECT CLOSEOUT REQUIREMENTS

A. Prior to final acceptance of the Work, the Contractor shall:
   1. Coordinate a final punch list walk with the District and Construction Manager.
   2. Correct all identified punch list items.
   3. Submit As-Built Drawings, O&M manuals, warranties, and closeout documentation.

No final payment shall be processed until all closeout documentation has been accepted by the District.

1.25. Final Cleaning and Project Closeout.

Prior to final acceptance of the Work, the Contractor shall perform a thorough final cleaning of all construction areas and surfaces impacted by the Work. The Contractor shall submit As-Built Drawings, Operation and Maintenance manuals, warranties, and other closeout documentation as required by the Contract Documents and shall complete all punch list items.

1.26. WARRANTY REQUIREMENTS

A. The Contractor shall provide a **minimum one-year warranty for workmanship and materials** furnished under this Contract unless a longer warranty period is specified elsewhere in the Contract Documents.

[END OF SECTION]

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9.5.2.1. Allowable Labor Costs.
9.5.2.1.1. Limitation to Field Labor and Prevailing Wage Rates.
9.5.2.1.2. Fringe Benefits, Payroll Taxes and Labor Burdens
9.5.2.1.3. Excluded Labor Costs.
9.5.2.2. Materials and Equipment.
9.5.2.3. Construction Equipment.
9.5.3. Mark-up on Costs of Changes to the Work
9.5.4. Contractor Maintenance of Records
9.6. Adjustment to Contract Time
9.7. Addition or Deletion of Alternate BidItem(s)
9.8. Change Orders
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10.2. District's Coordination of Separate Contractors
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12.1.2. Limitations Upon Inspections
12.2. Uncovering of Work
12.3. Rejection of Work
12.4. Correction of Defective or Non-Conforming Work
12.5. Removal of Non-Conforming or Defective Work
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12.7. Acceptance of Defective or Non-Conforming Work

13. WARRANTIES
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13.2. Warranty Work
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14.2. Adjustments to Contract Price and Contract Time

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15.1.1. District's Right to Terminate
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16.1. Governing Law
16.2. Marginal Headings; Capitalized Headings; Interpretation

16.3. Successors and Assigns
16.4. Cumulative Rights and Remedies; No Waiver.
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16.6. No Assignment by Contractor.
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16.8. Independent Contractor Status.
16.9. Notices.
16.10. Disputes; Continuation of Work.
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16.11.3. Claim Defined.
16.11.3.1. Claim Documentation.
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16.11.4. Meet and Confer.
16.11.4.1. Meet and Confer Demand.
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16.11.5.1. Contractor Initiation.
16.11.5.2. Mediator Selection.
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16.11.5.4. Mediation Costs.
16.11.5.5. Post-Mediation Disputed Claims.
16.11.5.6. Waiver.
16.11.6. Payments of Undisputed Claims.
16.11.7. Subcontractor Claims.
16.11.7.1. Subcontractor Claim Submittal.
16.11.7.2. Contractor Certification of Subcontractor Claim.
16.11.7.3. District Review of Subcontractor Claim.
16.11.7.4. Disputed Subcontractor Claims.
16.11.8. Government Code Claim Requirements.
16.11.9. Section 20104.4 Dispute Resolution Procedures; Claims Less Than$375,000.
16.11.10. Binding Arbitration of Claims Exceeding $375,000.
16.11.10.1. AAA Arbitration.
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16.11.10.6. Limitation on Arbitrator.
16.11.10.7. Inapplicability to Bid Bond.
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16.15. Provisions Required by Law Deemed Inserted.
16.16. Days.
16.17. Prohibited Interests.
16.18. Entire Agreement.

GENERAL CONDITIONS

1. DEFINITIONS; GENERAL

1.1. District. The "District" refers to **Lynwood Unified School District** and unless otherwise stated, includes, the District's authorized representatives, including the Project Manager, if a Project Manager is designated, the District's Board of Education and the District's officers, employees, agents and representatives.

1.2. Contractor. The Contractor is the person or entity identified as such in the Agreement; references to "Contractor" include the Contractor's authorized representative.

1.3. Architect. The Architect is the person or entity identified as such in the Agreement; references to the "Architect" include the Architect's authorized representative

1.4. The Work. The "Work" is the Construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment or services provided or to be provided by the Contractor to fulfill the Contractor's obligations under the Contract Documents. The Work may constitute the whole or a part of the Project.

1.5. The Project. The Project is the total Construction of which the Work performed by the Contractor under the Contract Documents which may be the whole or a part of the Project and which may include Construction by the District or by separate contractors.

1.6. Surety. The Surety is the person or entity that executes, as surety, the Contractor's Labor and Material Payment Bond and/or Performance Bond.

1.7. Subcontractors; Sub-Subcontractors. A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work. "Subcontractor" does not include a separate contractor to the District or subcontractors of any separate contractor. A Sub-Subcontractor is a person or entity of any tier, who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site.

1.8. Material Supplier. A Material Supplier is any person or entity who only furnishes materials, equipment or supplies for the Work without fabricating, installing or consuming them in the Work.

1.9. Drawings and Specifications. The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing generally, the design, location and dimensions of the Work and may include without limitation, plans, elevations, sections, details, schedules or diagrams. The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, Construction systems, standards, criteria and workmanship for the Work and related services. The Drawings and Specifications are intended to delineate and describe the Work and its component parts so as to permit skilled and competent contractors to bid upon the Work and prosecute the same to completion. Large scale Drawings shall take precedence over smaller scale Drawings as to shape and details of Construction. Figured dimensions on Drawings shall govern, but Work which is not dimensioned shall be as directed or required by field conditions. Specifications shall govern as to materials, workmanship and installation procedures.

1.10. Special Conditions; Supplemental Conditions. Special Conditions and Supplemental Conditions, if any, are part of the Contract Documents, setting forth provisions and requirements applicable to the Work which is not otherwise established in the Contract Documents.

1.11. Contract Documents. The Contract Documents consist of the Agreement between the District and the Contractor, Conditions of the Contract (whether General, Special, Supplemental or otherwise),

Drawings, Specifications, including addenda issued prior to execution of the Agreement and any other documents listed in the Agreement. The Contract Documents shall include modifications issued after execution of the Agreement. The Contract Documents form the Contract for Construction.

1.12. Intent and Correlation of Contract Documents

1.12.1. Work of the Contract Documents. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable therefrom as being necessary to produce the intended results. Organization of the Specifications into divisions, sections or articles, and the arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. Where any portion of the Contract Documents is silent and information appears elsewhere in the Contract Documents, such other portions of the Contract Documents shall control.

1.12.2. Technical Terms. Unless otherwise stated in the Contract Documents, words or terms which have well-known technical or Construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.12.3. Conflict in Contract Documents. Conflicts, inconsistencies or ambiguities in the Contract Documents shall be resolved by the Architect in accordance with Article 3.1.9 of the General Conditions; where conflicts or inconsistencies arise between the Drawings and the Specifications, in resolving such conflicts or inconsistencies, the Architect will be governed generally by the following standards: the Drawings are intended to describe matters relating to placement, type, quantity and the like; the Specifications are intended to describe matters relating to quality, materials, compositions, manufacturers and the like. In the event of conflicting provisions between the Contract Documents that were not called to the attention of the Architect or District prior to award of the Contract, the Architect shall determine which of the conflicting requirements shall govern. In general, the Architect shall use as a guideline the more stringent requirements or the more expensive material unless, in the opinion of the Architect, other requirements are more appropriate. The decision of the Architect is final and shall not be further reviewable or appealable by arbitration or litigation. If conflicts exist between portions of the Contract Documents regarding the quality of any item, product, equipment or materials, unless otherwise directed or authorized by the District, the Contractor shall provide the item, product, equipment or material of the highest or more stringent quality. If conflicts, inconsistencies, or ambiguities exist between the Special Conditions and the General Conditions, the Special Condition shall prevail.

1.12.4. Drawing Dimensions. Dimensions given on the Drawings take precedence over scaled measurements, and large-scale Drawings take precedence over small scale Drawings. Figures take precedence over scaled dimensions. Scaling of dimensions is performed at the Contractor's own risk.

1.13. Shop Drawings; Samples; Product Data ("Submittals"). Shop Drawings are diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-Subcontractor, manufacturer, Material Supplier, or distributor to illustrate some portion of the Work. Samples are physical examples of materials, equipment or workmanship forming a part of, or to be incorporated into the Work. Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the

Contractor to illustrate materials or equipment for some portion of the Work. Shop Drawings, Samples and Product Data prepared or furnished by the Contractor or any of its Subcontractors or Material Suppliers are collectively referred to as "Submittals".

1.14. Division of State Architect ("DSA"). DSA is the California Division of the State Architect including without limitation the DSA's Office of Construction Services, Office of Design Services and the Office of Regulatory Services; references to the DSA in the Contract Documents shall mean the DSA, its offices and its authorized employees and agents. The authority of the DSA over the Work and the performance thereof shall be as set forth in the Contract Documents and Title 24 of the California Code of Regulations.

1.15. Project Inspector. The Project Inspector is the individual designated and employed by the District in accordance with the requirements of Title 24 of the California Code of Regulations. The Project Inspector shall be authorized to act on behalf of the District as provided for in the Contract Documents and the Laws, including without limitation, in Title 24 of the California Code of Regulations, as the same may be amended from time to time.

1.16. Contract Document Terms. The term "provide" means "provide complete in place" or to "furnish and install" such items. Unless otherwise provided in the Contract Documents, the terms "approved;" "directed;" "satisfactory;" "accepted;" "acceptable;" "proper;" "required;" "necessary" and "equal" shall mean as approved, directed, satisfactory, accepted, acceptable, proper, required, necessary and equal, in the opinion of the Architect. The term "typical" as used in the Drawings shall require the installation or furnishing of such item(s) of the Work designated as "typical" in all other areas similarly marked as "typical" or which are reasonably inferable as a "typical" condition; Work in such other areas shall conform to that shown as "typical" or as reasonably inferable therefrom.

1.17. Contractor's Superintendent. The Contractor's Superintendent is the individual employed by the Contractor whose principal responsibility shall be the supervision and coordination of the Work; the Contractor's Superintendent shall not perform routine construction labor.

1.18. Record Drawings. The Record Drawings are a set of the Drawings marked by the Contractor during the performance of the Work to indicate completely and accurately the actual as-built condition of the Work. The Record Drawings shall be sufficient for a capable and qualified draftsman to modify the Drawings to reflect and indicate the Work actually in place at Final Completion of the Work.

1.19. Project Manager, The Project Manager is an independent contractor retained by the District and is authorized and empowered to act on behalf of the District as set forth in the Contract Documents. The District reserves the right to remove or replace the Project Manager prior to completion of the Work without adjustment of the Contract Price or the Contract Time or otherwise affect, limit or restrict Contractor's obligations hereunder. The Project Manager for the Work is identified in the Special Conditions. If no Project Manager is designated for the Work, references to the Project Manager in the Contract Documents are deemed deleted and replaced with references to the Architect, Project Inspector and/or the District as applicable and appropriate in the context of usage.

1.20. Construction Equipment. "Construction Equipment" is equipment utilized for the performance of any portion of the Work, but which is not incorporated into the Work.

1.21. Site. The Site is the physical area designated in the Contract Documents for Contractor's performance, Construction and installation of the Work.

1.22. Field Clarifications. A written or graphic document consisting of supplementary details, instructions or information issued on behalf of the District which clarifies or supplements the Contract Documents and which becomes a part of the Contract Documents upon issuance. Field Clarifications do not constitute an adjustment of the Contract Time or the Contract Price, unless a Change Order relating to a Field Clarification is authorized and issued under the Contract Documents. The Contractor's obligations under the Contract Documents include performance and completion of Work noted in Field Clarifications.

1.23. Defective or Non-Conforming Work. Defective or non-conforming Work is any Work which is unsatisfactory, faulty or deficient by: (i) not conforming to the requirements of the Contract Documents; (ii) not conforming to the standards of workmanship of the applicable trade or industry; (iii) not being incompliance with the requirements of any inspection, reference, standard, test, or approval required by the Contract Documents; or (iv) damage occurring prior to Final Completion of all of the Work. The Contractor shall promptly correct, repair or replace any portion of the Work subject to a Notice of Non-Compliance.

1.24. Delivery. The term "delivery" used in conjunction with any equipment, materials or other items to be incorporated into the Work shall mean the unloading and storage in a protected condition pending incorporation into the Work.

1.25. Notice to Proceed. The Notice to Proceed is the written notice issued by or on behalf of the District to the Contractor authorizing the Contractor to proceed with commencement of the Work and which establishes the date for commencement of the Contract Time.

1.26. Progress Reports; Verified Reports. Progress Reports are written reports prepared by the Contractor and its Subcontractors on a daily basis. Daily Progress Reports shall be completed and submitted to the District not later than 9:00 A.M. of the ensuing business day. Daily Progress Reports must include: (i) the number of labor and supervising personnel at the Site; (ii) the labor/work classification of each laborer; (iii) a detailed description of the Work in progress and completed; (iv) weather/environmental conditions; and (v) problems encountered with a potential impact to the Contract Time or the Contract Price. Verified Reports are periodic written reports prepared by the Contractor and submitted to the DSA; Verified Reports shall be in such form and content as required by the applicable provisions of Title 24 of the California Code of Regulations. A material obligation of the Contractor is the preparation of complete and accurate Progress Reports, if required, and Verified Reports as well as the timely submission of the same.

1.27. Laws. The term "Laws" as used in the Contract Documents shall refer to all laws, ordinances, codes, rules and/or regulations promulgated by any governmental or quasi-governmental agency with jurisdiction over any portion of the Work and which apply to any portion of the Work. Laws refer to those enacted and in effect as of the execution of the Agreement, amendments thereto occurring during the performance of the Work and subsequently enacted Laws that take effect during the performance of the Work. No adjustment of the Contract Time or the Contract Price shall be allowed for the Contractor's compliance with the Laws.

1.28. Construction Change Directive. A Construction Change Directive is a written instrument issued by or on behalf of the District to the Contractor directing a Change to the Work prior to the Contractor and District reaching full agreement on an adjustment of the Contract Time and/or Contract Price on account of such Change. A material obligation of the Contractor is timely performance of Work noted in a Construction Change Directive. A Construction Change Directive may be effectuated by issuance of a Field Order or similar instruction by the Architect when authorized by the District.

2. DISTRICT

2.1. Information Required of the District.

2.1.1. Surveys; Site Information. Information, if any, concerning physical characteristics of the Site, including without limitation, surveys, soils reports, and utility locations, to be provided by the District are set forth in the Contract Documents. Information not provided by the District or necessary information in addition to that provided by the District concerning physical characteristics of the Site which is required shall be obtained by Contractor without adjustment to the Contract Price or the Contract Time.

2.1.2. Permits; Fees. Except as otherwise provided in the Contract Documents, the District shall secure and pay for necessary permits, approvals, easements, assessments and charges required for Construction, use or occupancy of permanent structures or for permanent changes in existing facilities which are part of the Work. If permits or other authorization of public authorities with jurisdiction over any portion of the Work are designated as the responsibility of the Contractor under the Contract Documents, the Contractor shall be solely responsible for obtaining the same. The cost of such permits or authorizations and any costs incurred by the Contractor in obtaining such permits shall be included within the Contract Price, unless otherwise expressly provided for in the Contract Documents. Notwithstanding any provision of the Contract Documents the contrary, without adjustment of the Contract Time or the Contract Price, the Contractor shall pay for and obtain the following as necessary for completion or performance of the Work: (i) temporary Fire Department permits for temporary material handling, storage and/or dispensing facilities for fuel, oil, liquid or gasses; (ii) Air Quality Management District permits relating to temporary facilities used in connection with any portion of the Work; and (iii) City of Lynwood business license.

2.1.3. Drawings and Specifications. Without adjustment of the Contract Time or the Contract Price, the Contractor shall be responsible for completing all Work and other obligations of the Contractor under the Contract Documents. At the commencement of the Work, the District, through the Project Manager or the Architect, will provide the Contractor with the number of sets of the Contract Documents indicated in the Special Conditions. The Contractor may obtain additional sets of the Contract Documents at the cost of reproduction.

2.1.4. Furnishing of Information. Information or services to be provided by the District under the Contract Documents shall be furnished by the District with reasonable promptness to avoid delay in the orderly progress of the Work. Information about existing conditions furnished by the District under the Contract Documents is obtained from sources believed to be reliable, but the District neither guarantees nor warrants that such information is complete and accurate. The Contractor shall verify all information provided by the District. To the extent that the Contract Documents depict existing conditions on or about the Site, or the Work involves the renovation, removal or remodeling of existing improvements or the Work involves any tie-in or other connection with any existing improvements, the conditions and/or existing improvements depicted in the Contract Documents are as they are believed to exist. Contractor shall bear the risk of any variations between conditions or existing improvements depicted in the Contract Documents and those conditions or existing improvements actually encountered in the performance of the Work. Subject to the provisions of Article 4.2.3, the existence of any variations between conditions or existing improvements depicted in the Contract Documents and those actually encountered in the performance of the Work shall not result in any District liability therefor, nor shall any such variations result in an adjustment of the Contract Time or the Contract Price.

2.2. District's Right to Stop the Work. In addition to the District's right to suspend the Work or terminate the Contract pursuant to the Contract Documents, the District, may, by written order, direct the Contractor to stop the Work, or any portion thereof, until the cause for such stop work order has been eliminated if the Contractor: (i) fails to correct Work which is not in conformity and in accordance with the requirements of the Contract Documents, or (ii) otherwise fails to carry out the Work in conformity and accordance with the Contract Documents. The right of the District to stop the Work hereunder shall not be deemed a duty on the part of the District to exercise such right for the benefit of the Contractor or any other person or entity, nor shall the District's exercise of such right waive or limit the exercise of any other right or remedy of the District under the Contract Documents or at law. If Work is stopped or suspended pursuant to the foregoing, the Contract Price and the Contract Time are not subject to adjustment. The Construction Manager shall be authorized to exercise and enforce the rights of the District under this Article 2.2.

2.3. Partial Occupancy or Use.

2.3.1. District's Right to Partial Occupancy. The District may occupy or use any completed or partially completed portion of the Work, provided that: (i) the District has obtained the consent of, or is otherwise authorized by, public authorities with jurisdiction thereof, to so occupy or use such portion of the Work and (ii) the District and the Contractor have accepted, in writing, the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, utilities, damage to the Work, insurance and the period for correction of the Work and commencement of warranties required by the Contract Documents for such portion of the Work partially used or occupied by the District. If the Contractor and the District are unable to agree upon the matters set forth in (ii) above, the District may nevertheless use or occupy any portion of the Work, with the responsibility for such matters subject to resolution in accordance with the Contract Documents. Immediately prior to such partial occupancy or use of the Work, or portions thereof, the District, the Project Inspector, the Contractor, Project Manager, and the Architect shall jointly inspect the portions of the Work to be occupied or to be used to determine and record the condition of the Work. Repairs, replacements or other corrective action noted in such inspection shall be promptly performed and completed by the Contractor so that the portion of the Work to be occupied or used by the District is in conformity with the requirements of the Contract Documents and the District's occupancy or use thereof is not impaired. The District's use or occupancy of the Work or portions thereof pursuant to the preceding shall not be deemed "completion" of the Work as that term is used in Public Contract Code §7107.

2.3.2. No Acceptance of Defective or Nonconforming Work. Unless otherwise expressly agreed upon by the District and the Contractor, the District's partial occupancy or use of the Work or any portion thereof, shall not constitute the District's acceptance of Defective or Non-Conforming Work. Notwithstanding the District's partial occupancy of the Work, the Contractor shall promptly correct, repair or replace all Defective or Non-Conforming Work in areas partially occupied by the District.

2.4. Project Inspector.

2.4.1. Authority of Project Inspector. In addition to the authority and rights of the Project Inspector as provided for elsewhere in the Contract Documents and/or the Laws, all of the Work shall be performed under the observation of the Project Inspector. The foregoing notwithstanding, the Contractor shall not perform any Work deviating from the Contract Documents solely on the basis of direction by the Project Inspector; such deviations shall be deemed defective or non-conforming Work subject to correction or replacement at the sole cost of the Contractor and without adjustment of the Contract Time. The performance of the duties of the Project

Inspector shall not relieve or limit the Contractor's performance of its obligations under the Contract Documents.

2.4.2. Limitations on Project Inspector. The Project Inspector does not have authority to interpret the Contract Documents or to modify the Work depicted in the Contract Documents. The Project Inspector has no authority relative to the content or scope of the Contractor's safety plan/program. The Contractor shall not perform any Work deviating from the Contract Documents solely on the basis of direction by the Project Inspector; such deviations shall be deemed Defective or Non-Conforming Work subject to correction or replacement at the sole cost of the Contractor and without adjustment of the Contract Time.

2.4.3. Contractor Access for Project Inspector. The Contractor shall provide the Project Inspectorwith access to all parts of the Work at any time, wherever located and whether partially or completely fabricated, manufactured, furnished or installed.

2.4.4. Contractor and District Responsibilities for Costs and Fees of Project Inspector. The District is responsible only for payment of the fees of the Project Inspector for standard eight (8) hour work days Mondays through Fridays, excepting holiday days ("Project Inspector Standard Workdays"). Unless the District directs the Contractor to perform Work exceeding the Project Inspector Standard Workdays, for any Work performed by the Contractor outside the Project Inspector Standard Workdays, the Contractor shall be responsible for payment of Project Inspector fees for Project Inspector services relating to such Work. All services provided by the Project Inspector exceeding an eight (8) hour workday Mondays through Fridays and/or the first eight (8) hours on Saturdays shall be at one and one-half (1½) times the Project Inspector's basic hourly rate. All hours of service provided by the Project Inspector in excess of eight (8) hours on Saturdays, and all hours of service provided by the District's Inspector on holiday days or on Sundays are at two (2) times the Project Inspector's basic hourly rate. Fees for services provided by the Project Inspector beyond the Project Inspector Standard Workdays set forth above are the sole responsibility of the Contractor; the District may deduct such fees from the Contract Price then or thereafter due the Contractor.

3. PROJECT MANAGER AND CONTRACT ADMINISTRATION

3.1. Administration of the Contract. The Architect and the Project Manager will provide administration of the Contract as described in the Contract Documents, and will be the District's representatives during Construction until the time that Final Payment is due the Contractor under the Contract Documents. The Architect and Project Manager will advise and consult with the District and the Project Inspector with respect to the administration of the Contract and the Work. The Architect and the Project Manager are authorized to act on behalf of the District to the extent provided for in the Contract Documents; and shall have the responsibilities and powers established by the Laws, including Title 24 of the California Code of Regulations. The Project Manager is authorized to stop the Work whenever deemed necessary in the sole discretion of the Project Manager to ensure that the Work is completed in accordance with the Contract Documents.

3.2. Project Manager Periodic Site Observations. The Project Manager will visit the Site at intervals appropriate to the stage of Construction to become generally familiar with the progress and quality of the completed Work and to determine, in general, if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. The Architect will not be required to make exhaustive or continuous Site inspections to check quality or quantity of the Work. On the basis of Site observations as an architect, the Architect will keep the District informed of the progress of the Work, and will endeavor to guard the District against defects and deficiencies in the Work.

3.3. Contractor Responsibility for Construction Means, Methods and Sequences. Neither the District, Project Inspector, Architect or the Project Manager will have control over or charge of and be responsible for Construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, these being solely the Contractor's responsibility. The District, Architect, Project Inspector or Project Manager have no control over or charge of and are not responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

3.4. Review of Applications for Payment. The Architect, Project Inspector and Project Manager will each review the Contractor's Applications for Progress Payments and for Final Payment, evaluate the extent of Work performed and certify to the District the amount properly due the Contractor on such Application for Payment.

3.5. Rejection of Work. The Architect and/or Project Manager are authorized to reject Work which is defective or does not conform to the requirements of the Contract Documents. Whenever the Architect, Project Inspector or the Project Manager consider it necessary or advisable, for implementation of the intent of the Contract Documents, they shall have authority to require additional inspections or testing of the Work, whether or not such Work is fabricated, installed or completed. The authority of the Architect, Project Inspector or the Project Manager or a decision made in good faith by the Architect, Project Inspector or Project Manager to exercise or not to exercise such authority shall not give rise to a duty or responsibility to the Contractor, Subcontractors, Material Suppliers, their agents or employees, or other persons performing portions of the Work.

3.6. Submittals.

3.6.1. Processing of Submittals. Submittals required by the Contract Documents shall be prepared by or on behalf of the Contractor in accordance with the requirements of the Contract Documents. If the District retains a Project Manager for the Work, Submittals shall be transmitted by the Contractor to the Project Manager for distribution by the Project Manager to the Architect and the District. Upon completion of the Architect's review of a Submittal, the Project Manager shall transmit the reviewed Submittal to the Contractor for the Contractor's distribution to its Subcontractor(s) and other affected parties. If the District does not retain a Project Manager for the Work, Submittals shall be submitted by the Contractor to the Architect or such other party designated in the Contract Documents or by the Architect for review and processing.

3.6.2. Architect's Review. The Architect will review and approve or take other appropriate action upon the Contractor's Submittals, but only for the limited purpose of checking for general conformance with information given and the design concept expressed in the Contract Documents. Review of Submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's Submittals shall not relieve the Contractor of its obligations under the Contract Documents. The Architect's review of Submittals shall not constitute approval of safety measures, programs or precautions or, unless otherwise specifically stated by the Architect, of any Construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item in a Submittal shall not indicate approval of an assembly of which the item is a component with the Submittal(s) required and relating to such assembly have been reviewed by the Architect.

3.6.3. Time for Architect's Review. The Architect's review of Submittals will be conducted promptly so as not to delay or hinder the progress of the Work or the activities of the Contractor, the District or the District's separate contractors while allowing sufficient time, in the Architect's reasonable professional judgment, to permit adequate review of Submittals. The foregoing

notwithstanding, the Architect's review and return of Submittals will conform with the time limits and other conditions, if any, set forth in the Specifications or the Submittal Schedule if the Submittal Schedule is required by other provisions of the Contract Documents.

3.7. Changes to the Work; Change Orders. The District will prepare Change Orders, and with the written approval of the District, may authorize minor Changes in the Work which do not result in adjustment of the Contract Time or the Contract Price. The District is authorized to issue Field Clarifications and Field Orders.

3.8. Completion. The Architect, Project Inspector and the Project Manager will conduct observations to determine the date(s) of Substantial Completion and the date(s) of Final Completion. The Project Manager will receive from the Contractor and forward to the District, for the District's review and records, written warranties and related documents or other items required by the Contract Documents upon close-out of the Work which are assembled by the Contractor. If a Project Manager is not retained for the Work, the Contractor shall submit such items to the Architect for forwarding to the District. The Architect, Project Inspector and Project Manager will verify that the Contractor has complied with all requirements of the Contract Documents and is entitled to receipt of Final Payment.

3.9. Interpretation of Contract Documents; Architect as Initial Arbiter of Disputes. The Architect will interpret and decide matters concerning the requirements of the Contract Documents on written request of either the District or the Contractor. The Architect's response to such requests will be made with reasonable promptness and within the time limits agreed upon, if any. If no agreement is reached establishing the time for the Architect's review and response to requests, the Architect shall be afforded a ten (10) calendar day period after receipt of such request to review and respond thereto. Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both the District and the Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith. The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents. If there is any disagreement, dispute or other matter in controversy between the District and the Contractor, in addition to other requirements established by the Contract Documents or by law, the submission of the same to the Architect for its decision shall be a condition precedent to initiation of dispute resolution procedures.

3.10. Request for Information. If the Contractor encounters any condition which the Contractor believes, in good faith and with reasonable basis, is the result of an ambiguity, conflict, error or omission in the Contract Documents (collectively "the Conditions"), it shall be affirmative obligation of the Contractor to timely notify the Architect and the Project Manager, in writing, of the Conditions encountered and to request an interpretation from the Architect necessary to address and resolve any such Conditions before proceeding with any portion of the Work affected or which may be affected by such Conditions. If the Contractor fails to timely notify the Architect and the Project Manager in writing of any Conditions encountered and the Contractor proceeds to perform any portion of the Work containing or affected by such Conditions the Contractor shall bear all costs associated with or required to correct, remove, or otherwise remedy any portion of the Work affected thereby without adjustment of the Contract Time or the Contract Price. In requesting an interpretation of the Architect to address and resolve any Conditions the Contractor shall act with promptness in submitting any such written request so as to allow the Architect a reasonable period of time to review, evaluate and respond to any such request, taking into account the current status of the progress and completion of the Work and the actual or potential impact of any such Conditions upon the completion of the Work within the Contract Time. The Contract Time shall not be subject

to adjustment in the event that the Contractor shall fail to timely request information from the Architect. If the Architect reasonably determines that any of Contractor's request(s) for information: (i) does not reflect adequate or competent supervision or coordination by the Contractor or any Subcontractor; or (ii) does not reflect the Contractor's adequate or competent knowledge of the requirements of the Work or the Contract Documents; or (iii) is not justified for any other reason, Contractor shall be liable to the District for all costs incurred by the District associated with the processing, reviewing, evaluating and responding to any such request for interpretation, including without limitation, fees of the Project Manager and the Architect as well as any other design consultant to the Architect or the District. If the Contractor requests further clarification of a response to a Request for Interpretation, the subsequent Request for Interpretation shall be identified by the same number as the initial Request for Information followed by an alphabetical letter, beginning with the letter "A". In responding to any of Contractor's Request(s) for Interpretation, the Architect shall, in the response, indicate if the Architect has made the determination pursuant to the preceding sentence and, if so, the amount of costs to be borne by the Contractor for the processing, review, evaluation and response to the Request for Interpretation. Thereafter, the District is authorized to deduct such amount from any portion of the Contract Price then or thereafter due the Contractor.

3.11. Communications. All communications regarding the Work, the performance thereof or the Contract Documents shall be in writing; verbal communications shall be reduced to writing. Communications between the Contractor and the District or the Architect shall be through the Project Manager, if one is retained for the Work. Communications between the Contractor and the District's separate contractors, if any, shall be through the District. All written communications between the Contractor and any Subcontractor, Material Supplier or others directly or indirectly engaged by the Contractor to perform or provide any portion of the Work shall be available to the District, the Project Manager and the Architect for review, inspection and reproduction as may be requested from time to time. Failure or refusal of the Contractor to permit the District, the Project Manager or Architect to review, inspect or reproduce such written communications may be deemed a default of Contractor hereunder. The District reserves the right to implement a computerized data logging and storage system for communications relating to the Work. The Contractor's use and access to such data logging systems will be as established by the District and the Project Manager. The Contractor's use of the data logging system will be without charge or expense to the Contractor; provided, however, the Contract Time and the Contract Price shall not be subject to adjustment on account of the use of the data logging system or training of the Contractor's personnel on the use and functions of the data logging system.

3.12. Termination of Architect or Project Manager; Substitute Architect or Project Manager. In case of termination of employment of the Architect or the Project Manager, the District shall appoint a substitute architect or substitute Project manager whose status under the Contract Documents shall be that of the Architect or the Project Manager, as applicable.

4. THE CONTRACTOR

4.1. Contractor Review of Contract Documents.

4.1.1. Examination of Contract Documents. The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the District pursuant to the Contract Documents and shall at once report to the Architect and the Project Manager any errors, inconsistencies or omissions discovered. If the Contractor performs any Work knowing, or with reasonable diligence should have known that, it involves an error, inconsistency or omission in the Contract Documents without prior notice to the Architect and the Project Manager of the same, the Contractor shall assume full responsibility for such performance and

shall bear all attributable costs for correction of the same.

4.1.2. Field Measurements. Prior to commencement of the Work, or portions thereof, the Contractor shall take field measurements and verify field conditions at the Site and shall carefully compare such field measurements and conditions and other information known to the Contractor with information provided in the Contract Documents. Errors, inconsistencies or omissions discovered shall be reported in writing to the Architect, Project Inspector and the Project Manager at once.

4.1.3. Dimensions; Layouts and Field Engineering. Unless otherwise expressly provided, dimensions indicated in the Drawings are intended for reference only. The Drawings are intended to be diagrammatic and schematic in nature; the Contractor shall be solely responsible for coordinating the Work of the Contract Documents. All field engineering required for laying out the Work and establishing grades for earthwork operations shall be by the Contractor at its expense. Any field engineering or other engineering to be provided or performed by the Contractor under the Contract Documents and required or necessary for the proper execution or installation of the Work shall be provided and performed by an engineer duly registered under the laws of the State of California in the engineering discipline for such portion of the Work. Upon commencement of any item of the Work, the Contractor is responsible for dimensions of such item of Work and related Work; without adjustment of the Contract Time or Contract Price, the Contractor is responsible for making component parts of the Work fit together properly. Before ordering any materials or doing any Work, the Contractor and each Subcontractor shall verify measurements and shall be responsible for the correctness and accuracy of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and the dimensions indicated on the Drawings. Any difference between actual field dimensions and those indicated in the Drawings shall be submitted to the Architect for resolution before proceeding with the Work in affected areas.

4.1.4. Work in Accordance with Contract Documents. The Contractor shall perform all of the Work in strict conformity with the Contract Documents and approved Submittals.

4.2. Site Investigation; Subsurface Conditions.

4.2.1. Contractor Investigation. The Contractor shall be responsible for, and by executing the Agreement acknowledges, that it has carefully examined the Site and has taken all steps it deems reasonably necessary to ascertain all conditions which may affect the Work, or the cost thereof, including, without limitation, conditions bearing upon transportation, disposal, handling or storage of materials; availability of labor and materials; access to the Site; and the physical conditions and the character of equipment, materials, labor and services necessary to perform the Work. Any failure of the Contractor to do so will not relieve it from the responsibility for fully and completely performing all Work without adjustment to the Contract
Price or the Contract Time. The District assumes no responsibility to the Contractor for any understandings or representations concerning conditions or characteristics of the Site, or the Work, made by any of its officers, employees or agents prior to the execution of the Agreement, unless such understandings or representations are expressly set forth in the Agreement.

4.2.2. Subsurface Data. By executing the Agreement, the Contractor acknowledges that it has examined the boring data and other subsurface data available and satisfied itself as to the character, quality and quantity of surface and subsurface materials, including without limitation, obstacles which may be encountered in performance of the Work, insofar as this information is reasonably ascertainable from an inspection of the Site, review of available subsurface data and analysis of information furnished by the District under the Contract Documents. Subsurface data or other soils investigation report provided by the District hereunder are not a part of the

Contract Documents. Information contained in such data or report regarding subsurface conditions, elevations of existing grades, or below grade elevations are approximate only and is neither guaranteed or warranted by the District to be complete and accurate. The Contractor shall examine all boring and other subsurface data to make its own independent interpretation of the subsurface conditions and acknowledge that its bid is based upon its own opinion of the conditions which may be encountered.

4.2.3. Subsurface Conditions. If the Work under the Contract Documents involves digging trenches or other excavations that extend deeper than four feet below the surface, the Contractor shall promptly and before the following conditions are disturbed, notify the Project Inspector, in writing, of any: (i) material that the Contractor believes may be material that is hazardous waste, as defined in California Health and Safety Code §25117, that is required to be removed to a Class I or Class II or Class III disposal site in accordance with provisions of existing law; (ii) subsurface or latent physical conditions at the site differing from those indicated; or (iii) unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in the Work or the character provided for in the Contract Documents. If upon notice to the District of the conditions described above and upon the District's investigation thereof, the District determines that the conditions so materially differ or involve such hazardous materials which require an adjustment to the Contract Price or the Contract Time, the District shall issue a Change Order in accordance with Article 9 hereof. In accordance with California Public Contract Code §7104, any dispute arising between the Contractor and the District as to any of the conditions listed in (i), (ii) or (iii) above, shall not excuse the Contractor from the completion of the Work within the Contract Time and the Contractor shall proceed with all Work to be performed under the Contract Documents. The District reserves the right to terminate the Contract pursuant to Article 15.2 hereof should the District determine not to proceed because of any condition described in (i), (ii) or (iii) above.

4.3. Supervision and Construction Procedures.

4.3.1. Supervision of the Work. The Contractor shall supervise and direct performance of the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, Construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract Documents, unless Contract Documents give other specific instructions concerning these matters. The Contractor is responsible for inspection of completed or partially completed Work to determine that such Work is in proper condition to receive subsequent Work.

4.3.2. Responsibility for the Work. The Contractor is responsible to the District for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and all other persons performing any portion of the Work under a contract with the Contractor. The Contractor shall not be relieved of the obligation to perform the Work in accordance with the Contract Documents either by activities or duties of the Project Manager, Project Inspector or the Architect in their administration of the Contract, observations of the Work, or by tests, inspections or approvals required or performed by persons other than the Contractor.

4.3.3. Layouts; Surveys. The Contractor is solely responsible for laying-out the Work so that Construction of the Work conforms to the requirements of the Contract Documents and so that all component parts of the Work are coordinated. The Contractor is responsible for maintenance and preservation of benchmarks, reference points and stakes for the Work, with all costs associated therewith included in the Contract Price. The Contractor is solely responsible for all loss or costs resulting from the loss, destruction, disturbance or damage of benchmarks, reference points or stakes.

4.3.4. Waste Materials. Every effort should be made by the contractor to recycle all waste materials removed from the District. The State requires 50% of all waste (by weight) to be recycled. In an effort to maintain this compliance, Contractor shall submit all weight tickets, bill of ladings or tonnage reports of any waste materials sent out for recycling from a work site within the West Valley-Mission Community College District. Copies of the documents shall be submitted to the Project Manager. Final payment will be contingent upon receipt of these documents.

4.3.5. Construction Utilities. The District will furnish and pay the costs of utility services for the Work as set forth in the Special Conditions; all other utilities necessary to complete the Work and the Contractor's obligations, including utility connections, temporary distributions, temporary transformers, routing, and removal thereof at completion of the Work shall be obtained by the Contractor without adjustment of the Contract Price or the Contract Time. The installation and/or removal of any such temporary utility services and distributions by the Contractor shall be coordinated with the District's facilities operations and other District activities at the Site, so operations and activities at or about the Site are not interrupted and utility services are not impaired or interrupted.

4.3.6. Existing Utilities; Removal, Relocation and Protection.

4.3.6.1. Contractor Responsibility for Locating Utilities. The Contractor is responsible for locating all below grade drainage lines, storm drains, sewers, domestic water, gas, electrical, hot water and irrigation utility services, vaults, duct banks and other similar items or utilities services (collectively "Underground Facilities") which are shown in the Drawings or other portions of the Contract Documents; or (ii) which are identified in information relating to Underground Facilities maintained by the regional notification center, "Underground Service Alert" ("USA"). Contractor shall locate and mark locations of the Underground Facilities shown in the Contract Documents and information relating to Underground Facilities maintained by USA before proceeding with Work that may: (i) damage, destroy or impair Underground Facilities; or (ii) limit, disrupt or interrupt utility services provided through Underground Facilities. Prior to commencing Work in the proximity of Underground Facilities or other underground structures that can be readily inferred from adjacent surface improvements, Contractor shall further locate, by carefully excavating with small equipment, potholing and principally by hand, such utilities or installations that are to remain and that are subject to damage, destruction or disruption.

4.3.6.2. Contractor Responsibility for Damage to Underground Facilities. Without adjustment of the Contract Time or the Contract Price, the Contractor shall repair or replace all damage to or destruction of Underground Facilities occurring during performance of the Work. All such repairs or replacements shall be with materials, equipment and other items consistent with those in place prior to commencement of the Work and when the repair or replacement is completed, the Underground Facilities shall be in the same functional and operational condition as prior to the damage or destruction.

4.3.6.3. Contractor Responsibility for Maintaining Utility Services. The Contractor shall maintain in service all utility services provided through the Underground and Overhead Facilities unless the Contractor has notified the District and Construction Manager in writing of utility service disruptions at least three (3) working days in advance of the anticipated disruption of utility services. Notwithstanding the Contractor's notice pursuant to the foregoing, the District may, in the sole discretion of the District, direct alternative times/days for the anticipated utility service disruption as necessary for conduct of on-going activities or operations of the District at and about the Site. The Contractor shall be liable for all costs, fees or charges incurred by the District to provide utility services

if there is disruption, interruption or limitation of any utility services for which the Contractor has not provided the advance written notice of utility disruption pursuant to the foregoing. The District may deduct such costs, fees or charges from the Contract Price then or thereafter due the Contractor. Utilities include heating, A/C, plumbing and electrical.

4.3.6.4. Unmarked; Unknown Utilities. Additional Underground Facilities not shown in the Contract Documents or USA data may exist on or about the Site. The Contractor shall be alert to their existence; if they are encountered, Contractor shall immediately report such Underground Facilities to the Project Inspector, Project Manager and District for disposition of the same prior to disturbing any existing condition. In accordance with California Government Code §4215, the District is responsible for the timely removal, relocation, or protection of existing main or trunkline utility facilities located on the Site which are not identified in the Contract Documents. Contractor shall be compensated for the costs of locating, repairing damage not due to the Contractor's failure to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Contract Documents with reasonable accuracy, and for equipment on the Site necessarily idled during such work. Contractor shall not be assessed Liquidated Damages for delay in completion of the Work when such delay is caused by the failure of the District or the District of the utility to provide for removal or relocation of such utility facilities. Nothing in this Article 4.3.6 shall be deemed to require the District to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the Site can be inferred from the presence of other visible facilities, such as buildings, meters and junction boxes, on or adjacent to the Site. If such utility facilities are owned by a public utility, the public utility shall have the sole discretion to perform repairs or relocation work or permit the Contractor to do such repairs or relocation work at a reasonable price.

4.3.7. Conferences and Meetings. A material obligation of the Contractor under the Contract Documents is the attendance at required meetings by the Contractor's supervisory personnel for the Work and the Contractor's management personnel as required by the Contract Documents or as requested by the District. The Contractor's personnel participating in conferences and meetings relating to the Work shall be authorized to act on behalf of the Contractor and to bind the Contractor. The Contractor is solely responsible for arranging for the attendance by Subcontractors, Material Suppliers at meetings and conferences relating to the Work as necessary, appropriate or as requested by the District.

4.3.7.1. Pre-Construction Conference. The Contractor's representatives (and representatives of Subcontractors as requested by the District) shall attend a Pre- Construction Conference at such time and place as designated by the District. The Pre- Construction Conference will generally address the requirements of the Work and Contract Documents, and to establish Construction procedures. Subject matters of the Pre- Construction Conference will include as appropriate: (i) responsibilities of the Contractor and Subcontractor under the OCIP; (ii) administrative matters, including an overview of the respective responsibilities of the District, Architect, Project Manager, Contractor, Subcontractors, Project Inspector and others performing any part of the Work or services relating to the Work; (iii) Submittals; (iv) Changes and Change Order processing; (v) employment practices, including Certified Payroll preparation and submission, prevailing wage rate responsibilities of the Contractor and Subcontractors, compliance with apprenticeship standards and Division of Labor Standards ("DSLE") monitoring and enforcement of prevailing wage rate requirements; (vi) Progress Schedule development and maintenance; (vii) development of Schedule of Values and payment procedures; (viii)

communications procedures, including the handling of Requests for Interpretation; (ix) conduct of pre-installation meetings to plan and coordinate work of new contractors, separate contractors and to plan for utility outages; (x) emergency and safety procedures; (xi) Site visitor policies; (xii) conduct of Contractor/Subcontractor personnel at the Site; (xiii) punchlist/close-out procedures; and (xiv) Contractor and Subcontractor DIR Contractor Registration.

4.3.7.2. Progress Meetings. Progress meetings will be conducted on regular intervals (weekly unless otherwise expressly indicated elsewhere in the Contract Documents). The Contractor's representatives and representatives of Subcontractors (as requested by the District) shall attend Progress Meetings. Progress Meetings will be chaired by the Project Manager, District or Architect and will generally include as agenda items: Site safety, field issues, coordination of Work, a review of a three week look-ahead schedule prepared by the Contractor's Superintendent, Construction progress and impacts to timely completion, if any. The purposes of the Progress Meetings include: a formal and regular forum for discussion of the status and progress of the Work by all Project participants, a review of progress or resolution of previously raised issues and action items assigned to the Project participants, and reviews of the Progress Schedule and Submittals.

4.3.7.3. Pre-Installation Conference. The Contractor's representatives (and representatives of Subcontractors as requested by the District or the Project Manager) shall attend a Pre-Installation Conference prior to the initiation of a new phase of Work or in connection with the delivery and installation of major items of equipment incorporated into the Work. Pre-Installation Conferences will generally address the requirements of the new phase of Work and Contract Documents, and/or to coordinate delivery and installation of major equipment items.

4.3.7.4. Special Meetings. As deemed necessary or appropriate by the District, Special Meetings will be conducted with the participation of the Contractor, Subcontractors and other Project participants as requested by the District. Attendance of the Contractor, Subcontractors and others as directed by the District at Special Meetings is a material obligation of the Contractor under the Contract Documents.

4.3.7.5. Minutes of Meetings. Following the conclusion of the Pre-Construction Conference, Progress Meetings and Special Meetings, the Project Manager or Architect will prepare and distribute minutes reflecting the items addressed and actions taken at a meeting or conference. Unless the Contractor notifies the Architect or the Project Manager, as applicable, in writing of objections or corrections to minutes prepared hereunder within five (5) days of the date of distribution of the minutes, the minutes as distributed shall constitute the official record of the meeting or conference. No objections or corrections of any Subcontractor or Material Supplier shall be submitted directly to the Architect or the Project Manager; such objections or corrections shall be submitted to the Architect and the Project Manager through the Contractor. If the Contractor timely interposes objections or notes corrections, the resolution of such matters shall be addressed at the next scheduled Progress Meeting.

4.3.8. Temporary Sanitary Facilities. At all times during Work at the Site, the Contractor shall obtain and maintain temporary sanitary facilities in conformity with the Laws. The Contractor shall maintain temporary sanitary facilities in a neat and clean manner with sufficient toilet room supplies. Personnel engaged in the Work are not permitted to use toilet facilities at or about the Site.

4.3.9. Noise and Dust Control.

4.3.9.1. Noise Control. The Contractor shall install noise reducing devices on Construction equipment. Contractor shall comply with the requirements of the city and county having jurisdiction with regard to noise ordinances governing Construction sites and activities. Construction Equipment noise at the Site shall be limited and only as permitted by the Laws. If classes are in session at any point during the progress of the Work, and, in the District's reasonable discretion, the noise from any Work disrupts or disturbs the students or faculty or the normal operation of the college, at the District's request, the Contractor shall schedule the performance of all such Work around normal college hours or make other arrangements so that the Work does not cause such disruption or disturbance. In no event shall such arrangements result in adjustment of the Contract Price or the Contract Time.

4.3.9.2. Dust Control. The Contractor shall be fully and solely responsible for maintaining and upkeeping all areas of the Site and adjoining areas, outdoors and indoors, free from flying debris, grinding powder, sawdust, dirt and dust as well as any other product, product waste or work waste, that by becoming airborne may cause respiratory inconveniences to persons, particularly to students and District personnel. Additionally, the Contractor shall take specific care to avoid deposits of airborne dust or airborne elements. Such protection devices, systems or methods shall be in accordance with the Laws, including without limitation, the regulations established by the EPA and OSHA. Additionally, the Contractor shall be the sole party responsible to regularly and routinely clean up and remove any and all deposits of dust and other elements. Damage and/or any liability derived from the Contractor's failure to comply with these requirements shall be exclusively at the cost of the Contractor, including, without limitation, any and all penalties that may be incurred for violations of the Laws, and any amounts expended by the District to pay such damages shall be due and payable to the District on demand. Contractor shall replace any damaged property or part thereof and professionally clean any and all items that become covered or partially covered to any degree by dust or other airborne elements. If classes are in session at any point during the progress of Work, and, in the District's reasonable determination, debris, powder, sawdust, dirt or dust from any Work disrupts or disturbs the students or faculty or the normal operation of the District, at the District's request, the Contractor shall schedule the performance of all such Work around normal District hours and make other arrangements so that the Work does not cause such disruption or disturbance. In no event shall such arrangements result in adjustment of the Contract Price or the Contract Time.

4.3.9.3. Contractor Failure to Comply. If the Contractor fails to comply with the requirements for dust control, noise control, or any other maintenance or clean up requirement of the Contract Documents, the District, Architect, Project Inspector or Project Manager are each authorized to notify the Contractor in writing of such failure and the Contractor shall take immediate action. Should the Contractor fail to respond with immediate and responsive action and not later than twenty-four (24) hours from such notification, the District shall have the absolute right to proceed as it may deem necessary to remedy such matter. Any and all costs incurred by the District in connection with such actions shall be the sole responsibility of, and be borne by, the Contractor; the District may deduct such amounts from the Contract Price then or thereafter due the Contractor.

4.4. Labor and Materials.

4.4.1. Payment for Labor, Materials and Services. Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools,

Construction Equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated in the Work.

4.4.2. Employee Discipline. The Contractor shall enforce strict discipline and good order among the Contractor's employees, the employees of any Subcontractor or Sub-subcontractor, and all other persons performing any part of the Work at the Site. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. The Contractor shall dismiss from its employ and direct any Subcontractor or Sub-subcontractor to dismiss from their employment any person deemed by the District to be unfit or incompetent to perform Work and thereafter, the Contractor shall not employ nor permit the employment of such person for performance of any part of the Work without the prior written consent of the District, which consent may be withheld in the reasonable discretion of the District.

4.4.3. Compliance with Immigration Reform and Control Act of 1986. The Contractor is solely and exclusively responsible for employment of individuals for the Work of the Contract in conformity with the Immigration Reform and Control Act of 1986, 8 USC §§1101 et seq. (the "IRCA"); the Contractor shall also require Subcontractors and any other person or entity employing labor in connection with any of the Work to similarly comply with the IRCA. The foregoing includes without limitation, verification that individuals engaged in any Work are legally entitled to do so.

4.4.4. Contractor's Project Manager and Superintendent.

4.4.4.1. Qualifications of Contractor's Superintendent and Contractor Project Manager. Prior to start of Work at the Site, the Contractor shall submit in writing to the District and Project Manager, the qualifications of the Contractor's proposed superintendent ("Contractor Superintendent") and the Contractor's proposed Project Manager ("Contractor PM") for acceptance by the Project Manager and District. The Contractor's proposed Contractor Superintendent and proposed Contractor PM shall each have recent experience in similar types of Construction to the Work. The Contractor's proposed Contractor Superintendent and Contractor PM shall be satisfactory to the District and Project Manager and shall not be changed during the Work unless the Contractor's employment of the Contractor Superintendent or Contractor PM is terminated by the Contractor for cause or the Contractor Superintendent or Contractor PM voluntary ceases employment by the Contractor. The Contractor shall dismiss the Contractor Superintendent or the Contractor PM if they are deemed, in the sole reasonable judgment of the District, to be unfit, incompetent or incapable of performing the functions assigned to them. In such an event, the District shall have the right to approve of the replacement Contractor Superintendent or Contractor Project Manager, as applicable.

4.4.4.2. Contractor Superintendent. Competency of the Contractor Superintendent shall include, without limitation, a minimum of three (3) years prior experience as a superintendent for a general contractor on projects similar in size, scope and complexity to the Work. The Contractor's communications relating to the Work or the Contract Documents shall be through the Contractor Superintendent. The Contractor Superintendent shall represent the Contractor and communications given to the Contractor Superintendent shall be binding as if given to the Contractor.

4.4.4.3. Contractor Project Manager. The Contractor shall employ a Contractor PM who shall be a senior management employee of the Contractor. The Contractor PM shall be at the Site periodically to observe the progress and quality of the Work in progress andin place. The Contractor PM shall be responsible for directing and coordinating human and

material resources of the Contractor and Subcontractors throughout the course of the Work using management techniques so that the Work is completed for the Contract Price and within the Contract Time.

4.4.5. Prohibition on Harassment.

4.4.5.1. District's Policy Prohibiting Harassment. The District is committed to providing a campus and workplace free of sexual harassment and harassment based on factors such as race, color religion, national origin, ancestry, age, medical condition, marital status, disability or veteran status. Harassment includes without limitation, verbal, physical or visual conduct which creates an intimidating, offensive or hostile environment such as racial slurs; ethnic jokes; posting of offensive statements, posters or cartoons or similar conduct. Sexual harassment includes without limitation the solicitation of sexual favors, unwelcome sexual advances, or other verbal, visual or physical conduct of a sexual nature.

4.4.5.2. Contractor's Adoption of Anti-Harassment Policy. Contractor shall adopt and implement all appropriate and necessary policies prohibiting any form of discrimination in the workplace, including without limitation harassment on the basis of any classification protected under local, state or federal law, regulation or policy. Contractor shall take all reasonable steps to prevent harassment from occurring, including without limitation affirmatively raising the subject of harassment among its employees, expressing strong disapproval of any form of harassment, developing appropriate sanctions, informing employees of their right to raise and how to raise the issue of harassment and informing complainants of the outcome of an investigation into a harassment claim. Contractor shall require that any Subcontractor or Sub- subcontractor performing any portion of the Work to adopt and implement policies in conformity with this Article 4.4.5.

4.4.5.3. Prohibition on Harassment at the Site. Contractor shall not permit any person, whether employed by Contractor, a Subcontractor, Sub-subcontractor, or any other person or entity, performing any Work at or about the Site to engage in any prohibited form of harassment. Any such person engaging in a prohibited form of harassment directed to any individual performing or providing any portion of the Work at or about the Site shall be subject to appropriate sanctions in accordance with the anti-harassment policy adopted and implemented pursuant to Article 4.4.5.2 above. Any person, performing or providing Work on or about the Site engaging in a prohibited form of harassment directed to any student, faculty member or staff of the District or directed to any other person on or about the Site shall be subject to immediate removal and shall be prohibited thereafter from providing or performing any portion of the Work. Upon the District's receipt of any notice or complaint that any person employed directly or indirectly by Contractor in performing or providing the Work has engaged in a prohibited form of harassment, the District will promptly undertake an investigation of such notice or complaint. In the event that the District, after such investigation, reasonably determines that a prohibited form of harassment has occurred, the District shall promptly notify the Contractor of the same and direct that the person engaging in such conduct be immediately removed from the Site. Unless the District's determination that a prohibited form of harassment has occurred is grossly negligent or without reasonable cause, District shall have no liability for directing the removal of any person determined to have engaged in a prohibited form of harassment nor shall the Contract Price or the Contract Time be adjusted on account thereof. Contractor and the Surety shall defend, indemnify and hold harmless the District and its employees, officers, agents, and representatives

from any and all claims, liabilities, judgments, awards, actions or causes of actions, including without limitation, attorneys' fees, which arise out of, or pertain in any manner to: (i) the assertion by any person dismissed from performing or providing work at the direction of the District pursuant to this Article 4.4.5.3; or (ii) the assertion by any person that any person directly or indirectly under the employment or direction of the Contractor has engaged in a prohibited form of harassment directed to or affecting such person. The obligations of the Contractor and the Surety under the preceding sentence are in addition to, and not in lieu of, any other obligation of defense, indemnity and hold harmless whether arising under the Contract Documents, at law or otherwise; these obligations survive completion of the Work or the termination of the Contract.

4.5. Taxes. The Contractor shall pay, without adjustment of the Contract Price, all sales, consumer, use and other local, state and/or federal required taxes for the Work or portions thereof provided by the Contractor under the Contract Documents.

4.6. Permits, Fees and Notices; Compliance with Laws.

4.6.1. Payment of Permits, Fees. Unless otherwise provided in the Contract Documents, the District shall secure and pay for the building permits, other permits, governmental fees, licenses and inspections necessary or required for the proper execution and completion of the Work. The foregoing notwithstanding, whether or not set forth in the Special Conditions, without adjustment of the Contract Price, the Contractor shall pay all fees, costs or other expenses associated with or arising in connection with Deferred Approval Items.

4.6.2. Compliance with Laws. The Contractor shall comply with and give notices required by the Laws and other orders of public authorities bearing on performance of the Work. All Work completed by the Contractor shall be in compliance with the Laws.

4.6.3. Notice of Variation from Laws. If the Contractor knows, or has reason to believe, that any portion of the Contract Documents are at variance with applicable Laws, the Contractor shall promptly notify the Architect, Project Manager and the Project Inspector, in writing, of the same. If the Contractor performs Work knowing, or with reasonable diligence should have known, it to be contrary to the Laws without such notice to the Architect, Project Manager and the Project Inspector, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs arising or associated therefrom, including without limitation, the removal, replacement or correction of the same.

4.6.4. DIR Registration. At all times during the Work, the Contractor shall be a DIR registered contractor. Performance of any Work by the Contractor without the Contractor being a DIR registered contractor at the time Work is performed is the Contractor's default in performance of a material obligation of the Contractor under the Contract Documents.

4.7. Submittals.

4.7.1. Purpose of Submittals. Shop Drawings, Product Data, Samples and similar submittals (collectively "Submittals") are not Contract Documents. The purpose for submission of Submittals is to demonstrate, for those portions of the Work for which Submittals are required, the manner in which the Contractor proposes to provide or incorporate such items of the Work in conformity with the information given and the design concept expressed in the Contract Documents. Refer to the Special Conditions for any requirements relating to Phasing of the Work and additional Submittal requirements.

4.7.2. Contractor's Submittals.

4.7.2.1. Prompt Submittals. The Contractor shall review, approve and submit to the

Project Manager and Architect or such other person or entity designated by the District, the number of copies of Submittals required by the Contract Documents. All Submittals required by the Contract Documents shall be prepared, assembled and submitted by the Contractor to the Project Manager and the Architect within the time frames set forth in the Submittal Schedule incorporated and made a part of the Approved Construction Schedule prepared and submitted by the Contractor pursuant to Article 7 of these General Conditions. Contractor's submission of Submittals in conformity with the Submittal Schedule is a material obligation of the Contractor. In the event of Contractor's failure or refusal to prepare and deliver Submittals in accordance with the Submittal Schedule, the Contractor shall be subject to per diem assessments in the amount set forth in the Special Conditions for each day of delayed submission for any Submittal beyond the date set forth in the Submittal Schedule for Contractor's submission of such Submittal. Contractor and District acknowledge and agree that if Contractor shall fail to deliver Submittals in accordance with the Submittal Schedule, the District will incur costs and expenses not contemplated by the Contract Documents, the exact amount of which are difficult to ascertain and fix. Contractor and the District acknowledge and agree that the per diem assessment for delayed submission of Submittals set forth in the Special Conditions represents a reasonable estimate of costs and expenses the District will incur as a result of delayed submission of Submittals and that the same is not a penalty. Notwithstanding Contractor's submission of all required Submittals in accordance with the Submittal Schedule, in the event that the District or the Architect reasonably determines that all or any portion of such Submittals fail to comply with the requirements of Articles 4.7.2.2, 4.7.2.3 and
4.7.2.4 of these General Conditions and/or such Submittals are not otherwise complete and accurate so as to require resubmission, Contractor shall submit revised Submittals within seven (7) days and bear all costs associated with the review and approval of resubmitted Submittals, including without limitation Architect's fees incurred in connection therewith; provided that such costs are in addition to, and not in lieu of, any per diem assessments imposed under this Article 4.7.2.1 for Contractor's delayed submission of Submittals. In the event of the District's imposition of the per diem assessments due to the Contractor's delayed submission of Submittals or in the event of the District's assessment of costs and expenses incurred to review incomplete or inaccurate Submittals, the District may deduct the same from any portion the Contract Price then or thereafter due the Contractor. Submittals not required by the Contract Documents or which do not otherwise conform with the requirements of the Contract Documents may be returned without action. No adjustment to the Contract Time or the Contract Price shall be granted to the Contractor on account of its failure to make timely submission of any Submittal.

4.7.2.2. Approval of Subcontractor Submittals. All Submittals prepared by Subcontractors, of any tier, Material Suppliers, manufacturers or distributors shall bear the written approval of the Contractor thereto prior to submission to the Architect and Project Manager for review. Any Submittal not bearing the Contractor's written approval shall be subject to return to the Contractor for re-submittal in conformity herewith, with the same being deemed to not have been submitted. Any delay, impact or cost associated therewith shall be the sole and exclusive responsibility of the Contractor without adjustment to the Contract Time or the Contract Price.

4.7.2.3. Verification of Submittal Information. By approving and submission of Submittals, the Contractor represents to the District, Project Manager and Architect that the Contractor has determined and verified materials, field measurements, field Construction criteria,

catalog numbers and similar data related thereto and has checked and coordinated the information contained within such Submittals with the requirements of the Work and of the Contract Documents. Each Submittal shall include the following certification duly executed by the Contractor's Superintendent for the Work:

> "The Contractor has reviewed and approved the field dimensions and Construction criteria of the attached Submittal. The Contractor has verified that the Submittal includes notations of any portion of the Work depicted in the Submittal which is not in strict conformity with the Contract Documents. The information in the attached Submittal has been reviewed and coordinated by the Contractor with information included in other Submittals."

4.7.2.4. Information Included in Submittals. All Submittals shall be accompanied by a written transmittal or other writing by the Contractor providing an identification of the portion of the Drawings or the Specifications pertaining to the Submittal, with each Submittal numbered consecutively for ease of reference along with the following information: (i) date of submission; (ii) project name; (iii) name of submitting Subcontractor; and (iv) if applicable, the revision number. The foregoing information is in addition to, and not in lieu of, any other information required by the Contract Documents for the Architect's review, evaluation and acceptance of the Contractor's Submittals.

4.7.2.5. Contractor Responsibility for Deviations. The Contractor shall not be relieved of responsibility for correcting deviations from the requirements of the Contract Documents by the Architect's review of Submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submission of the Submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Submittals by the Architect's review thereof.

4.7.2.6. No Performance of Work Without Architect Review. The Contractor shall perform no portion of the Work requiring the Architect's review of Submittals until the Architect has completed its review and returned the Submittal to the Contractor indicating "No Exception Taken" to such Submittal. The Contractor shall not perform any portion of the Work forming a part of a Submittal or which is affected by a related Submittal until the entirety of the Submittal or other related Submittal has been fully processed. Such Work shall be in accordance with the final action taken by the Architect in review of Submittals and other applicable portions of the Contract Documents.

4.7.3. Architect Review of Submittals. The purpose of the Architect's review of Submittals and the time for the Architect's return of Submittals to the Contractor shall be as set forth elsewhere in the Contract Documents. If the Project Manager and Architect return a Submittal as rejected or requiring correction(s) with re-submission, the Contractor, so as not to delay the progress of the Work, shall thereafter resubmit, within seven (7) days, a Submittal conforming with the requirements of the Contract Documents; the resubmitted Submittal shall indicate the portions thereof modified in accordance with the Architect's direction. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Architect shall be entitled to rely upon the accuracy and completeness of such calculations and certifications accompanying Submittals. The Architect's review of the Submittals is for the limited purposes described in the Contract Documents.

4.7.4. Submittal Review Notations. Unless otherwise provided elsewhere in the Contract Documents, the following notations or notations of a similar nature noted on a reviewed Submittal will require the Contractor action noted below.

Architect Notation	Contractor Action
No Exceptions Taken	No formal revision required.
Make Corrections Noted	Make revision notes; re-submission of revised Submittal not required.
Revise; Re-Submit	Revise Submittal in accordance with notations and re-submit for subsequent review.
Rejected; Re-Submit	Prepare new alternative Submittal and resubmit for review.

4.7.5. Deferred Approval Items. For all Work designated in the Contract Documents as a "Deferred Approval," the Contractor shall be solely and exclusively responsible for the preparation of designs, calculations and other materials for each Deferred Approval item ("Deferred Approval Design"). Where required by the Laws or the nature of a Deferred Approval, the Deferred Approval Design shall be completed and stamped by a California licensed architect or California registered engineer. The Deferred Approval Design shall: (i) incorporate all requirements of the Deferred Approval as set forth in the Contract Documents; (ii) be coordinated with other portions of the Work; (iii) be completed in a timely manner so as not to delay, disrupt or interfere with completion of the Work within the Contract Time; and (iv) be completed in accordance with the applicable professional standard of care. The Contractor shall submit each completed Deferred Approval Design to the Architect for review and acceptance. The Contractor shall modify each Deferred Approval Design as necessary to obtain the Architect's acceptance of the entirety thereof. Upon the Architect's acceptance of a Deferred Approval Design, the Contractor shall be responsible for: (i) submittal of the Deferred Approval Design to DSA for review and approval; (ii) modifications to the Deferred Approval Design as necessary to obtain DSA approval; and (iii) payment of fees or charges imposed by DSA for review and approval of a Deferred Approval Design without adjustment of the Contract Price. Notwithstanding review and acceptance of a Deferred Approval Design by the Architect or DSA issuance of approval to Construction pursuant to the Contractor's Deferred Approval Design, the Contractor remains liable to the District for all losses, damages, costs, or other consequences of the failure of any Contractor's Deferred Approval Design to: (i) conform to the applicable design professional standard of care; (ii) conform to design intent and/or aesthetic requirements established in the Contract Documents; or (iii) perform and function in accordance with requirements established in the Contract Documents.

4.8. Materials and Equipment.

4.8.1. Specified Materials, Equipment. Except as otherwise expressly set forth in the Contract Documents, references in the Contract Documents to any specific article, device, equipment, product, material, fixture, patented process, form, method or type of Construction, by name, make, trade name, or catalog number, with or without the words "or equal" shall be deemed to establish a minimum standard of quality or performance, and shall not be construed as limiting competition. Whenever a product, material or other item is specified with reference to a Federal Specification, an ASTM Standard, an American National Standards Institute Specification, or other trade association standard (collectively, "the Standards"), the Contractor shall present an affidavit from the manufacturer when requested by the Architect or required in the Specifications, certifying the product, material or other item to be furnished and installed complies with the Standards. When requested by the Architect or required by the Contract Documents, support test data shall be submitted to substantiate compliance with the Standards.

4.8.2. Approval of Substitutions or Alternatives. The Contractor may propose to furnish alternatives or substitutes for items specified in the Contract Documents, provided that: (i) such proposed substitution or alternative complies with the requirements of the Specifications relating to

substitutions of specified items; (ii) the Contractor certifies to the Architect that the quality, performance capability and functionality (including visual and/or aesthetic effect) of the proposed alternative or substitute will meet or exceed the quality, performance capability and functionality of the item or process specified; and (iii) the Contractor demonstrates to the Architect that the use of the substitution or alternative is appropriate and will not delay completion of the Work or result in an increase to the Contract Price. The Contractor shall submit engineering, Construction, dimension, visual, aesthetic and performance data to the Architect to permit its proper evaluation of the proposed substitution or alternative. If requested by the Architect, Contractor shall promptly furnish any additional information or data regarding a proposed substitution or alternative, which the Architect deems reasonably necessary for the evaluation of the proposed substitution or alternative. The Contractor shall not provide, furnish or install any substitution or alternative without the Architect's review and final action on the proposed substitution or alternative; any alternative or substitution installed or incorporated into the Work without first obtaining the Architect's review and final action of the same shall be subject to removal pursuant to Article 12 hereof. The Architect's decision evaluating the Contractor's proposed substitutions or alternatives shall be final. Neither the Contract Time nor the Contract Price shall be increased on account of any substitution or alternative proposed by the Contractor and which is accepted by the Architect; provided, however, that in the event a substitution or alternative accepted by the Architect and purchase, fabrication and/or installation or such accepted substitution or alternative shall be less expensive than the originally specified item, the Contract Price shall be reduced by the actual cost savings realized by the Contractor's furnishing and/or installation of such approved substitution or alternative. The Contractor shall be solely responsible for all costs and fees incurred by the District to review a proposed substitution or alternative, including without limitation fees of the Architect, of the Architect's consultant(s) and/or governmental agencies to review and/or approve any proposed substitution or alternative. The Contractor shall be solely responsible for any increase in the cost of any accepted substitution or alternative or any Work affected by such alternative or substitution. The foregoing notwithstanding, all requests for the Architect's review and approval of any proposed substitution or alternative and all engineering, Construction

, dimension and performance data substantiating the equivalency of the proposed substitution or alternative shall be submitted by Contractor not later than thirty-five

(35) days following the date of the District's award of the Contract to Contractor by action of the District's Board of Education; any request for approval of proposed alternatives or substitutions submitted thereafter may be rejected summarily. The foregoing process and time limits shall apply to any proposed substitution or alternative regardless of whether the substitute or alternate item is to be provided, furnished or installed by Contractor, any Subcontractor, any Sub-Subcontractor, Material Supplier or Manufacturer.

4.8.3. "Sole Source" Products. If any material, equipment, product or other item is designated in the Contract Documents as a "District Standard" or similar words/terms, the District shall be deemed to have made a finding that such material, equipment, product or other item is designated and specified to match other materials, equipment, products, or other item in use in a completed or to be completed work of improvement and not subject to substitution. Any material, equipment, or other item is identified in the Contract Documents as a District Standard or as being the only source of the material, equipment or other item necessary to accomplish the intended result(s), such material, equipment or other item shall not be subject to substitution.

4.8.4. Placement of Material and Equipment Orders. Contractor shall, after award of the Contract, promptly and timely place all orders for materials and/or equipment necessary for completion

of the Work so that delivery of the same shall be made without delay or interruption to the timely completion of the Work. Contractor shall require that any Subcontractor or Sub-Subcontractor performing any portion of the Work similarly place orders for all materials and/or equipment to be furnished by any such Subcontractor or Sub-Subcontractor in a prompt and timely manner so that delivery of the same shall be made without delay or interruption to the timely completion of the Work. Upon request of the District, Project Manager or the Architect, the Contractor shall furnish reasonably satisfactory written evidence of the placement of orders for materials and/or equipment necessary for completion of the Work, including without limitation, orders for materials and/or equipment to be provided, furnished or installed by any Subcontractor or Sub-Subcontractor.

4.8.5. District's Right to Place Orders for Materials and/or Equipment. Notwithstanding any other provision of the Contract Documents, in the event that the Contractor shall, upon request of

the District or the Architect, fail or refuse, for any reason, to provide reasonably satisfactory written evidence of the placement of orders for materials and/or equipment necessary for completion of the Work, or should the District determine, in its sole and reasonable discretion, that any orders for materials and/or equipment have not been placed in a manner so that such materials and/or equipment will be delivered to the Site so the Work can be completed without delay or interruption, the District shall have the right, but not the obligation, to place such orders on behalf of the Contractor. If the District exercises the right to place orders for materials and/or equipment pursuant to the foregoing, the District's conduct shall not be deemed to be an exercise, by the District, of any control over the means, methods, techniques, sequences or procedures for completion of the Work, all of which remain the responsibility and obligation of the Contractor. Notwithstanding the right of the District to place orders for materials and/or equipment pursuant to the foregoing, the election of the District to exercise, or not to exercise, such right shall not relieve the Contractor from any of Contractor's obligations under the Contract Documents, including without limitation, completion of the Work within the Contract Time and for the Contract Price. If the District exercises the right hereunder to place orders for materials and/or equipment on behalf of Contractor pursuant to the foregoing, Contractor shall reimburse the District for all costs and fees incurred by the District in placing such orders; such costs and fees may be deducted by the District from the Contract Price then or thereafter due the Contractor.

4.9. Safety.

4.9.1. Safety Programs. Notwithstanding any action by the District, Project Manager, Project Inspector or Architect, the Contractor shall be solely responsible for initiating, maintaining, supervising and enforcing all safety programs required by the Laws in connection with the performance of the Contract, or otherwise required by the type or nature of the Work. The Contractor's safety program shall include all actions and programs necessary for compliance with California or federally statutorily mandated workplace safety programs, including without limitation, compliance with the California Drug Free Workplace Act of 1990 (California Government Code §§8350 et seq.). Without limiting or relieving the Contractor of its obligations hereunder, the Contractor shall require that its Subcontractors similarly initiate and maintain all appropriate or required safety programs. Prior to commencement of Work at the Site, the Contractor shall provide the Project Manager and the District with the Contractor's proposed safety program for the Work for review. Such review by the Project Manager and/or the District shall not operate to relieve, impair or otherwise limit the Contractor's responsibility for initiating, maintaining, supervising and enforcing safety programs. Without adjustment of the Contract Price or the Contract Time, the Contractor shall modify and re-submit its proposed safety plan to

incorporate modifications thereto requested by the Project Manager. The Project Manager is authorized to monitor the Contractor's obligation to implement the Contractor's safety program.

4.9.2. Contractor Safety Plan. Prior to commencement of Work at the Site, the Contractor shall submit to the District and the Project Manager, if any, the Contractor's Safety Plan for the Work for review and acceptance by the District. Acceptance by the District is subject to the Safety Plan conforming to requirements of the Laws, conditions at or about the Site and the nature of the Work. The Contractor shall modify its Safety Plan as necessary to obtain the District's acceptance thereof. Notwithstanding the District's acceptance of the Contractor's Safety Plan, the Contractor shall remain solely responsible for implementing the Safety Plan and implementing measures as necessary to maintain safety of persons and property at and about the Site. The District's acceptance of the Contractor's Safety Plan shall not limit, restrict or otherwise modify the Contractor's obligations relating to safety at or about the Site in accordance with the Contract Documents and the Laws.

4.9.3. Safety Precautions. The Contractor shall be solely responsible for initiating and maintaining reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to: (i) employees on the Work and other persons who may be affected thereby; (ii) the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or Subcontractors; and (iii) other property or items in, on, about or adjacent to the Site, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of Construction. The Contractor shall take adequate precautions and measures to protect existing roads, sidewalks, curbs, pavement, utilities, utility easements, adjoining property and improvements thereon (including without limitation, protection from settlement or loss of lateral support) and to avoid damage thereto. When use or storage of explosives or other hazardous materials or equipment or other hazardous Construction methods are necessary, the Contractor shall give the District, Project Inspector and Project Manager reasonable advance written notice. At all times the Contractor shall provide an adequate number of fire extinguishers or other approved fire/life-safety devices during Work at the Site. Each fire extinguisher shall be conspicuously displayed and clearly marked with instructions for use. Without adjustment of the Contract Price or the Contract Time, the Contractor shall repair, replace or restore any damage or destruction of the foregoing items as a result of performance or installation of the Work.

4.9.4. Safety Signs, Barricades. The Contractor shall erect and maintain, as required by existing conditions and conditions resulting from performance of the Contract, reasonable safeguards for safety and protection of property and persons, including, without limitation, posting danger signs and other warnings against hazards, promulgating safety regulations and notifying Districts and users of adjacent sites and utilities.

4.9.5. Safety Notices. The Contractor shall post all notices required by applicable law and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

4.9.6. Safety Coordinator. The Contractor shall designate a responsible member of the Contractor's organization at the Site whose duty shall be the prevention of accidents and the implementation and maintenance safety precautions and programs. This person shall be the Contractor's Superintendent unless otherwise designated by the Contractor in writing to the Project Inspector, Project Manager and the Architect.

4.9.7. Emergencies; First Aid. In an emergency affecting safety of persons or property, the Contractor

shall act, to prevent threatened damage, injury or loss. The Contractor shall maintain stocked emergency first aid kits at the Site which comply with the Laws.

4.9.8. Hazardous Materials.

4.9.8.1. General. In the event that the Contractor, any Subcontractor or anyone employed directly or indirectly by them shall use, at the Site, or incorporate into the Work, any material or substance deemed to be hazardous or toxic under the Laws or interpretation thereof (collectively "Hazardous Materials"), the Contractor shall comply with the Laws and shall exercise all necessary safety precautions relating to the use, storage or disposal thereof.

4.9.8.2. Prohibition on Use of Asbestos Construction Materials ("ACBMs"). Notwithstanding any provision of the Drawings or the Specifications to the contrary, it is the intent of the District that ACBMs not be used or incorporated into any portion of the Work. If any portion of the Work depicted in the Drawings or the Specifications requires materials or products which the Contractor knows, or should have known with reasonably diligent investigation, to contain ACBMs, Contractor shall promptly notify the Project Manager, Architect and the Project Inspector of the same so that an appropriate alternative can be made in a timely manner so as not to delay the progress of the Work. Contractor warrants to the District that there are no materials or products used or incorporated into the Work which contain ACBMs. Whether before or after completion of the Work, if it is discovered that any product or material forming a part of the Work or incorporated into the Work contains ACBMs, the Contractor shall at its sole cost and expense remove such product or material in accordance with any laws, rules, procedures and regulations applicable to the handling, removal and disposal of ACBMs and to replace such product or material with non-ACBM products or materials and to return the affected portion(s) of the Work to the finish condition depicted in the Drawings and Specifications relating to such portion(s) of the Work. Contractor's obligations under the preceding sentence shall survive the termination of the Contract, the warranty period provided under the Contract Documents, the Contractor's completion of the Work or the District's acceptance of the Work. If the Contractor fails or refuses, for any reason, to commence the removal and replacement of any material or product containing ACBMs forming a part of, or incorporated into the Work, within ten (10) days of the date of the District's written notice to the Contractor of the existence of ACBM materials or products in the Work, the District may thereafter proceed to cause the removal and replacement of such materials or products in any manner which the District determines to be reasonably necessary and appropriate; all costs, expenses and fees, including without limitation fees and costs of consultants and attorneys, incurred by the District in connection with such removal and replacement shall be the responsibility of the Contractor and the Contractor's Performance Bond Surety.

4.9.8.3. Disposal of Hazardous Materials. Contractor shall be solely and exclusively responsible for the disposal of any Hazardous Materials on or about Site resulting from the Contractor's performance of Work and other activities. The Contractor's obligations hereunder shall include without limitation, the transportation and disposal of any Hazardous Materials in strict conformity with the Laws.

4.10. Maintenance of Documents.

4.10.1. Documents at Site. The Contractor shall maintain at the Site: (i) one record copy of the Drawings, Specifications and all addenda thereto; (ii) Change Orders approved by the District and all other

modifications to the Contract Documents; (iii) Submittals reviewed by the Architect; (iv) Record Drawings; (v) Material Safety Data Sheets ("MSDS") accompanying any materials, equipment or products delivered or stored at the Site or incorporated into the Work; and (vi) all Construction and other codes or regulations applicable to the Work, including without limitation, Title 24, Parts 2, 3, 4, 5, 7 and 9 of the California Code of Regulations. During performance of the Work, all documents maintained by Contractor at the Site shall be available upon request to the District, the Project Manager, the Architect, the Project Inspector and DSA for review, inspection or reproduction. Upon completion of the Work, all documents maintained at the Site by the Contractor pursuant to the foregoing shall be assembled and transmitted to the Project Manager and the Architect for delivery to the District.

4.10.2. Maintenance of Record Drawings. During its performance of the Work, the Contractor shall maintain Record Drawings consisting of a set of the Drawings which are marked to indicate all field changes made to adapt the Work depicted in the Drawings to field conditions, changes resulting from Change Orders and all concealed or buried installations, including without limitation, piping, conduit and utility services. All buried or concealed items of Work shall be completely and accurately marked and located on the Record Drawings. The Record Drawings shall be clean and all changes, corrections and dimensions shall be marked in a neat and legible manner in a contrasting color. Record Drawings relating to the Structural, Mechanical, Electrical and Plumbing portions of the Work shall indicate without limitation, circuiting, wiring sizes, equipment/member sizing and shall depict the entirety of the as built conditions of such portions of the Work. The Record Drawings shall be continuously maintained by the Contractor during the performance of the Work. At any time during the Contractor's performance of the Work, upon the request of the District, the Project Inspector, the Project Manager and/or the Architect, the Contractor shall make the Record Drawings maintained hereunder available for the District's review and inspection. The District's review and inspection of the Record Drawings during the Contractor's performance of the Work shall be only for the purpose of generally verifying that Contractor is continuously maintaining the Record Drawings in a complete and accurate manner; any such inspection or review shall not be deemed to be the District's approval or verification of the completeness or accuracy thereof. The failure or refusal of the Contractor to continuously maintain complete and accurate Record Drawings or to make available the Record Drawings for inspection and review by the District may be deemed by the District to be Contractor's default of a material obligation hereunder. Without waiving, restricting or limiting any other right or remedy of the District for the Contractor's failure or refusal to continuously maintain the Record Drawings, the District may, upon reasonably determining that the Contractor has not, or is not, continuously maintaining the Record Drawings in a complete and accurate manner, take appropriate action to cause the continuous maintenance of complete and accurate Record Drawings, in which event all fees and costs incurred or associated with such action shall be charged to the Contractor and the District may deduct the amount of such fees and costs from any portion of the Contract Price then or thereafter due the Contractor. In accordance with Article 8.5.2 of these General Conditions, prior to receipt of the Final Payment, Contractor shall deliver the Record Drawings to the Project Manager for transmittal to the District.

4.10.3. Daily Reports by Contractor. At the end of each work day, the Contractor shall submit a daily report to the Project Manager and the Project Inspector which include at least the following: (i) subcontractors; (ii) number of laborers and classifications of work of laborers for the contractor/subcontractors, (iii) material/equipment deliveries, (iv) special tests or inspections conducted; (v) weather conditions; and (vi) encountered conditions with potential costs or time impacts.

4.11. Site.

4.11.1. Contractor's Use of Site. The Contractor shall confine operations at the Site to areas permitted by the Laws or permits relating to the Work, subject to any restrictions or limitations set forth in the Contract Documents. The Contractor shall not unreasonably encumber the Site or adjoining areas with materials or equipment. The Contractor is solely responsible for providing security at the Site with all such costs included in the Contract Price. The District shall at all times have access to the Site.

4.11.2. Limitations Upon Site Activities. Except in the circumstances of an emergency, no Construction activities shall be permitted at or about the **Site except during the District's hours and days set forth in the Special Conditions. Work performed outside of the hours and days noted in the Special Conditions will not result in adjustment of the Contract Time or the Contract Price; unless Work outside of the hours and days noted in the Special Conditions is expressly authorized by the District.** Additional or premium costs incurred by the District for Work performed outside the hours and days of Work permitted at the Site shall be borne solely and exclusively by the Contractor. The District may deduct such additional or premium costs from the Contract Price then or thereafter due the Contractor.

4.12. Clean-Up. The Contractor shall at all times keep the Site and all adjoining areas free from the accumulation of any waste material or rubbish caused or generated by performance of the Work. Without limiting the generality of the foregoing, Contractor shall maintain the Site in a "broom-clean" standard on a daily basis. If the Work of the Contract Documents includes Construction and/or the installation of floor covering, prior to commencement of any Construction operations or the installation of any flooring covering, the area and adjoining areas of the Site where Construction is to be applied or floor covering is to be installed shall be in a "broom-clean" condition. Prior to completion of the Work, the Contractor shall remove from the Site all rubbish, waste material, excess excavated material, tools, Construction Equipment, machinery, surplus material and any other items which are not the property of the District under the Contract Documents. At completion of the Work, the Contractor shall clean the Construction interior and exterior, including fixtures, equipment, walls, floors, ceilings, roofs, window sills and ledges, horizontal surfaces, areas where debris, dust and similar items have collected, clean and polish all glass, plumbing fixtures, finish hardware, metal/wood/stone finishes. As directed by the Construction Manager, District or Architect, the Contractor shall remove temporary fencing, barricades, planking, temporary sanitary facilities, temporary utility distributions and other temporary facilities. Upon completion of the Work, the Site and all adjoining areas shall be left in a neat and broom clean condition satisfactory to the District. The Project Inspector or Construction Manager are authorized to direct the Contractor's clean-up obligations hereunder. If the Contractor fails to clean up as provided for in the Contract Documents, the District may do so, and all costs incurred in connection therewith shall be charged to the Contractor; the District may deduct such costs from any portion of the Contract Price then or thereafter due the Contractor.

4.13. Access to the Work. The Contractor shall provide the DSA, the District, the Construction Manager, the Project Inspector, the Architect and the Architect's consultant(s) with access to the Work, whether in place, preparation or in progress and wherever located.

4.14. Information and Facilities for the Project Inspector.

4.14.1. Information to Project Inspector. The Contractor shall provide theProject Inspector with access to the Work for obtaining such information as may be necessary to keep the Project Inspector fully informed respecting the progress, quality and character of the Work and materials, equipment or other items incorporated therein. The Contractor shall furnish such other information requested by the Project Inspector as necessary for the Project Inspector's discharge of its duties and responsibilities relating to the Work.

4.14.2. Facilities and Services for Project Inspector. The Contractor shall provide, without adjustment of the Contract Price, for use by the Project Inspector, the District and Project Manager the following: (i) lockable temporary office space consisting of sufficient space to accommodate Project Inspectors assigned to the Project; (ii) furniture and furnishings consisting of desks and chairs for use by Project Inspectors assigned to the Project, file storage, one (1) conference table and seating sufficient to accommodate seating for at least four (4) people; (iii) landline phone; (iv) plain paper fax machine; (v) landline telephone and fax service; (vi) internet service; and (vii) plain paper copier with copy speed of no greater than thirty-five (35) pages per minute. If the Contractor does not provide the foregoing described facilities, furnishings, equipment, or fails to pay timely any charges or fees arising out of the use of the same, the District may, as applicable, procure facilities, furnishings, equipment and services required by the Contract Documents or pay outstanding charges. Contractor shall reimburse the District for all costs, including the District's administrative costs, incurred by the District pursuant to the preceding sentence; in lieu of the Contractor's reimbursement and at the sole and exclusive discretion of the District, such costs may be deducted by the District from any portion of the Contract Price or thereafter due the Contractor.

4.15. Patents and Royalties. The Contractor and the Surety shall defend, indemnify and hold harmless the District and its agents, employees and officers from any claim, demand or legal proceeding arising out of or pertaining, in any manner, to any actual or claimed infringement of patent rights in connection with performance of the Work under the Contract Documents.

4.16. Cutting and Patching. The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make the component parts thereof fit together properly. The Contractor shall not damage or endanger any portion of the Work, or the fully or partially completed Construction of the District or separate contractors by cutting, patching, excavation or other alteration. When modifying new Work or when installing Work adjacent to an existing structure/facility, the Contractor shall match, as closely as conditions of the Site and materials will allow, the finishes, textures and colors of the existing structure/facility and refinish elements of the existing structure/facility. The Contractor shall not cut, patch or otherwise alter the Construction by the District or separate contractor without the prior written consent of the District or separate contractor thereto, which consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold consent to the request of the District or separate contractor to cut, patch or otherwise alter the Work.

4.17. Encountering Hazardous Materials. In the event the Contractor encounters Hazardous Materials at the Site which have not been rendered harmless or for which there is no provision in the Contract Documents for containment, removal, abatement or handling of such Hazardous Materials, the Contractor shall immediately stop the Work in the affected area, but shall diligently proceed with the Work in all other unaffected areas. Upon encountering such Hazardous Materials, the Contractor shall immediately notify the Project Inspector, Project Manager and the Architect, in writing, of such conditions. The Contractor shall proceed with the Work in such affected areas only after such Hazardous Materials have been rendered harmless, contained, removed or abated. In the event such Hazardous Materials are encountered, the Contractor shall be entitled to an adjustment of the Contract Time to the extent that the Work is stopped and Substantial Completion of the Work is affected thereby. In no event shall there be an adjustment to the Contract Price solely on account of the Contractor encountering such Hazardous Materials.

4.18. Wage Rates; Employment of Labor.

4.18.1. Prevailing Wage Rates.

4.18.1.1. Prevailing Wage Rate Schedules. Pursuant to the provisions of Division 2, Part 7, Chapter

1, Article 2 of the California Labor Code at §§1770 et seq., the District has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the prevailing rate for holiday and overtime work in the locality in which the Work is to be performed. Holidays shall be as defined in the collective bargaining agreement applicable to each particular craft, classification or type of worker employed under the Contract. Per diem wages include employer payments for health and welfare, pensions, vacation, travel time and subsistence pay as provided in California Labor Code §1773.8, apprenticeship or other training programs authorized by California Labor Code §3093, and similar purposes when the term "per diem wages" is used herein. Holiday and overtime work, when permitted by law, shall be paid for at the rate of at least one and one-half (1½) times the above specified rate of per diem wages, unless otherwise specified. The Contractor shall post, at appropriate and conspicuous locations on the Site, a schedule showing all determined general prevailing wage rates.

4.18.1.2. Payment of Prevailing Rates. There shall be paid each worker of the Contractor and Subcontractors, of any tier, engaged in the Work, not less than the general prevailing wage rate, regardless of any contractual relationship which may be alleged to exist between the Contractor or any Subcontractor, of any tier, and such worker.

4.18.1.3. Prevailing Rate Penalty. The Contractor shall, as a penalty, forfeit not more than Two Hundred Dollars ($200.00) to the District for each calendar day or portion thereof, for each worker paid less than the prevailing rates for such work or craft in which such worker is employed for the Work by the Contractor or by any Subcontractor, of any tier, in connection with the Work. The amount of the penalty for failure to pay applicable prevailing wage rates shall be determined and assessed in accordance with the standards established pursuant to Labor Code §1775(a)(2). The amount of the penalty shall be determined based on consideration of both of the following: (i) whether the failure of the Contractor or Subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of the Contractor or Subcontractor; and (ii) whether the Contractor or Subcontractor has a prior record of failing to meet its prevailing wage obligations. The penalty may not be less than forty dollars ($40) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, unless the failure of the Contractor or Subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of the contractor or subcontractor. The penalty may not be less than eighty dollars ($80) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the Contractor or Subcontractor has been assessed penalties within the previous three years for failing to meet its prevailing wage obligations on a separate contract, unless those penalties were subsequently withdrawn or overturned. The penalty may not be less than one hundred twenty dollars ($120) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the Labor Commissioner determines that the violation was willful, as defined in subdivision (c) of Section 1777.1. When the penalty amount due hereunder is collected from the Contractor or Subcontractor, any outstanding wage claim under Chapter 1 (commencing with Section 1720) of Part 7 of Division 2 against that Contractor or Subcontractor shall be satisfied before applying that amount to the penalty imposed on that Contractor or Subcontractor hereunder. The difference between prevailing wage rates and the amount paid to each worker each calendar day, or portion thereof, for which each worker paid less than the prevailing wage rate, shall be paid to each worker by the Contractor.

4.18.1.4. Prevailing Wage Rate Monitoring and Enforcement. During the Work and pursuant to Labor Code §1771.4(a)(4), the Department of Industrial Relations shall monitor and enforce the obligation of the Contractor and Subcontractors of every tier to pay laborers performing any portion of the Work the Prevailing Wage Rate established for the classification of work/labor performed.

4.18.2. Payroll Records.

4.18.2.1. Certified Payroll Records. Pursuant to California Labor Code §1776, the Contractor and each Subcontractor, of any tier, shall keep an accurate payroll record, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each person employed for the Work.

4.18.2.2. Certified Payroll Records Submittal to Labor Commissioner. The Contractor and all Subcontractors shall prepare and submit Certified Payroll Records to the Labor Commissioner in compliance with requirements established in Labor Code §1771.4. The form and content of Certified Payroll Records shall be as established by the Labor Commissioner and the frequency of Certified Payroll Records submittal to the Labor Commissioner shall be pursuant to Labor Code §1771.4.

4.18.2.3. Inspection and Copies of Certified Payroll Records. The payroll records shall be certified and available for inspection at all reasonable hours at the principal office of the Contractor on the following basis: (i) a certified copy of an employee's payroll record shall be made available for inspection or furnished to such employee or his/her authorized representative on request; (ii) a certified copy of all payroll records shall be made available for inspection or furnished upon request to the District, the Division of Labor Standards Enforcement ("DLSE") and the Division of Apprenticeship Standards of the Department of Industrial Relations ("Apprenticeship Council"); (iii) a certified copy of payroll records shall be made available upon request to the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the District, DLSE and the Apprenticeship Council. If the requested payroll records have not been provided, the requesting party shall, prior to being provided the records, reimburse the cost of preparation by the Contractor, Subcontractors and the entity through which the request was made; the public shall not be given access to such records at the principal office of the Contractor; (iv) the Contractor shall file a certified copy of the payroll records with the entity that requested such records within ten (10) days after receipt of a written request; (v) any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the District, the Apprenticeship Council or DLSE shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address and social security number. The name and address of the Contractor or any Subcontractor, of any tier, performing a part of the Work shall not be marked or obliterated. The Contractor shall inform the District of the location of payroll records, including the street address, city and county and shall, within five (5) working days, provide a notice of a change or location and address. In the event of noncompliance with the foregoing requirements, the Contractor shall have ten (10) days in which to comply, subsequent to receipt of written notice specifying in what respects the Contractor must comply herewith. Should noncompliance still be evident after such ten (10) day period, the Contractor shall, as a penalty to the District, forfeit One Hundred Dollars ($100.00) for each calendar day, or portion thereof, for each worker, until strict

compliance is effectuated. Upon the request of the Apprenticeship Council or DLSE, such penalties shall be withheld from any portion of the Contract Price then or thereafter due the Contractor. The Contractor is solely responsible for compliance with the foregoing provisions.

4.18.3. Hours of Work.

4.18.3.1. Limits on Hours of Work. Pursuant to California Labor Code §1810, eight (8) hours of labor shall constitute a legal day's work. Pursuant to California Labor Code §1811, the time of service of any worker employed at any time by the Contractor or by a Subcontractor, of any tier, upon the Work or upon any part of the Work, is limited and restricted to eight (8) hours during any one calendar day and forty (40) hours during any one calendar week, except as hereinafter provided. Notwithstanding the foregoing provisions, Work performed by employees of Contractor or any Subcontractor, of any tier, in excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1½) times the basic rate of pay.

4.18.3.2. Penalty for Excess Hours. The Contractor shall pay to the District a penalty of Twenty-five Dollars ($25.00) for each worker employed on the Work by the Contractor or any Subcontractor, of any tier, for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any calendar day and forty (40) hours in any one calendar week, in violation of the provisions of the California Labor Code, unless compensation to the worker so employed by the Contractor is not less than one and one-half (1½) times the basic rate of pay for all hours worked in excess of eight (8) hours per day.

4.18.3.3. Contractor Responsibility. Any Work performed by workers necessary to be performed after regular working hours or on Saturdays, Sundays or other holidays shall be performed without adjustment to the Contract Price or any other additional expense to the District. The Contractor shall be responsible for costs incurred by the District which arise out of Work performed by the Contractor at times other than regular working hours and regular working days. Upon determination of such costs, the District may deduct such costs from the Contract Price then or thereafter due the Contractor.

4.18.4. Apprentices.

4.18.4.1. Employment of Apprentices. Any apprentices employed to perform any of the Work shall be paid the standard wage paid to apprentices under the regulations of the craft or trade for which such apprentice is employed, and such individual shall be employed only for the work of the craft or trade to which such individual is registered. Only apprentices, as defined in California Labor Code §3077 who are in training under apprenticeship standards and written apprenticeship agreements under California Labor Code §§3070 et seq. are eligible to be employed for the Work. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which such apprentice is training.

4.18.4.2. Apprenticeship Certificate. When the Contractor or any Subcontractor, of any tier, in performing any of the Work employs workers in any Apprenticeable Craft or Trade, the Contractor and such Subcontractor shall apply to the Joint Apprenticeship Committee

administering the apprenticeship standards of the craft or trade in the area of the site of the Work for a certificate approving the Contractor or such Subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected, provided, however, that the approval as established by the Joint Apprenticeship Committee or Committees shall be subject to the approval of the Administrator of Apprenticeship. The Joint Apprenticeship Committee or Committees, subsequent to approving the Contractor or Subcontractor, shall arrange for the dispatch of apprentices to the Contractor or such Subcontractor in order to comply with California Labor Code §1777.5. Prior to the commencement of the Work, the Contractor and Subcontractors shall submit contract award information (on Form DAS-140) to the applicable Joint Apprenticeship Committee which shall include an estimate of journeyman hours to be performed under the Contract, the number of apprentices to be employed, and the approximate dates the apprentices will be employed. Concurrently with submission of contract information on Form DAS-140 to the Apprenticeship Council, the Contractor shall deliver a copy of its completed DAS-140 to the District and the Project Manager. There shall be an affirmative duty upon the Joint Apprenticeship Committee or Committees, administering the apprenticeship standards of the crafts or trades in the area of the site of the Work, to ensure equal employment and affirmative action and apprenticeship for women and minorities. Contractors or Subcontractors shall not be required to submit individual applications for approval to local Joint Apprenticeship Committees provided they are already covered by the local apprenticeship standards.

4.18.4.3. Ratio of Apprentices to Journeymen. The ratio of Work performed by apprentices to journeymen, who shall be employed in the Work, may be the ratio stipulated in the apprenticeship standards under which the Joint Apprenticeship Committee operates, but in no case shall the ratio be less than one hour of apprentice work for each five hours of labor performed by a journeyman, except as otherwise provided in California Labor Code §1777.5. The minimum ratio for the land surveyor classification shall not be less than one apprentice for each five journeymen. Any ratio shall apply during any day or portion of a day when any journeyman, or the higher standard stipulated by the Joint Apprenticeship Committee, is employed at the site of the Work and shall be computed on the basis of the hours worked during the day by journeymen so employed, except for the land surveyor classification. The Contractor shall employ apprentices for the number of hours computed as above before the completion of the Work. The Contractor shall, however, endeavor, to the greatest extent possible, to employ apprentices during the same time period that the journeymen in the same craft or trade are employed at the site of the Work. Where an hourly apprenticeship ratio is not feasible for a particular craft or trade, the Division of Apprenticeship Standards, upon application of a Joint Apprenticeship Committee, may order a minimum ratio of not less than one apprentice for each five journeymen in a craft or trade classification. The Contractor or any Subcontractor covered by this Article and California Labor Code §1777.5, upon the issuance of the approval certificate, or if it has been previously approved in such craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeymen stipulated in the apprenticeship standards. Upon proper showing by the Contractor that it employs apprentices in such craft or trade in the State of California on all of its contracts on an annual average of not less than one apprentice to each five journeymen, the Division of Apprenticeship Standards may grant a certificate exempting the Contractor from the 1-to-5 ratio as set

forth in this Article and California Labor Code §1777.5. This Article shall not apply to contracts of general contractors, or to contracts of specialty contractors not bidding for work through a general or prime contractor, involving less than Thirty Thousand Dollars ($30,000.00) or twenty (20) working days. The term "Apprenticeable Craft or Trade," as used herein shall mean a craft or trade determined as an Apprenticeable occupation in accordance with rules and regulations prescribed by the Apprenticeship Council.

4.18.4.4. Exemption from Ratios. The Joint Apprenticeship Committee shall have the discretion to grant a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting the Contractor from the 1-to-5 ratio set forth in this Article when it finds that any one of the following conditions are met: (i) unemployment for the previous three-month period in such area exceeds an average of fifteen percent (15%) or; (ii) the number of apprentices in training in such area exceeds a ratio of 1-to-5 in relation to journeymen, or; (iii) the Apprenticeable Craft or Trade is replacing at least one-thirtieth (1/30) of its journeymen annually through apprenticeship training, either on a statewide basis or on a local basis, or; (iv) if assignment of an apprentice to any Work performed under the Contract Documents would create a condition which would jeopardize such apprentice's life or the life, safety or property of fellow employees or the public at large, or if the specific task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyman. When such exemptions from the 1-to-5 ratio between apprentices and journeymen are granted to an organization which represents contractors in a specific trade on a local or statewide basis, the member contractors will not be required to submit individual applications for approval to local Joint Apprenticeship Committees, provided they are already covered by the local apprenticeship standards.

4.18.4.5. Contributions to Trust Funds. The Contractor or any Subcontractor, of any tier, who, performs any of the Work by employment of journeymen or apprentices in any apprenticeable Craft or Trade and who is not contributing to a fund or funds to administer and conduct the apprenticeship program in any such craft or trade in the area of the site of the Work, to which fund or funds other contractors in the area of the site of the Work are contributing, shall contribute to the fund or funds in each craft or trade in which it employs journeymen or apprentices in the same amount or upon the same basis and in the same manner as the other contractors do, but where the trust fund administrators are unable to accept such funds, contractors not signatory to the trust agreement shall, using California Apprenticeship Council Training Fund Contributions Form CAC-2, pay a like amount to the California Apprenticeship Council. DLSE is authorized to enforce the payment of such contributions to such fund(s) as set forth in California Labor Code §227. Such contributions shall not result in an increase in the Contract Price.

4.18.4.6. Contractor's Compliance. The responsibility of compliance with this Article for all Apprenticeable Trades or Crafts is solely and exclusively that of the Contractor. All decisions of the Joint Apprenticeship Committee(s) under this Article are subject to the provisions of California Labor Code §3081. If the Contractor willfully fails to comply with the provisions of this Article and California Labor Code §1777.5, pursuant to California Labor Code §1777.7, the Contractor shall: (i) be denied the right to bid on any public works contract for a period of one (1) year from the date the determination of non-compliance is made by the Administrator of Apprenticeship; and (ii) forfeit, as a civil penalty, Fifty Dollars ($50.00) for each calendar day of noncompliance.

Notwithstanding the provisions of California Labor Code §1727, upon receipt of such determination, the District shall withhold such amount from the Contract Price then due or to become due. Any such determination shall be issued after a full investigation, a fair and impartial hearing, and reasonable notice thereof in accordance with reasonable rules and procedures prescribed by the California Apprenticeship Council. Any funds withheld by the District pursuant to this Article shall be deposited in the General Fund or other similar fund of the District. The interpretation and enforcement of California Labor Code §§1777.5 and 1777.7 shall be in accordance with the rules and procedures of the California Apprenticeship Council.

4.18.5. Employment of Independent Contractors. Pursuant to California Labor Code §1021.5, Contractor shall not willingly and knowingly enter into any agreement with any person, as an independent contractor, to provide any services in connection with the Work where the services provided or to be provided requires that such person hold a valid contractors' license issued pursuant to California Business and Professions Code §§7000 et seq. and such person does not meet the burden of proof of his/her independent contractor status pursuant to California Labor Code §2750.5. If the Contractor employs any person in violation of the foregoing, Contractor shall be subject to the civil penalties under California Labor Code §1021.5 and any other penalty provided by law. In addition to the penalties provided under California Labor Code §1021.5, Contractor's violation of this Article 4.18.5 or the provisions of California Labor Code §1021.5 shall be deemed an event of Contractor's default under Article 15.1 of these General Conditions. The Contractor shall require any Subcontractor or Sub-Subcontractor performing or providing any portion of the Work to adhere to and comply with the foregoing provisions.

4.19. Assignment of Antitrust Claims. Pursuant to California Government Code §4551, the Contractor and its Subcontractor(s), of any tier, hereby offers and agrees to assign to the District all rights, title and interest in and to all causes of action they may have under Section 4 of the Clayton Act, (15 U.S.C. §15) or under the Cartwright Act (California Business and Professions Code §§16700 et seq.), arising from purchases of goods, services or materials hereunder or any Subcontract. This assignment shall be made and become effective at the time the District tenders Final Payment to the Contractor, without further acknowledgment by the parties. If the District receives, either through judgment or settlement, a monetary recovery in connection with a cause of action assigned under California Government Code §§4550 et seq., the assignor thereof shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the District any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the District as part of the Contract Price, less the expenses incurred by the District in obtaining that portion of the recovery. Upon demand in writing by the assignor, the District shall, within one year from such demand, reassign the cause of action assigned pursuant to this Article if the assignor has been or may have been injured by the violation of law for which the cause of action arose: and (i) the District has not been injured thereby; or (ii) the District declines to file a court action for the cause of action.

4.20. DSA Construction Oversight. All of the Work is subject to DSA Construction Oversight processes and procedures; a material obligation of the Contractor hereunder is the Contractor's compliance with the processes and procedures established by DSA for the Work. As applicable, the foregoing shall include without limitation, the processes and procedures established under DSA PR 13-01 in effect at the time of performing the Work hereunder. The foregoing shall include:

4.20.1. DSA Approved Documents. The Contractor shall carefully study the DSA approved documents and shall plan a schedule of operations well ahead of time.

4.20.2. Correction of Non-Conforming Work. If at any time it is discovered that Work is not in accordance with the DSA approved Construction documents, the Contractor shall correct the Work immediately.

4.20.3. Verification of DSA 152 Forms. The Contractor shall verify that DSA 152 forms were issued prior to the commencement of Construction.

4.20.4. Test/Inspection Communications. The Contractor shall meet with the Architect, Construction Manager, the Laboratory of Record retained by the District for special tests/inspections and the Project Inspector to mutually communicate and understand the testing and inspection program, and the methods of communication appropriate for the Work.

4.20.5. DSA Form 156 Notifications to Project Inspector. The Contractor shall notify the Project Inspector, in writing, of the commencement of Construction of each and every aspect of the Work at least 48 hours in advance by submitting Commencement/Completion of Work Notification (form DSA 156), or other agreed upon written documents, to the Project Inspector. The Contractor shall notify the Project Inspector of the completion of Construction of each and every aspect of the Work by submitting form DSA 156 (or other agreed upon written documents) to the Project Inspector.

4.20.6. Limitations on Contractor Work. Until the Project Inspector has signed off applicable blocks and sections of the form DSA 152, the Contractor may be prohibited from proceeding with subsequent Construction activities that cover up the unapproved Work. Any subsequent Construction activities, that cover up the unapproved Work, will be subject to a "Stop Work Order" from DSA or the District, and are subject to removal and remediation if found to be in non-compliance with the DSA approved Construction documents.

4.20.7. Final Verified Report. The Contractor shall submit the final Contractor Verified Report. (form DSA 6-C) to DSA and the Project Inspector. The DSA 6-C reports are required to be submitted by the Contractor upon occurrence of any of the following events: (i) the Work is substantially complete (DSA considers the Work to be complete when the Construction is sufficiently complete in accordance with the DSA approved Construction documents so that the owner can occupy or utilize the Work); (ii) Work is suspended for a period of more than one (1) month; (iii) services of the Contractor are terminated for any reason prior to the completion of the Work; or (iv) DSA requests a verified report.

4.21. DSA Verified Reports.

4.21.1. Contractor Actions. The Contractor acknowledges and agrees that a material obligation of the Contractor under the Contract Documents is the completion by the Contractor of all actions and activities which by the Contract Documents or by the Laws are the responsibility of the Contractor relating to DSA reporting requirements pursuant to Education Code §81141 (including amendments thereto) and issuance of DSA's Certificate of Compliance for the Project pursuant to Education Code §81147 (including amendments thereto) upon completion of the Work. The foregoing shall include without limitation, the timely preparation, completion and filing of Verified Reports during Project Construction and the filing of the Final Verified Report with DSA within thirty (30) days of the determination of Final Completion. The Contractor shall provide the District, the Project Inspector, Architect, Construction Manager with copies of all Verified Reports completed by the Contractor and submitted to DSA; such copies shall be provided to the Project Inspector, Architect, the Construction Manager and the District concurrently with the Contractor's submission thereof to DSA.

4.21.2. District Withholdings from Final Payment. Notwithstanding any provision of the Contract Documents to the contrary, the completion and filing of the Final Verified Report with DSA by the Contractor is an express condition precedent to the District's disbursement of the Final Payment. If the Contractor fails to prepare and file the Final Verified Report with DSA within thirty (30) days of the determination of Final Completion, the District may in the sole and exclusive discretion of the District retain and withhold ten percent (10%) of the Final Payment from disbursement to the Contractor as damages for the failure of the Contractor to have timely and completely discharged its obligations hereunder. The Contractor acknowledges and agrees that the foregoing withholdings by the District is a reasonable estimate of the damages and other losses the District will sustain due to the failure of the Contractor to have timely and fully discharged its obligations hereunder.

4.22. Disabled Veteran Business Enterprises (DVBE) Participation Goal.

4.22.1. Continuing Responsibilities. The Contractor shall secure the participation of DVBEs in accordance with the Contractor's DVBE Good Faith Efforts Worksheets submitted with the Contractor's Bid Proposal.

4.22.2. DVBE Participation Reports and Data. During performance of the Work, the Contractor shall maintain complete and accurate records of DVBE participation in executing the Work. From time-to-time, upon the request of the District, the Contractor shall submit reports, in form and content satisfactory to the District, regarding DVBE Participation in the Work of the Contract, including the participation of DVBEs in the performance of approved Changes to the Work (DVBE Reports). The failure or refusal of the Contractor to submit DVBE Reports during performance of the Work within ten (10) days of the District's request for DVBE Reports may be deemed by the District to be the Contractor's default of a material obligation of the Contract Documents and thereupon, the District may exercise any right or remedy provided for under the Contract Documents or at law, including without limitation termination for Contractor default or the withholding of payments otherwise due under the Contract Documents until such DVBE Report(s) is/are received. If requested by the District, upon completion of the Work, the Contractor shall submit a final DVBE Report identifying all DVBEs utilized in the performance of the Work, the type or classification of the Work performed by each such DVBE and the dollar value of the Work performed by each such DVBE. In the event that the District shall request a report of DVBE utilization upon completion of the Work of the Contract, the submission of such report in form and content satisfactory to the District shall be deemed a condition precedent to the District's obligation to make payment of the Final Payment under the Contract Documents. The submission of such final DVBE Report shall be in addition to, and not in lieu of any other conditions precedent set forth in the Contract Documents for the District's obligation to make payment of the Final Payment. The Contractor shall maintain books and records of DVBE Participation in the Work for at least three (3) years following Final Completion; during such time, the District shall have access, upon reasonable advance notice, to such books and records for inspection or reproduction.

4.22.3. Contract Audit. The Contractor agrees that the District, or its designee, shall have the right to review, obtain and/or copy any and all writings, materials, documents and other records pertaining to utilization of DVBEs in performance of the Contract. The shall provide the District, or its designee, access to the Contractor's premises upon reasonable notice, during usual business hours for the purpose of interviewing employees and inspecting and/or copying such writings, materials, documents and other documents which may be relevant to a matter under investigation for the purpose of determining compliance with the DVBE Participation Goal Program Policy.

4.23. Employee Fingerprinting; Contractor's Compliance with Education Code §§ 45125.1 and 45125.2.

4.23.1. General; School Session Requirements. The Contractor acknowledges that the safety of students on or about the Site is of paramount importance and that Contractor's compliance with these provisions is a material obligation of the Contractor under the Contract Documents. To ensure the safety of students on or about the Site, the Contractor agrees that if at any time during performance of any Work at or about the Site occurs when classes are in session at the Site or during school related functions at the Site, no personnel of the Contractor, Subcontractor, Material Supplier or others performing or providing any portion of the Work of the Contract Documents will be permitted access to the Site unless such personnel are specifically identified in the Fingerprint Certificate Attachment. Any personnel at the Site who is not identified in the Fingerprint Certificate Attachment will be immediately removed from the Site and will not be permitted access until a Fingerprint Certification is submitted to the District identifying such personnel in the Fingerprint Certificate Attachment thereto. Neither the Contract Time nor the Contract Price shall be adjusted on account of the removal of any personnel from the Site pursuant to the foregoing.

4.23.2. Non-School Session. If at any time during performance of Work at or about the Site which when classes are not in session at the Site or when there are no other school related functions at the Site, personnel of the Contractor, Subcontractors, Material Suppliers or others performing or providing any portion of the Work will be permitted access to the Site without such personnel being specifically identified in the Fingerprint Certificate Attachment. The foregoing notwithstanding, during such times, the Contractor shall comply with the provisions of Education Code §42125.2 by either: (a) erecting physical barriers to limit contact with students or (b) continual supervision and monitoring of personnel at the Site by a employee of the Contractor who has been verified by the California Department of Justice as not having been convicted of a violent or serious felony. If the Contractor elects the procedure under (b) in the preceding sentence, the Contractor shall submit a Department of Justice verification that such employee has not been convicted of a violent or serious felony and has no felony proceedings pending against her/him. The provisions of Education Code §45125.2 notwithstanding, there will be no surveillance of the personnel of the Contractor, Subcontractors, Material Suppliers or others performing or providing Work at the Site by the personnel of the District, Architect, Project Manager, or the Inspector.

4.24. District Required Identification. In addition to compliance with the foregoing, if the District requires the issuance of identification badges or other means of identification, no person will be permitted access to the Site until the District has issued such person an identification badge or other means of identification. Notwithstanding compliance with the foregoing requirements, if the District requires that identification badges be issued and worn at the Site, any person providing or performing Work at the Site who has not been issued or who is not wearing his/her identification badge will be immediately removed from the Site; such person will not be permitted access to the Site until the District has issued such person an identification badge and/or such person wears her/her identification badge issued by the District. The removal of any personnel from the Site under the foregoing provisions shall not result in adjustment of the Contract Price or the Contract Time.

5. SUBCONTRACTORS

5.1. Subcontracts. Any Work performed for the Contractor by a Subcontractor shall be pursuant to a written agreement between the Contractor and such Subcontractor which specifically incorporates

by reference the Contract Documents and which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents, including without limitation, the policies of insurance required under Article 6 of these General Conditions and the termination provisions of Article 15, and obligates the Subcontractor to assume toward the Contractor all the obligations and responsibilities of the Contractor which by the Contract Documents the Contractor assumes toward the District, the Project Inspector, DSA, the Project Manager and the Architect. The foregoing notwithstanding, no contractual relationship shall exist, or be deemed to exist, between any Subcontractor and the District, unless the Contract is terminated and District, in writing, elects to assume the Subcontract. Each Subcontract for a portion of the Work shall provide that such Subcontract may be assigned to the District if the Contract is terminated by the District pursuant to Article 15.1 hereof, subject to the prior rights of the Surety obligated under a bond relating to the Contract. The Contractor shall provide to the District copies of all executed Subcontracts and Purchase Orders to which Contractor is a party within thirty (30) days after Contractor's execution of the Agreement. During performance of the Work, the Contractor shall, from time to time, as and when requested by the District, the Architect or the Project Manager provide the District with copies of any and all Subcontracts or Purchase Orders relating to the Work and all modifications thereto. The Contractor's failure or refusal, for any reason, to provide copies of such Subcontracts or Purchase Orders in accordance with the two preceding sentences is Contractor's default of a material term of the Contract Documents.

5.2. Contractor and Subcontractor Communication. All written communications between the Contractor and any Subcontractor, Material Supplier or others directly or indirectly engaged by the Contractor to perform or provide any portion of the Work shall be available to the District, the Project Manager and the Architect for review, inspection and reproduction as may be requested from time to time. The foregoing is a material obligation of the Contractor hereunder.

5.3. Subcontractor DIR Contractor Registration.

5.3.1. No Subcontractor Performance of Work Without DIR Registration. No portion of the Work is permitted to be performed by a subcontractor, of any tier, unless the Subcontractor is a DIR Registered contractor. The foregoing DIR contractor registration requirement is applicable for all Subcontractors, including without limitation, lower tier Subcontractors and Subcontractors who are not identified in the Contractor's Subcontractors List.

5.3.2. Contractor Obligation to Verify Subcontractor DIR Registration Status. An affirmative and on-going obligation of the Contractor under the Contract Documents is the Contractor's verification that all Subcontractors are at all times during performance of the Work in full and strict compliance with DIR contractor registration requirements. The Contractor shall not permit or allow any Subcontractor to perform any Work without the Contractor's verification that the Subcontractor is in full and strict compliance with DIR contractor registration requirements.

5.3.3. Contractor Obligation to Request Substitution of Listed Subcontractor Who Is Not DIR Registered Contractor. If Contractor inadvertently identified a Subcontractor in the Contractor's Subcontractors List submitted with the Contractor's proposal for the Work who was not a DIR registered contractor at the time of opening of proposals for the Work or if a Subcontractor's DIR contractor registration lapses prior to or during a Subcontractor's performance of Work, the Contractor shall request the District's consent to substitute the Subcontractor who is not a DIR registered contractor pursuant to Labor Code §1771.1(c)(3) and/or Labor Code §1771.1(d).

5.3.4. Contractor/Subcontractor Penalties Pursuant to Labor Code § 1771.1(g). If the Labor Commissioner or his or her designee determines that the Contractor or Subcontractor engaged

in the performance of any public work contract without having been a DIR registered contractor, the Contractor or Subcontractor shall forfeit, as a civil penalty to the state, one hundred dollars ($100) for each day of work performed in violation of the registration requirement, not to exceed an aggregate penalty of eight thousand dollars ($8,000) in addition to any penalty registration fee assessed pursuant to clause (ii) of subparagraph (E) of paragraph (2) of subdivision (a) of Section 1725.5.

5.3.5. Subcontractor Penalties Pursuant to Labor Code § 1771.1 (h)(1). In addition to, or in lieu of, any other penalty or sanction authorized pursuant to this chapter, a higher tiered contractor or subcontractor who is found to have entered into a subcontract with an unregistered lower tier subcontractor to perform any public work in violation of the requirements of Section 1725.5 shall be subject to forfeiture, as a civil penalty to the state, of one hundred dollars ($100) for each day the unregistered lower tier subcontractor performs work in violation of the registration requirement, not to exceed an aggregate penalty of ten thousand dollars ($10,000).

5.4. Substitution of ListedSubcontractor.

5.4.1. Substitution Process. Any request of the Contractor to substitute a listed Subcontractor will be considered only if such request is in strict conformity with this Article 5.4 and California Public Contract Code §4107. All costs incurred by the District, including without limitation, costs of the Project Inspector, the Architect, the Project Manager or attorneys' fees in the review and evaluation of a request to substitute a listed Subcontractor shall be borne by the Contractor; such costs may be deducted by the District from the Contract Price then or thereafter due the Contractor.

5.4.2. Responsibilities of Contractor Upon Substitution of Subcontractor. The District's consent to the Contractor's substitution of a listed Subcontractor shall not relieve Contractor from its obligation to complete the Work within the Contract Time and for the Contract Price. The substitution of a listed Subcontractor shall not, under any circumstance, result in, or give rise to any to any increase of the Contract Price or the Contract Time on account of such substitution. In the event of the District's consent to the substitution of a listed Subcontractor, the Architect shall determine the extent to which, if any, revised or additional Submittals will be required of the newly substituted Subcontractor. If the Architect determines that revised or additional Submittals are required of the newly substituted Subcontractor, the Architect shall promptly notify the Contractor, in writing, of such requirement. In such event, revised or additional Submittals shall be submitted to Architect not later than thirty (30) days following the date of the Architect's written notice to the Contractor pursuant to the foregoing sentence; provided that if in the reasonable and good faith judgment of the Architect, the progress of the Work or completion of the Work requires submission of additional or revised Submittals by the newly substituted Subcontractor in less than thirty (30) days, the Architect shall so state in its written notice to the Contractor. In the event that the revised or additional Submittals are not submitted by Contractor within thirty (30) days, or such earlier time as determined by the Architect pursuant to the preceding sentence, following the Architect's written notice of the requirement for revised or additional Submittals, Contractor shall be subject to the per diem assessments for late Submittals as set forth in Article 4.7.2.1 of these General Conditions. Any revised or additional Submittals required pursuant to this Article 5.4.2 shall conform with the requirements of Article 4.7 of these General Conditions. The Contractor shall reimburse the District for all fees and costs, including without limitation fees of the Project Manager, Architect and/or any design consultant to the Architect or the District and DSA fees, incurred or associated with the processing, review and evaluation of any revised or additional Submittals required pursuant to this Article 5.4.2; the District may deduct such fees and costs from any portion of the Contract

Price then or thereafter due the Contractor. In the event that additional or revised Submittals are required pursuant to this Article 5.4.2, such requirement shall not result in an increase to the Contract Time or the Contract Price.

5.5. Subcontractors' Work. Whenever the Work of a Subcontractor is dependent upon the Work of the Contractor or another Subcontractor, the Contractor shall require the Subcontractor to: (i) coordinate its Work with the dependent Work; (ii) provide necessary dependent data and requirements; (iii) supply and/or install items to be built into the dependent Work of others; (iv) make appropriate provisions for dependent Work of others; (v) carefully examine and understand the portions of the Contract Documents (including Drawings, Specifications and Field Clarifications) and Submittals relating to the dependent Work; and (vi) examine the existing dependent Work and verify that the dependent Work is in proper condition for the Subcontractor's Work. If the dependent Work is not in a proper condition, the Subcontractor shall notify the Contractor in writing and not proceed with the Subcontractor's Work until the dependent Work has been corrected or replaced and is in a proper condition for the Subcontractor's Work.

6. INSURANCE, BONDS ANDINDEMNITY

6.1. Workers' Compensation Insurance; Employer's Liability Insurance. The Contractor shall purchase and maintain Workers' Compensation Insurance as will protect the Contractor from claims under workers' or workmen's compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. Contractor shall purchase and maintain Employer's Liability Insurance covering bodily injury (including death) by accident or disease to any employee which arises out of the employee's employment by Contractor. The Employer's Liability Insurance required of Contractor hereunder may be obtained by Contractor as a separate policy of insurance or as an additional coverage under the Workers' Compensation Insurance required to be obtained and maintained by Contractor hereunder. The limits of liability for the Employer's Liability Insurance required hereunder shall be as set forth in the Special Conditions.

6.2. Commercial General Liability and Property Insurance. The Contractor shall purchase and maintain Commercial General Liability and Property Insurance covering the types of claims set forth below which may arise out of or result from Contractor's operations under the Contract Documents and for which the Contractor may be legally responsible: (i) claims for damages because of bodily injury, sickness or disease or death of any person other than the Contractor's employees; (ii) claims for damages insured by usual personal injury liability coverage which are sustained (a) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (b) by another person; (iii) claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; (iv) claims for damages because of bodily injury, death of a person or property damages arising out of ownership, maintenance or use of a motor vehicle; (v) contractual liability insurance applicable to the Contractor's obligations under the Contract Documents; (vi) Completed Operations; and (vii) pollution liability.

6.3. Risk "All-Risk" Insurance. The Contractor, during the progress of the Work and until Final Acceptance of all Work by the District, shall maintain Risk "All-Risk" Completed Value Insurance Coverage on all insurable Work included under the Contract Documents which coverage is to provide extended coverage and insurance against vandalism and malicious mischief, perils of fire, sprinkler leakage, civil authority, sonic boom, collapse and flood upon the entire Work which is the subject of the Contract Documents, and including completed Work and Work in progress to the full insurable value

thereof. Contractor's Risk Insurance shall include coverage and insurance against the perils of earthquake if so indicated in the Special Conditions. Such insurance shall include the District as an additional named insured, and any other person with an insurable interest designated by the District as an additional named insured. The risk of damage to the Work due to the perils covered by the Risk "All Risk" Insurance, as well as any other hazard which might result in damage to the Work, is that of the Contractor and the Surety, and no claims for such loss or damage shall be recognized by the District, nor will such loss or damage excuse the complete and satisfactory performance of the Contract by the Contractor.

6.4. Contractors' Pollution Liability Insurance. The Contractor shall provide Contractors' Pollution Liability Insurance covering environmental liabilities including, without limitation, those resulting from Construction and remediation operations, whether performed by the contractor or subcontractors and claims alleging improper supervision of subcontractors. If the Work of any Subcontractor involves the Storm Water Pollution Prevention Plan ("SWPPP"), the removal of asbestos, the removal/replacement of underground tanks or the removal of toxic chemicals and substances, such Subcontractor(s), are required to obtain Contractor's Pollution Liability insurance covering the risk of exposure to asbestos, lead and/or toxic/hazardous materials encountered during Construction of the Project.

6.5. Coverage Amounts. The insurance required of the Contractor hereunder shall be written for not less than any limits of liability specified in the Contract Documents, or required by law, whichever is greater. In the event of any loss or damage covered by a policy of insurance required to be obtained and maintained by the Contractor hereunder, the Contractor shall be solely and exclusively responsible for the payment of the deductible, if any, under such policy of insurance, without adjustment to the Contract Price on account thereof.

6.6. Required Qualifications of Insurers. The Contractor and Subcontractors' policies of Commercial General Liability and Property/Casualty insurance and the Contractor's Construction Risk insurance will be accepted by the District only if the insurer(s) are: (i) A.M. Best rated A- or better; (ii) A.M. Best Financial Size Category VII or higher; and (iii) authorized under California law to transact business in the State of California and authorized to issue insurance policies in the State of California. If at any time during performance of the Work, the insurer(s) issuing a policy of insurance covering Commercial General Liability or Property/Casualty is/are not A.M. Best rated A- or better and is/are not A.M. Best Financial Size Category VII or higher, the Contractor or Subcontractor, as applicable shall within thirty (30) days of the District's written notice of the insufficiency of an insurer to the Contractor, obtain insurance coverage(s) from alternative insurer(s) who is/are then A.M. Best rated A- or better and who is/are A.M. Best Financial Size Category VII or higher. If the Contractor fails to deliver Certificate(s) of Insurance from an alternative insurer(s) meeting or exceeding the A.M. Best rating and A.M. Best Financial Size Category set forth above, within thirty (30) days of the date of the District's issuance of a written notice pursuant to the preceding sentence, in addition to any other right or remedy of the District under the Contract Documents or arising by operation of law, the District may withhold disbursement of any Progress Payment otherwise due hereunder until the Contractor has delivered such Certificate(s) of Insurance from an alternative insurer(s).

6.7. Certificates of Insurance. Prior to commencing the Work, Contractor shall deliver to the District Certificates of Insurance evidencing the insurance coverages required by the Contract Documents. Failure or refusal of the Contractor to deliver Certificates of Insurance may be deemed by the District to be a default of a material obligation of the Contractor under the Contract Documents, and thereupon the District may proceed to exercise any right or remedy provided for under the Contract Documents or at law. The Certificates of Insurance and the insurance policies required by the Contract Documents shall contain a provision that coverages afforded under such policies will not be

canceled or allowed to expire until at least thirty (30) days prior written notice has been given to the District. The insurance policies required of Contractor hereunder shall also name the District as an additional insured as its interests may appear. The additional Insured acknowledgement shall be submitted as a separate declaration from the Contractor's insurance provider (ACCORD form modifications are not acceptable). Should any policy of insurance be canceled before Final Acceptance of the Work by the District and the Contractor fails to immediately procure replacement insurance as required, the District reserves the right to procure such insurance and to deduct the premium cost thereof and other costs incurred by the District in connection therewith from any sum then or thereafter due the Contractor under the Contract Documents. The Contractor shall, from time to time, furnish the District, when requested, with satisfactory proof of coverage of each type of insurance required by the Contract Documents; failure of the Contractor to comply with the District's request may be deemed by the District to be a default of a material obligation of the Contractor under the Contract Documents.

6.8. Subcontractors' Insurance. Contractor shall require that every Subcontractor, to obtain and maintain the policies of insurance set forth in Articles 6.1 and 6.2 of these General Conditions; the coverages and limits of liability of such policies of insurance to be obtained and maintained by Subcontractors shall be as set forth in the Special Conditions. The policies of insurance to be obtained and maintained by Subcontractors hereunder are in addition to, and not in lieu of, Contractor obtaining and maintaining such policies of insurance. Each of the policies of insurance obtained and maintained by a Subcontractor hereunder shall conform to the requirements of this Article 6. Upon request of the District, Contractor shall promptly deliver to the District Certificates of Insurance evidencing that the Subcontractors have obtained and maintained policies of insurance in conformity with the requirements of this Article 6. Failure or refusal of the Contractor to provide the District with Subcontractors' Certificates of Insurance evidencing the insurance coverages required hereunder is a material default of Contractor hereunder.

6.9. Maintenance of Insurance. Any insurance bearing on the adequacy of performance of Work shall be maintained after the District's Final Acceptance of all of the Work for the full one year correction of Work period and any longer specific guarantee or warranty periods set forth in the Contract Documents. Should such insurance be canceled before the end of any such periods and the Contractor fails to immediately procure replacement insurance as specified, the District reserves the right to procure such insurance and to charge the cost thereof to the Contractor. Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from its operations or performance of the Work under the Contract Documents, including without limitation the Contractor's obligation to pay Liquidated Damages. In no instance will the District's exercise of its option to occupy and use completed portions of the Work relieve the Contractor of its obligation to maintain insurance required under this Article until the date of Final Acceptance of the Work by the District, or such time thereafter as required by the Contract Documents. The insurer providing any insurance coverage required hereunder shall be to the reasonable satisfaction of the District.

6.10. Contractor's Insurance Primary. All insurance and the coverages thereunder required to be obtained and maintained by Contractor hereunder, if overlapping with any policy of insurance maintained by the District, shall be deemed to be primary and non-contributing with any policy maintained by the District and any policy or coverage thereunder maintained by District shall be deemed excess insurance. To the extent that the District maintains a policy of insurance covering property damage arising out of the perils of fire or other casualty covered by the Contractor's Risk Insurance or the Comprehensive General Liability Insurance of the Contractor or any Subcontractor, the District, Contractor and all Subcontractors waive rights of subrogation against the others. The

costs for obtaining and maintaining the insurance coverages required herein shall be included in the Contract Price.

6.11. Payment Bond; Performance Bond. Prior to commencement of the Work, the Contractor shall furnish a Performance Bond as security for Contractor's faithful performance of the Contract and a Labor and Material Payment Bond as security for payment of persons or entities performing work, labor or furnishing materials in connection with Contractor's performance of the Work under the Contract Documents. Unless otherwise stated in the Special Conditions, the amounts of the Performance Bond and the Payment Bond required hereunder shall be one hundred percent (100%) of the Contract Price. Said Labor and Material Payment Bond and Performance Bond shall be in the form and content set forth in the Contract Documents. The Surety on any bond required under the Contract Documents shall be: (i) an Admitted Surety Insurer as that term is defined in California Codeof Civil Procedure §995.120; and (ii) A.M. Best rated A-/VII or better. The failure or refusal of the Contractor to furnish either the Performance Bond or the Labor and Material Payment Bond in strict conformity with foregoing may be deemed by the District as a default by the Contractor of a material obligation hereunder.

6.12. Contractor Indemnity. The Contractor shall indemnify, defend and hold harmless the Indemnified Parties who are: (i) the District and its Board of Education, officers, employees, agents and representatives (including the Project Inspector); (ii) the Architect and its Design Consultants and their respective agents and employees; (iii) if one is designated by the District for the Work, the Construction Manager and its agents and employees; and (iv) the Project Inspector. The Contractor's obligations hereunder includes indemnity, defense and hold harmless of the Indemnified Parties from and against any and all damages, losses, claims, demands, liabilities, actions or causes of action which arise, in whole or in part, from the Work, the Contract Documents or the negligent, grossly negligent, reckless or willful acts, omissions or other conduct of the Contractor, any Subcontractor or any person or entity engaged by them for the Work. The Contractor's obligations pursuant to the foregoing include without limitation: (i) injuries to or death of persons; (ii) damage to property; (iii) theft, destruction or loss of property; (iv) Stop Payment Notice claims asserted by any person or entity in connection with the Work; and (v) other losses, liabilities, damages or costs resulting from, in whole or part, negligent, grossly negligent or willful conduct of the Contractor or Subcontractors, of any tier. If any action or proceeding, whether judicial, administrative, arbitration or otherwise, shall be commenced on account of any claim, demand or liability subject to Contractor's obligations hereunder, and such action or proceeding names any of the Indemnified Parties as a party thereto, the Contractor shall, at its sole cost and expense, defend the named Indemnified Parties in such action or proceeding with counsel reasonably satisfactory to the named Indemnified Parties. In the event that there shall be any judgment, award, ruling, settlement, or other relief arising out of any such action or proceeding to which any of the Indemnified Parties are bound by, Contractor shall pay, satisfy or otherwise discharge any such judgment, award, ruling, settlement or relief; Contractor shall indemnify and hold harmless the Indemnified Parties from any and all liability or responsibility arising out of any such judgment, award, ruling, settlement or relief. The Contractor's obligations hereunder are binding upon Contractor's Performance Bond Surety and these obligations shall survive notwithstanding Contractor's completion of the Work or the termination of the Contract until barred by the applicable Statute of Limitations.

7. CONTRACT TIME

7.1. Substantial Completion of the Work Within Contract Time. Unless otherwise expressly provided in the Contract Documents, the Contract Time is the period of time, including authorized adjustments thereto, allotted in the Contract Documents for achieving Substantial Completion of the Work. The date for commencement of the Work is the date established by the Notice to Proceed issued by the

District pursuant to the Agreement, which shall not be postponed by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible. The date of Substantial Completion is the date certified by the Architect, Project Manager and the Project Inspector.

7.2. Progress and Completion of the Work.

7.2.1. Time of Essence. Time limits stated in the Contract Documents are of the essence. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing and achieving Substantial Completion of the Work. The Contractor shall employ and supply a sufficient force of workers, material and equipment, and prosecute the Work with diligence so as to maintain progress, to prevent Work stoppage and to achieve Substantial Completion of the Work within the Contract Time.

7.2.2. Substantial Completion. Substantial Completion is that stage in the progress of the Work when the Work is complete and approved by DSA and other governmental agencies with jurisdiction over the Work or any portion thereof in accordance with the Contract Documents so the District can occupy or use the Work for its intended purpose. Substantial Completion shall be determined by the Architect, the Project Manager and the Project Inspector upon request by the Contractor in accordance with the Contract Documents. The good faith and reasonable determination of Substantial Completion by the Project Inspector, the Project Manager and the Architect shall be controlling and final.

7.2.3. Correction or Completion of the Work After Substantial Completion.

7.2.3.1. Punchlist. Upon achieving Substantial Completion of the Work, the District, The Project Inspector, the Project Manager, the Architect and the Contractor shall jointly inspect the Work and prepare a comprehensive list of items of the Work to be corrected or completed by the Contractor ("the Punch List"). The exclusion of, or failure to include, any item on the Punchlist shall not alter or limit the obligation of the Contractor to complete or correct any portion of the Work in accordance with the Contract Documents.

7.2.3.2. Time for Completing Punch List Items. In addition to setting forth items for correction or completion pursuant to Article 7.2.3.1 Contractor shall promptly and diligently proceed to complete all Punch List items within the time established by the Architect, Project Manager and District. If the Contractor fails or refuses, for any reason, to complete all Punch List items within the time established, the Contractor shall be subject to assessment of Liquidated Damages in accordance with Article 7.4 hereof. The foregoing notwithstanding, if the Contractor fails or refuses to complete all Punch List items, the District may in its sole and exclusive discretion and without further notice to Contractor, elect to cause the completion of all remaining Punch List items provided, however that such election by the District is in addition to and not in lieu of any other right or remedy of the District under the Contract Documents or the Laws. If the District elects to complete Punch List items of the Work, pursuant to the foregoing, Contractor shall be responsible for all costs incurred by the District in connection herewith and the District may deduct such costs from the Contract Price then or thereafter due the Contractor. If these costs exceed the remaining balance of the Contract Price due to the Contractor, the Contractor and the Performance Bond Surety are liable to the District for any such excess costs.

7.2.4. Final Completion. Final Completion is that stage of the Work when all Work has been completed in accordance with the Contract Documents, including without limitation, the performance of

all correction or completion items noted upon Substantial Completion, and obligations of the Contractor under the Contract Documents are fully performed by the Contractor. Final Completion shall be determined by the Architect, Project Manager and the Project Inspector upon request of the Contractor. The good faith and reasonable determination of Final Completion by the Project Inspector, Project Manager and the Architect shall be controlling and final.

7.2.5. Contractor Responsibility for Multiple Inspections. If the Contractor requests determination of Substantial Completion or Final Completion and it is determined by the Project Inspector, Project Manager or the Architect that the Work does not then justify certification of Substantial Completion or Final Completion and re-inspection is required at a subsequent time to make such determination, the Contractor shall be responsible for all costs of such re-inspection, including without limitation, the fees of the Project Manager, Architect and the Project Inspector for such re-inspections. The District may deduct such costs from the Contract Price then due or thereafter due to the Contractor.

7.2.6. Final Acceptance. Final Acceptance of the Work shall occur upon approval of the Work by the District's Board of Education; such approval shall be submitted for adoption at the next regularly scheduled meeting of the District's Board of Education after the determination of Final Completion. The commencement of any warranty or guarantee period under the Contract Documents shall be deemed to be the date upon which the District's Board of Education approves of the Final Acceptance of the Work.

7.3. Construction Schedule.

7.3.1. Preliminary Construction Schedule.

7.3.1.1. Organization and Contents. The purpose of the Preliminary Construction Schedule is to assure adequate planning and execution of the Work so that it is completed within the Contract Time and to permit evaluation of the progress of the Work. The Preliminary Construction Schedule shall be organized into groupings by location, responsibility, specifications, sections, etc. The Preliminary Construction Schedule shall take into consideration and incorporate requirements set forth in the Contract Documents, including without limitation requirements relating to: (i) Construction Phases; (ii) protection of facilities; (iii) temporary facilities and services; (iv) rebateopportunities; (v) utility relocations/renovations; (vii) access to Site; (viii) other concurrent projects adjacent to the Site; (ix) temporary storage; and (x) notifications. Contents of the Preliminary Schedule must include at a minimum the following: (i) indicate the date(s) for commencement and completion of various portions of the Work including without limitation, procurement, fabrication and delivery of major items, materials or equipment, completion of: foundation, building framing/structural elements, mechanical/electrical/ plumbing rough-in, Construction, exterior doors and windows, interior finishes, etc.; (ii) indicate manpower and other resources required for completion of each Construction Schedule activity; (iii) indicate costs for completion of each Construction Schedule activity; (iv) identify each Submittal required by the Contract Documents, the date for the Contractor's submission of each Submittal and the date for the return of the reviewed Submittal to the Contractor; and (v) indicate sequencing and interdependencies of activities.

7.3.1.2. Incorporation of Rain Days. The Preliminary Construction Schedule must incorporate the number of "Rain Days" as stipulated in the Special Conditions for each month to be

anticipated during the Contract Time. If Rain Days noted in the Special Conditions do not actually occur during the Work, the unused "Rain Days" shall revert to "float time" in the Construction Schedule. The number of Rain Days noted in the Special Conditions must be shown within the critical path of the Preliminary Construction Schedule and the Rain Days shall not extend the Contract Time for achieving Substantial Completion of the Work.

7.3.1.3. Construction Schedule Software. Unless otherwise provided in the Special Conditions, the Construction Schedules required under this Article 7 shall be prepared in a critical path format utilizing the then most recent version of P3e/c™ for Construction, Primavera Project Planner Scheduling Software.

7.3.1.4. Contract Time and Preliminary Schedule. The Contractor may submit a Preliminary Construction Schedule depicting completion of the Work in a duration shorter than the Contract Time; provided that such Preliminary Construction Schedule shall not be a basis for adjustment to the Contract Price if completion of the Work occurs after the time depicted therein, nor shall such Preliminary Construction Schedule be the basis for any extension of the Contract Time, the Contractor's entitlement to any extension of the Contract Time shall be based upon the Contract Time and not on any shorter duration which may be depicted in the Contractor's Preliminary Construction Schedule.

7.3.1.5. "Float" Time. If the Construction Schedules required under this Article 7.3 incorporate therein any "float" time, such float shall be deemed to jointly belong to and owned by the District and the Contractor. As used herein, "float time" shall be deemed to refer to the time between earliest finish date and the latest finish date of each activity shown on the Construction Schedule. The Construction Schedule prepared by the Contractor shall not sequester float through float suppression techniques such as extending activity durations, using preferential logic, etc.

7.3.1.6. DSA Construction Oversight Process. The Contractor's schedule shall take into account the effect of the DSA Construction oversight process on the progression of the Work, including without limitation the prohibition under DSA PR 13-01 from proceeding with subsequent Work prior to the Project Inspector's sign-off of preceding Work. No adjustment of the Contract Time will be considered or allowed for the time necessary to implement and complete the DSA Construction oversight process.

7.3.2. Submittal of Preliminary Construction Schedule. Within fifteen (15) calendar days following execution of the Agreement, the Contractor shall prepare and submit to the District, the Project Manager and the Architect a Preliminary Construction Schedule indicating, in graphic form, the estimated rate of progress and sequence of all Work required under the Contract Documents.

7.3.3. Review of Preliminary Construction Schedule. The District, the Project Manager and the Architect shall review the Preliminary Construction Schedule submitted by the Contractor pursuant to Article 7.3.1 above for conformity with the requirements of the Contract Documents. Within fifteen (15) days of the date of receipt of the Preliminary Construction Schedule, the Preliminary Construction Schedule will be returned to the Contractor with comments to the form or content thereof. Review of the Preliminary Progress Schedule and any comments thereto by the District, the Project Manager and/or the Architect shall not be deemed to be the assumption of Construction means, methods or sequences by the District, the Project Manager or the Architect, all of which remain the Contractor's obligations under the Contract Documents.

7.3.4. Preparation and Submittal of Contract Construction Schedule. Within ten (10) days of the District's return of the Preliminary Construction Schedule to the Contractor pursuant to Article 7.3.2 above, the Contractor shall prepare and submit to the Architect and the Construction Project Manager the Construction Schedule, fully cost and resource loaded, which incorporates therein the comments to the Preliminary Construction Schedule. Upon the Contractor's submittal of such Construction Schedule, the District, the Project Manager and the Architect shall review the same for purposes of determining conformity with the requirements of the Contract Documents. Within fifteen (15) days of the receipt of the Construction Schedule, the District will approve such Construction Schedule or will return the same to the Contractor with comments to the form or content. In the event there are comments to the form or content thereof, the Contractor, shall within seven (7) days of receipt of such comments, revise and resubmit the Construction Schedule incorporating therein such comments. Upon the District's approval of the form and content of a Construction Schedule, the same shall be deemed the "Approved Construction Schedule." The District's approval of a Construction Schedule shall be for the sole and limited purpose of determining conformity with the requirements of the Contract Documents. By the Approved Construction Schedule, the District shall not be deemed to have exercised control over, or approval of, Construction means, methods or sequences, all of which remain the responsibility and obligation of the Contractor in accordance with the terms of the Contract Documents. Further, the Approved Construction Schedule shall not operate to limit or restrict any of Contractor's obligations under the Contract Documents nor relieve the Contractor from the full, faithful and timely performance of such obligations in accordance with the terms of the Contract Documents. The activities, commencement and completion dates of activities, and the sequencing of activities depicted on the Approved Construction Schedule shall not be modified or revised by the Contractor without the prior consent, or direction, of the District and the Architect. Updates to the Approved Construction Schedule pursuant to Article 7.3.6 below shall not be deemed revisions to the Approved Construction Schedule. In the event that the Approved Construction Schedule shall depict completion of the Work in a duration shorter than the Contract Time, the same shall not be a basis for an adjustment of the Contract Time or the Contract Price in the event that actual completion of the Work shall occur after such the time depicted in such Approved Construction Schedule. In such event, the Contract Price shall not be subject to adjustment on account of any additional costs incurred by the Contractor to complete the Work prior to the Contract Time, as adjusted in accordance with the terms of the Contract Documents. Any adjustment of the Contract Time or the Contract Price shall be based upon the Contract Time set forth in the Contract Documents and not any shorter duration which may be depicted in the Approved Construction Schedule.

7.3.5. Revisions to Approved Construction Schedule. In the event that the progress of the Work or the sequencing of the activities of the Work shall materially differ from that indicated in the Approved Construction Schedule, as determined by the District in its reasonable discretion and judgment, the District may direct the Contractor to revise the Approved Construction Schedule; within fifteen (15) days of the District's direction, the Contractor shall prepare and submit to the Architect and the Construction Manager a revised Approved Construction Schedule, for review and approval by the District. The Contractor may request consent of the District to revise the Approved Construction Schedule. Any such request shall be considered by the District only if in writing setting forth the Contractor's proposed revision(s) to the Approved Construction Schedule and the reason(s) therefore. The District may consent to, or deny, any such request of the Contractor to revise the Approved Construction Schedule in its reasonable discretion.

7.3.6. Updates to Approved Construction Schedule. The Contractor shall monitor and update the Approved Construction Schedule on a monthly basis, provide four week rolling schedules on a

weekly basis or more frequently as required by the conditions or progress of the Work, or as may be requested by the District. The Contractor shall provide the District, the Construction Manager and the Architect with updated Approved Construction Schedules indicating progress achieved and activities commenced or completed within the prior updated Approved Construction Schedule. Updates to the Approved Construction Schedule shall not include any revisions to the activities, commencement and completion dates of activities or the sequencing of activities depicted on the Approved Construction Schedule. Any such revisions to the Approved Construction Schedule shall result in the District's rejection of such update and Contractor shall, within seven (7) days of the District's rejection of such update, submit to the Architect and the Construction Manager an Updated Approved Construction Schedule which does not incorporate any such revisions. The Contractor shall also submit, with its updates to the Approved Construction Schedule, a narrative statement including a description of current and anticipated problem areas of the Work, delaying factors and their impact, and an explanation of corrective action taken or proposed by the Contractor. If the progress of the Work is behind the Approved Construction Schedule, the Contractor shall indicate what measures will be taken to place the Work back on schedule. The District may, from time to time, and in the District's sole and exclusive discretion, transmit to the Contractor's Performance Bond Surety the Approved Construction District's election to transmit, or not to transmit such information, to the Contractor's Performance Bond Surety shall not limit the Contractor's obligations under the Contract Documents.

7.3.7. Contractor Responsibility for Construction Schedule. The Contractor is responsible for the preparation, submittal and maintenance of the Construction Schedules required by the Contract Documents, and any failure of the Contractor to do so may be deemed by the District as the Contractor's default in the performance of a material obligation under Contract Documents. Any and all costs or expenses required or incurred to prepare, submit, maintain, and update the Construction Schedules shall be solely that of the Contractor and no such cost or expense shall be charged to the District. The Contract Price shall not be subject to adjustment on account of costs, fees or expenses incurred or associated with the Contractor's preparation, submittal, and maintenance or updating of the Construction Schedules.

7.4. Adjustment to Contract Time. If Substantial Completion is delayed, adjustment, if any, to the Contract Time on account of such delay shall be in accordance with this Article 7.4.

7.4.1. Excusable Delays. If Substantial Completion of the Work is delayed by Excusable Delays, the Contract Time shall be subject to adjustment for such a reasonable period of time as determined by the Architect; Excusable Delays shall not result in any increase in the Contract Price. Excusable Delays refer to unforeseeable and unavoidable casualties or other unforeseen causes beyond the control, and without fault or neglect, of the Contractor, any Subcontractor, Material Supplier or other person directly or indirectly engaged by the Contractor in performance of any portion of the Work. Excusable Delays include unanticipated and unavoidable labor disputes, unusual and unanticipated delays in transportation of equipment, materials or Construction Equipment reasonably necessary for completion and proper execution of the Work, unanticipated unusually severe weather conditions or applicable orders of public health authorities which prohibit, limit or restrict Work at the Site. Excusable Delay events do not include potential time or costs impacts for procurement, fabrication or delivery of materials/equipment for incorporation into the Work which were known or should have been known by the Contractor at the time of the Contractor's submittal of the Bid Proposal for the Work. Neither the financial resources of the Contractor or any person or entity directly or indirectly engaged by the Contractor in performance of any portion of the Work shall be deemed

conditions beyond the control of the Contractor. If an event of Excusable Delay occurs, the Contract Time shall be subject to adjustment hereunder only if the Contractor establishes: (i) full compliance with all applicable provisions of the Contract Documents relative to the method, manner and time for Contractor's notice and request for adjustment of the Contract Time; (ii) that the event(s) forming the basis for Contractor's request to adjust the Contract Time are outside the reasonable control and without any fault or neglect of the Contractor or any person or entity directly or indirectly engaged by Contractor in performance of any portion of the Work; and (iii) that the event(s) forming the basis for Contractor's request to adjust the Contract Time directly and adversely impacted the critical path of the Work as indicated in the Approved Construction Schedule or the most recent updated Approved Construction Schedule relative to the date(s) of the claimed event(s) of Excusable Delay. The foregoing provisions notwithstanding, if the Special Conditions set forth a number of "Rain Days" to be anticipated during performance of the Work, the Contract Time shall not be adjusted for rain related unusually severe weather conditions until and unless the actual number of Rain Days during performance of the Work shall exceed those noted in the Special Conditions and such additional Rain Days shall have directly and adversely impacted the critical path of the Work as depicted in the Approved Construction Schedule or the most recent updated Approved Construction Schedule relative to the date(s) of such additional Rain Days.

7.4.2. Compensable Delays. If Substantial Completion of the Work is delayed and such delay is caused by the acts or omissions of the District, Project Manager, the Architect, or separate contractor employed by the District (collectively "Compensable Delays"), upon Contractor's request and notice, in strict conformity with Articles 7 and 9 of these General Conditions, the Contract Time will be adjusted by Change Order for such reasonable period of time as determined by the Architect and the District. In accordance with California Public Contract Code §7102, if the Contractor's progress is delayed by any of the events described in the preceding sentence, Contractor shall not be precluded from the recovery of damages directly and proximately resulting therefrom, provided that the District is liable for the delay, the delay is unreasonable under the circumstances involved and the delay was not within the reasonable contemplation of the District and the Contractor at the time of execution of the Agreement. In such event, Contractor's damages, if any, shall be limited to direct, actual and unavoidable additional costs of labor, materials or Construction Equipment directly resulting from such delay, and shall exclude indirect or other consequential damages. Except as expressly provided for herein, Contractor shall not have any other claim, demand or right to adjustment of the Contract Price arising out of delay, interruption, hindrance or disruption to the progress of the Work. Adjustments to the Contract Price and the Contract Time, if any, on account of Changes to the Work or Suspension of the Work shall be governed by the applicable provisions of the Contract Documents, including without limitation, Articles 9 and 14 of these General Conditions.

7.4.3. Inexcusable Delays. Inexcusable Delays refer to any delay to the progress of the Work caused by events or factors other than those specifically identified in Articles 7.4.1 and 7.4.2 above. Neither the Contract Price nor the Contract Time shall be adjusted on account of Inexcusable Delays.

7.4.4. Procedure for Adjustment of Contract Time. The Contract Time shall be subject to adjustment only in strict conformity with applicable provisions of the Contract Documents. Failure of Contractor to request adjustment(s) of the Contract Time in strict conformity with applicable provisions of the Contract Documents shall be deemed Contractor's waiver of the same.

7.4.5. Limitations Upon Adjustment of Contract Time on Account of Delays. Any adjustment of the

Contract Time on account of an Excusable Delay or a Compensable Delay shall be limited as set forth herein. If an Excusable Delay and a Compensable Delay occur concurrently, the maximum extension of the Contract Time shall be the number of days from the commencement of the first delay to the cessation of the delay which ends last. If an Inexcusable Delay occurs concurrently with either an Excusable Delay or a Compensable Delay, the maximum extension of the Contract Time shall be the number of days, if any, which the Excusable Delay or the Compensable Delay exceeds the period of time of the Inexcusable Delay. In addition to the foregoing limitations upon extension of the Contract Time, no adjustment of the Contract Time shall be made on account of any Excusable Delays or Compensable Delays unless such delay(s) actually and directly impact Work or Work activities on the critical path of the then current and updated Approved Construction Schedule as of the date on which such delay first occurs. The District shall not be deemed in breach of, or otherwise in default of any obligation hereunder, if the District shall deny any request by the Contractor for an adjustment of the Contract Time for any delay which does not actually and directly impact Work or Work activities on the critical path of the then current and updated Approved Construction Schedule.

7.5. Liquidated Damages. Should the Contractor neglect, fail or refuse to: (i) submit Submittals in accordance with the Approved Construction Schedule; (ii) achieve Substantial Completion of the Work within the Contract Time, (subject to adjustments authorized under the Contract Documents); or

(iii) complete Punch List items within the time established pursuant to the Contract Documents, the Contractor agrees to pay to the District the amount of per diem Liquidated Damages set forth in the Special Conditions, not as a penalty but as Liquidated Damages, for every day beyond the Contract Time, as adjusted, until Submittals are submitted, Substantial Completion or completion of the Punch List items are achieved. The Liquidated Damages amounts set forth in the Special Conditions are agreed upon by and between the Contractor and the District because of the difficulty of fixing the District's actual damages in the event of delayed submission of Submittals, Substantial Completion or completion of Punch List items. The Contractor and the District specifically agree that said amounts are reasonable estimates of the District's damages in such an event, and that such amounts do not constitute a penalty. Liquidated Damages may be deducted from the Contract Price then or thereafter due the Contractor. The Contractor and the Surety shall be liable to the District for any Liquidated Damages exceeding any amount of the Contract Price then held or retained by the District. In the event that the Contractor shall fail or refuse to complete Punch List items and the District elects to exercise its right to cause completion or correction of such items pursuant to Article 7.2.3.2 hereof, the District's assessment of Liquidated Damages pursuant to the foregoing shall be in addition, and not in lieu of, the District's right to charge Contractor with the cost of completing or correcting such items of the Work, as provided for under Article 7.2.3.2. The Contractor and the District acknowledge and agree that the provisions of this Article 7.5 are reasonable under the circumstances existing at the time of the Contractor's execution of the Agreement.

7.6. District Right to Take-Over Work. Unless caused by the District, Architect, Project Manager or the Project Inspector, if the Contractor fails or refuses, for any reason and at any time, to furnish adequate materials, labor, equipment or services to maintain progress of the Work in accordance with the then current Approved Construction Schedule after twenty-four (24) hour advance written

notice from the Project Manager to the Contractor of its failure or refusal, the District may thereafter furnish or cause to be furnish such materials, labor, equipment or services necessary to maintain progress of the Work in accordance with the then current Construction Schedule. All costs, expenses or other charges (whether direct, indirect and administrative) incurred by the District in furnishing

such materials, labor, equipment or services shall be at the sole cost of the Contractor and the District may deduct the same from the Contract Price then or thereafter due the Contractor. The District's exercise of rights pursuant to the foregoing shall not be deemed a waiver or limitation of any other right or remedy of the District under the Contract Documents or the Laws.

8. CONTRACT PRICE

8.1. Contract Price. The Contract Price is the amount stated in the Agreement as such, and subject to any authorized adjustments thereto in accordance with the Contract Documents, is the total amount payable by the District to the Contractor for performance of the Work under the Contract Documents. The District's payment of the Contract Price to the Contractor shall be in accordance with the Contract Documents. The Contract Price is inclusive of all expenses, fees, costs or other charges incurred by the Contractor to complete all of the Contractor's obligations under the Contract Documents. The Contract Price shall not be subject to adjustment for costs incurred by the Contractor, including without limitation, extended work-hours or premium labor costs to complete utility tie-ins and/or to avoid disruption of utility services or the District's on-going operations and activities. Rebates obtained by the Contractor or any Subcontractor for materials, equipment or services utilized to complete the Work or incorporated into the Work shall be deemed the property of the District. The Contractor shall completely and accurately account for all rebates arising out of the Work and shall deliver proceeds to the District reflecting the full value of all such rebates.

8.2. Cost Breakdown. Within fifteen (15) days of the execution of the Agreement by Contractor, Contractor shall furnish, on forms provided by the District, a detailed estimate and complete Cost Breakdown of the Contract Price. The Cost Breakdown shall be subject to review and approval by the Project Manager and District of the form and content thereof. In the event that the District shall reasonably object to any portion of the Cost Breakdown, within ten (10) days of the District's receipt of the Cost Breakdown, the District shall notify the Contractor, in writing of the District's objection(s) to the Cost Breakdown. Within five (5) days of the date of the District's and the Project Manager's written objection(s), Contractor shall submit a revised Cost Breakdown to the District and the Project Manager for review and approval. The foregoing procedure for the preparation, review and approval of the Cost Breakdown shall continue until the District and the Project Manager has approved of the entirety of the Cost Breakdown. Once the Cost Breakdown is approved by the District and the Construction Manager, the Cost Breakdown shall not be thereafter modified or amended by the Contractor without the prior consent and approval of the District and the Project Manager, which may be granted or withheld in their sole reasonable discretion.

8.3. Progress Payments.

8.3.1. Applications for Progress Payments. During the Contractor's performance of the Work, the Contractor shall submit monthly, on the first working day of each month, to the Project Manager and the Architect, Applications for Progress Payments, on forms approved or designated by the District, setting forth an itemized estimate of the value of the Work completed in the preceding month for the purpose of the District's making of Progress Payments thereon. Values utilized in the Applications for Progress Payments shall be based upon the District approved Cost Breakdown pursuant to Article 8.2 above and such values shall be only for determining the basis of Progress Payments to Contractor, and shall not be considered as fixing a basis for adjustments, whether additive or deductive, to the Contract Price, or for determining the extent of Work actually completed. In addition to submitting the Application for Progress Payment, the Contractor shall submit with each Application for Progress Payment a detailed summary of (i) the break-down of the Progress Payment requested reflecting the amount of the requested Progress Payment to be retained by the Contractor; (ii) the Subcontractors/Material

Suppliers to whom the remaining balance of the requested Progress Payment will be disbursed to along with the amount to be disbursed to each identified Subcontractor/Material Supplier; and (iii) the amounts disbursed by the Contractor to the Subcontractors/Material Suppliers from the immediately preceding Progress Payment.

8.3.2. District's Review of Applications for Progress Payments. In accordance with Public Contract Code §20104.50, upon receipt of an Application for Progress Payment, the District shall cause the same to be reviewed by the Project Inspector, the Project Manager, if one is designated by the District, and the Architect, as soon as is practicable after receipt of such Application for Progress Payment. Such review shall be for the purpose of determining that the Application for Progress Payment is a proper Progress Payment request. For purposes of this Article 8.3.2, an Application for Progress Payment shall be deemed "proper" only if it is submitted on the form approved by the District, with all of the requested information of such form of Application for Progress Payment completely and accurately provided by the Contractor and such completed Application for Progress Payment is accompanied by: (i) the form of Verification of Certified Payroll Records Submittal to Labor Commissioner, executed under penalty of perjury by the Contractor's Superintendent and/or the Contractor PM; which verifies that all Certified Payroll Records for the Contractor and all Subcontractors for the period of time covered by the Application for Progress Payment have been completed and submitted in strict conformity with Labor Code §1771.4; (ii) duly completed and executed forms of Conditional Waiver and Release of Rights Upon Progress Payment in accordance with California Civil Code §8132 of the Contractor, all Subcontractors of any tier, and Material Suppliers covering the Progress Payment requested; (iii) duly completed and executed forms of Unconditional Waiver and Release of Rights upon Progress Payment in accordance with California Civil Code §8134 of the Contractor, all Subcontractors of any tier, and Material Suppliers covering the Progress Payment received by the Contractor under the prior Application for Progress Payment; (iv) if applicable, a current union statement reflecting that the Contractor and any Subcontractor of any tier, are current in the payment of any supplemental fringe benefits required pursuant to any collective bargaining agreement to which the Contractor or any such Subcontractor is a party to or is otherwise bound by; (v) a certification by the Contractor that it has continuously maintained, or caused to maintained, the Record Drawings reflecting the actual as-built conditions of the Work performed be for which the Progress Payment is requested, it being understood that such certification is subject to verification by the District, Architect or the Project Manager prior to disbursement of the Progress Payment; and (vi) an updated Construction Schedule, reflecting Work actually completed and in progress. In accordance with Public Contract Code §20104.50, an Application for Progress Payment determined by the District not to be a proper Application for Progress Payment shall be returned by the District to the Contractor as soon as is practicable after receipt of the same from the Contractor, but in no event not more than seven (7) days after the District's receipt thereof. The District's return of any Application for Progress Payment pursuant to the preceding sentence shall be accompanied by a written document setting forth the reason(s) why the Application for Progress Payment is not proper.

8.3.3. Review of Applications for Progress Payments. Upon receipt of an Application for Progress Payment, the Architect, Project Manager and the Project Inspector shall inspect and verify the Work to determine whether it has been performed in accordance with the terms of the Contract Documents and to determine the portion of the Application for Progress Payment which is properly due to the Contractor under the terms of the Contract Documents.

8.3.4. District's Disbursement of Progress Payments.

8.3.4.1. Timely Disbursement of Progress Payments. In accordance with Public Contract Code

§20104.50, within thirty (30) days after the District's receipt of a proper Application for Progress Payment, there shall be paid, by District, to Contractor a sum equal to ninety five percent (95%) of the value of the Work indicated in the Application for Progress Payment which is actually in place as of the date of the Application for Progress Payment and as verified and approved by the Project Inspector, Project Manager and the Architect and the pro rata portion of the Contractor's overhead, supervision and general conditions costs and profit for that month; provided, however, that the District's obligation to disburse any Progress Payment shall be subject to the District's receipt of all documents set forth in Article 8.3.2 above, each and all of which are conditions precedent to the District's obligation to disburse Progress Payments. If an Application for Progress Payment is determined not to be proper due to the failure or refusal of the Contractor to submit documents with the Application for Progress Payment, as required by Article 8.3.2, or incompleteness or inaccuracies in any such documents submitted or if it is reasonably determined that the Record Drawings have not been continuously maintained to reflect the actual as built conditions of the Work completed or scheduled to be completed in the period for which the Progress Payment is requested, the thirty (30) day period hereunder for the District's timely disbursement of a Progress Payment shall be deemed to commence on the date that the District is actually in receipt of documents not submitted with the Application for Progress Payment, or corrections to documents with the Application for Progress Payment so as to render them complete and accurate, or the date upon which the Contractor accurately and fully completes preparation of the Record Drawings relating to the Work for which the Progress Payment is requested.

8.3.4.2. Untimely Disbursement of Progress Payments. In accordance with Public Contract Code §20104.50, in the event that the District shall fail to make any Progress Payment within thirty (30) days after receipt of an undisputed and properly submitted Application for Progress Payment, the District shall pay the Contractor interest on the undisputed amount of such Application for Progress Payment equal to the legal rate of interest set forth in California Code of Civil Procedure §685.010(a). The foregoing notwithstanding, in the event that the District shall determine that any Application for Progress Payment is not proper, pursuant to Article 8.3.2 above, and the District does not return such Application for Progress Payment within the seven (7) day period provided for in Article 8.3.2, the period of time for the District's disbursement of the Progress Payment on such Application for Progress Payment without incurring the interest liability shall be reduced by the number of days exceeding the seven (7) day return period.

8.3.4.3. District's Right to Disburse Progress Payments by Joint Checks. Provided that the District is in receipt of the applicable Subcontract or Purchase Order, the District, may in its sole discretion, issue joint checks to the Contractor and such Subcontractor or Material Supplier in satisfaction of its obligation to make Progress Payments or the Final Payment due hereunder.

8.3.4.4. No Waiver of Defective or Non-Conforming Work. The approval of any Application for Progress Payment or the disbursement of any Progress Payment to the Contractor shall not be deemed nor constitute acceptance of defective Work or Work not in conformity with the Contract Documents.

8.3.4.5. Progress Payments for Changed Work. The Contractor's Applications for Progress Payment may include requests for payment on account of Changes in the Work which

have been properly authorized and approved by the Project Inspector, Project Manager and the Architect and all other governmental agencies with jurisdiction over such Change in accordance with the terms of the Contract Documents and for which a Change Order has been issued. Except as provided for herein, no other payment shall be made by the District for Changes in the Work.

8.3.5. Materials or Equipment Not Incorporated into the Work.

8.3.5.1. Limitations Upon Payment. Except as expressly provided for herein, no payments shall be made by the District on account of any item of the Work, including without limitation, materials or equipment which, at the time of the Contractor's submittal of an Application for Progress Payment, has/have not been incorporated into and made a part of the Work.

8.3.5.2. Materials or Equipment Delivered and Stored at the Site. The District may, in its sole and exclusive discretion, make payment for materials or equipment not yet incorporated into the Work if, at or prior to the time of the Contractor's submittal of a an Application for Progress Payment incorporating therein a request for payment of such materials or equipment if all of the following are complied with: (i) the materials or equipment have been delivered to the Site; (ii) adequate arrangements, reasonably satisfactory to the District, have been made by the Contractor to store and protect such materials or equipment at the Site including without limitation, insurance reasonably satisfactory to the District, covering and protecting against the risk of loss, destruction, theft or other damage to such materials or equipment while in storage if such coverage is not afforded under the policy of Risk insurance obtained by the District pursuant to the Contract Documents; and (iii) the establishment of procedures reasonably satisfactory to the District by which title to such materials or equipment will be vested in the District upon the District's payment therefor. The Contractor acknowledges that the discretion to make, or not to make, payment for materials or equipment delivered or stored at the Site pursuant to the preceding sentence shall be exercised exclusively by the District; the District's exercise of discretion not to make payment for materials or equipment delivered or stored at the Site, but not yet incorporated into the Work shall not be deemed the District's default hereunder. If the District elects to make payment for materials or equipment delivered and stored at the Site, the costs and expenses incurred to comply with the requirements of (ii) and (iii) of this Article 8.3.5.2 shall be borne solely and exclusively by the Contractor and no payment shall be made by the District on account of such costs and expenses.

8.3.5.3. Materials or Equipment Not Delivered or Stored at the Site. No payments shall be made by the District for materials or equipment to be incorporated into the Work where such materials or equipment have not been delivered or stored at the Site. The foregoing notwithstanding, the District may, in its sole and exclusive discretion, elect to make payment for materials or equipment not incorporated into the Work and which are not delivered or stored at the Site at or prior to the time of the Contractor's submittal of an Application for Progress Payment incorporating therein a request for payment of such materials or equipment provided that each and all of the following have been complied with: (i) adequate arrangements, reasonably satisfactory to the District, have been made by the Contractor to store and protect such materials or equipment which include without limitation, insurance reasonably satisfactory to the District, covering and protecting against the risk of loss, destruction, theft or other damage to such materials or equipment while in storage if coverage for the same is not

afforded under the policy of Risk insurance obtained by the District pursuant to the Contract Documents; and (ii) the establishment of procedures reasonably satisfactory to the District by which title to such materials or equipment will be vested in the District upon the District's payment therefor. The Contractor acknowledges that the discretion to make, or not to make, payment for such materials or equipment pursuant to the preceding sentence shall be exercised exclusively by the District; the District's exercise of discretion not to make payment for such materials or equipment shall not be deemed the District's default hereunder. If the District elects to make payment for materials or equipment not at the Site, the costs and expenses incurred to comply with the requirements of (i) and (ii) of this Article 8.3.5.3 shall be borne solely and exclusively by the Contractor and no payment shall be made by the District on account of such costs and expenses.

8.3.5.4. Materials or Equipment in Fabrication or Transit. The provisions of this Article 8.3.5 notwithstanding, the District shall not make any payment on account of any materials or equipment which are in the process of being fabricated or which are in transit to the Site of or other storage location.

8.3.5.5. Exclusions from Progress Payments. In addition to the District's right to withhold disbursement of any Progress Payment provided for in the Contract Documents, neither the Contractor's Application for Progress Payment shall include, nor shall the District be obligated to disburse any portion of the Contract Price for amounts which the Contractor does not intend to pay any Subcontractor, of any tier, or Material Supplier because of a dispute or any other reason.

8.3.5.6. Title to Work. The Contractor warrants that title to all Work covered by an Application for Progress Payment will pass to the District no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Progress Payment, all Work for which a Progress Payment has been previously issued and the Contractor has received payment from the District therefore shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, stop notices, security interests or encumbrances in favor of the Contractor, Subcontractors, Material Suppliers or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

8.4. Substitute Security for Retention. In accordance with the provisions of California Public Contract Code §22300, eligible and equivalent securities may be substituted for any monies withheld by the District to ensure the Contractor's performance under the Contract Documents at the request and expense of the Contractor and in conformity with the provisions of California Public Contract Code §22300. The foregoing and the provisions of California Public Contract Code §22300 notwithstanding, failure of the Contractor to request the substitution of eligible and equivalent securities for monies to be withheld by the District prior to submission of the first Application for Progress Payment shall be deemed the Contractor's waiver of rights under Section 22300.

8.5. Final Payment.

8.5.1. Application for Final Payment. When the Contractor has achieved Final Completion of the Work and has otherwise fully performed its obligations under the Contract Documents, the Contractor shall submit an application for Final Payment on such form as approved by the District. Thereupon, the Architect, Construction Manager and the Project Inspector will promptly make a final inspection of the Work and when the Architect, Construction Manager and the Project

Inspector find the Work acceptable under the Contract Documents and that the Contract has been fully performed by the Contractor, the Architect, Project Manager and the Project Inspector will thereupon promptly approve the Application for Final Payment, stating that to the best their knowledge, information and belief, the Work has been completed in accordance with the terms of the Contract Documents. The Final Payment shall include the remaining balance of the Contract Price and any retention from Progress Payments previously withheld by the District.

8.5.2. Conditions Precedent to Disbursement of Final Payment. Neither Final Payment nor any remaining Contract Price shall become due until the Contractor submits to the District each and all of the following, the submittal of which are conditions precedent to the District's obligation to disburse the Final Payment: (i) an affidavit or certification by the Contractor that payrolls, bills for materials and other indebtedness incurred in connection with the Work for which the District or the District's property may or might be responsible or encumbered have been paid or otherwise satisfied; (ii) a certificate evidencing that insurance required by the Contract Documents to remain in force after the Contractor's receipt of Final Payment is currently in effect; (iii) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover any period following Final Payment as required by the Contract Documents; (iv) consent of the Surety on the Labor and Material Payment Bond and Performance Bond, to Final Payment if required; (v) duly completed and executed forms of Conditional or Unconditional Waivers and Releases of rights upon Final Payment of the Contractor, Subcontractors of any tier and Material Suppliers in accordance with California Civil Code §8136 or §8138, with each of the same stating that there are, or will be, no claims for additional compensation after disbursement of the Final Payment; (vi) Operations and Maintenance manuals and separate warranties provided by any manufacturer or distributor of any materials or equipment incorporated into the Work; (vii) the Record Drawings; (viii) the form of Guarantee included in the Contract Documents duly executed by an authorized representative of the Contractor; (ix) any and all other items or documents required by the Contract Documents to be delivered to the District upon completion of the Work; (x) the completion and submittal of all reports required by the Contract Documents, including without limitation, verified reports required by applicable provisions of the California Code of Regulations; (xi) if required by the District, such other data establishing payment or satisfaction of obligations such as receipts, releases and waivers of liens, stop notices, claims, security interest or encumbrances arising out of the Contract to the extent and in such form as may be required by the District; and (xii) Affidavits of each Subcontractor to the Contractor which affirm that the Subcontractor has made payments to its employees engaged in the Work in accordance with the specified general prevailing wage rate of per diem wages for the classification(s) of labor provided each such employee; such Affidavits shall be in such form and content established by the District and shall be executed under penalty of perjury by an authorized employee or officer of each Subcontractor to the Contractor.

8.5.3. Disbursement of Final Payment. Provided that the District is then in receipt of all documents and other items in Article 8.5.2 above as conditions precedent to the District's obligation to disburse Final Payment, not later than sixty (60) days following Final Acceptance the District shall disburse the Final Payment to the Contractor. Pursuant to California Public Contract Code §7107, if there is any dispute between the District and the Contractor at the time that disbursement of the Final Payment is due, the District may withhold from disbursement of the Final Payment an amount not to exceed one hundred fifty percent (150%) of the amount in dispute. If the Contractor complies with all of the condition's precedent to the District's disbursement of the Final Payment, except for providing reasonably satisfactory written evidence of the Contractor's preparation and filing with DSA of the DSA Final Verified Report,

the District may withhold and retain ten percent (10%) of the Final Payment in accordance with Article 4.21.2 of these General Conditions. In such event, provided that the Contractor has fully complied with and satisfied all other conditions precedent set forth in Article 8.5.2, the District will disburse the remaining balance of the Final Payment (after deduction for failure to file the DSA Final Verified Report) to the Contractor; such disbursement shall constitute the District's full and complete performance of payment obligations to the Contractor hereunder.

8.5.4. Waiver of Claims. The Contractor's acceptance of the Final Payment is a waiver and release by the Contractor of any and all claims against the District for compensation or otherwise in connection with the Contractor's performance of the Contract.

8.5.5. Claims Asserted After Final Payment. Any lien, stop notice or other claim filed or asserted after the Contractor's acceptance of the Final Payment by any Subcontractor, of any tier, laborer, Material Supplier or others in connection with or for Work performed under the Contract Documents shall be the sole and exclusive responsibility of the Contractor who further agrees to indemnify, defend and hold harmless the District and its officers, agents, representatives and employees from and against any claims, demands or judgments arising or associated therewith, including without limitation attorneys' fees incurred by the District in connection therewith. If any lien, stop notice or other claim of any Subcontractor, Laborer, Material Supplier or others performing Work under the Contract Documents remains unsatisfied after Final Payment is made, Contractor shall refund to District all monies that the District may pay or be compelled to pay in discharging any lien, stop notice or other claim, including, without limitation all costs and reasonable attorneys' fees incurred by District in connection therewith.

8.6. Withholding of Payments. The District may withhold any Progress Payment or the Final Payment, in whole or in part, or back charge the Contractor to the extent it may deem advisable to protect the District on account of: (i) defective Work or Work not in conformity with the requirements of the Contract Documents which is not remedied; (ii) failure of the Contractor to make payments when due Subcontractors or Material Suppliers for materials or labor; (iii) claims filed or reasonable evidence of the probable filing of claims by Subcontractors, laborers, Material Suppliers, or others performing any portion of the Work under the Contract Documents for which the District may be liable or responsible including, without limitation, Stop Notice Claims filed with the District pursuant to California Civil Code §9350 et seq.; (iv) a reasonable doubt that the Contract can be completed for the then unpaid balance of the Contract Price; (v) tax demands filed in accordance with California Government Code §12419.4; (vi) other claims, penalties and/or forfeitures for which the District is required or authorized to retain funds otherwise due the Contractor; (vii) any amounts due from the Contractor to the District under the terms of the Contract Documents; (viii) violations of the obligations of the Contractor or any Subcontractor relating to the employment of labor in connection with the Work; or (ix) the Contractor's failure to perform any of its obligations under the Contract Documents, including without limitation, its default under the Contract Documents or its failure to maintain adequate progress of the Work. In addition to the foregoing, the District shall not be obligated to process any Application for Progress Payment or Final Payment, nor shall Contractor be entitled to any Progress Payment or Final Payment so long as any lawful or proper direction concerning the Work or the performance thereof or any portion thereof, given by the District, the Project Inspector, the Construction Manager, the Architect or any public authority having jurisdiction over the Work, or any portion thereof, shall not be fully and completely complied with by the Contractor. When the District is reasonably satisfied that the Contractor has remedied any such deficiency, payment shall be made of the amount withheld. In lieu of making payment of withheld amounts to the Contractor, the District may, in its sole exclusive discretion, apply withheld amounts to the payment and satisfactions of debts and obligations of the Contractor relating to the Work. In

doing, the District shall be an agent of the Contractor for the sole and limited purpose of making payment(s) to others for the Work on behalf of the Contractor; payments made by the District pursuant to the foregoing shall be deemed payments to the Contractor and the Contract Price shall be adjusted to reflect such payment(s). The foregoing notwithstanding, if the District withholds and retains ten percent (10%) of the Final Payment pursuant to Articles 4.21.2 and 8.5.3 of these General Conditions, the Contractor shall not be entitled to receipt or payment of any portion of such withholdings and the District is not obligated to disburse such withholdings to the Contractor. The District shall not be liable to the Contractor or others for its good faith decision to make or not make payment(s) of amounts withheld from the Contractor pursuant to the foregoing. If the District elects to make payments to others of amounts withheld from the Contractor, the District may do so without prior judicial determination; the District will render the Contractor a complete and accurate accounting of amounts withheld and paid to others on behalf of the Contractor.

8.7. Payments to Subcontractors. The Contractor shall pay all Subcontractors for and on account of Work of the Contract performed by such Subcontractors in accordance with the terms of their respective subcontracts and as provided for pursuant to California Public Contract Code §10262, the provisions of which are deemed incorporated herein by this reference. In the event of the Contractor's failure to make payment to Subcontractors in conformity with California Public Contract Code §10262, the provisions of California Public Contract Code §10253 shall apply; by this reference, the provisions of California Public Contract Code §10253 are incorporated herein in its entirety, except that the references in said Section 10253 to "the director" shall be deemed to refer to the District. The Contractor shall timely make payment of retention due Subcontractors in accordance with Public Contract Code §7107.

9. CHANGES

9.1. Changes in the Work. The District, at any time, by written order, may make Changes within the general scope of the Work under the Contract Documents or issue additional instructions, require additional Work or direct deletion of Work. The Contractor shall not proceed with any Change involving an increase or decrease in the Contract Price or the Contract Time without prior written authorization from the District. The foregoing notwithstanding, the Contractor shall promptly commence and diligently complete any Change to the Work subject to the District's written authorization issued pursuant to the preceding sentence; the Contractor is not relieved or excused from its obligation to promptly commence and diligently complete any Change subject to the District's written authorization by virtue of the absence or inability of the Contractor and the District to agree upon the extent of any adjustment to the Contract Time or the Contract Price on account of such Change. The issuance of a Change Order pursuant to this Article 9 in connection with any Change authorized by the District under this Article 9.1 is not a condition precedent to Contractor's obligation to promptly commence and diligently complete any such Change authorized by the District hereunder. The District's right to make Changes shall not invalidate the Contract nor relieve the Contractor of any liability or other obligations under the Contract Documents. Any requirement of notice of Changes in the scope of Work to the Surety shall be the responsibility of the Contractor. Changes to the Work depicted or described in the Drawings or the Specifications shall be subject to approval by the DSA. The District may make Changes to bring the Work or the Project into compliance with environmental requirements or standards established by Laws enacted after award of the Contract.

9.1.1. Proposal Request. The District may, without directing or authorizing a Change to the Work, request that the Contractor provide a proposal for adjustment of the Contract Time and/or the Contract Price, in connection with a Change being considered by the District. Such a request will be through the District's form of Proposal Request. Unless otherwise expressly provided in a

Proposal Request issued on behalf of the District to the Contractor, the Contractor shall respond to each Proposal Request within five (5) days of the issuance thereof. If the Contractor fails or refuses to respond to a Proposal Request within said five (5) days and the District elects to proceed with the potential Change noted in a Proposal Request, the reasonable determination of the District of the extent of adjustment of the Contract Price or the Contract Time on account of the potential Change shall be binding and enforceable against the Contractor.

9.1.2. Contractor Cost Proposal. Within five (5) days after the Contractor's receipt of a Proposal Request directing a Change in the Work or furnishing the written notice regarding any oral order directing a Change in the Work, the Contractor shall submit to the Architect, the Project Inspector, the Project Manager and the District a detailed written statement setting forth the general nature of the Change, the amount of any adjustment to the Contract Price and impact to the then current Schedule on account thereof, properly itemized and supported by a detail Schedule analysis and sufficient substantiating data to permit evaluation of the same, and the extent of adjustment of the Contract Time, if any, required by such Change. No claim or adjustment to the Contract Price or the Contract Time shall be allowed if not asserted by the Contractor in strict conformity herewith or if asserted after Final Payment is made under the Contract Documents. The District's form of Cost Proposal shall be used and completed by the Contractor to submit data pursuant to these provisions.

9.2. Change Directive. A Change Directive is a written instrument issued by or on behalf of the District directing a Change to the Work prior to the Contractor and District reaching full agreement on an adjustment of the Contract Time and/or Contract Price on account of such Change. The Contractor shall promptly commence and diligently complete any Change to the Work subject to a Change Directive issued hereunder. The issuance of a Change Order pursuant to this Article 9 in connection with any Change Directive authorized by the District is not a condition precedent to Contractor's obligation to promptly commence and diligently complete any such Change Directive. Upon completion of the Work subject to a Change Directive, if the Contractor and District have not agreed on the adjustment of Contract Time and/or Contract Price for such Change, District shall issue a Unilateral Change Order pursuant to this Article 9.

9.3. Oral Order of Change in the Work. Any oral order, direction, instruction, interpretation, or determination (collectively "Work Direction") from the District, Project Manager or the Architect which in the opinion of the Contractor causes any change to the scope of the Work, or otherwise requires an adjustment to the Contract Price or the Contract Time, shall be treated as a Change only if the Contractor gives the District, Project Manager and Architect written notice within ten (10) days of the Work Direction and prior to acting in accordance therewith. Time is of the essence in Contractor's written notice pursuant to the preceding sentence so that the District can promptly investigate and consider alternative measures to address the Work Direction giving rise to Contractor's notice. Accordingly, Contractor acknowledges that its failure, for any reason, to give written notice within ten (10) days of such Work Direction shall be deemed Contractor's waiver of any right to assert or claim any entitlement to an adjustment of the Contract Time or the Contract Price on account of such Work Direction. The written notice shall state the date, circumstances, extent of adjustment to the Contract Price or the Contract Time, if any, requested, and the source of the Work Direction that the Contractor regards as a Change. Unless the Contractor acts in strict accordance with this procedure, any such Work Direction shall not be treated as a Change and the Contractor hereby waives any claim for any adjustment to the Contract Price or the Contract Time on account thereof.

9.4. Contractor Submittal of Data for Work Direction Adjustments. Within ten (10) days after furnishing the written notice required by Article 9.3 regarding any Work Direction, the Contractor shall submit

to the Architect, the Project Inspector, the Project Manager and the District, on the District form of Cost Proposal, a detailed written statement setting forth the general nature of the Change the Contractor deems to be incorporated into a Work Direction, the extent of any adjustment to the Contract Price or the Contract Time on account thereof, properly itemized and supported by a detail Schedule analysis and sufficient substantiating data to permit evaluation of the same, and the extent of adjustment of the Contract Time, if any, required by such Work Direction. No claim or adjustment to the Contract Price or the Contract Time shall be allowed on account of any Work Direction if not asserted by the Contractor in strict conformity herewith or if asserted after Final Payment is made under the Contract Documents.

9.5. Adjustment to Contract Price and Contract Time on Account of Changes to the Work.

9.5.1. Adjustment to Contract Price. Adjustments to the Contract Price due to Changes in the Work shall be determined by application of one of the following methods, in the following order of priority:

9.5.1.1. Mutual Agreement. By negotiation and mutual agreement, on a lump sum basis, between the District and the Contractor on the basis of the estimate of the actual and direct increase or decrease in costs on account of the Change. Upon request of the District, Project Manager and/or the Architect, the Contractor shall provide a detailed estimate of increase or decrease in costs directly associated with performance of the Change along with cost breakdowns of the components of the Change and supporting data and documentation. The Contractor's estimate of increase or decrease in costs pursuant to the foregoing, if requested, shall be in sufficient detail and in such form as to allow the District, the Project Inspector, the Project Manager, and the Architect to review and assess the completeness and accuracy thereof. The Contractor shall be solely responsible for any additional costs or additional time arising out of, or related in any manner to, its failure to provide the estimate of costs within the time specified in the request of the District, the Project Manager and/or the Architect for such estimate.

9.5.1.2. Determination by the District. By the District, whether or not negotiations are initiated pursuant to Article 9.5.1.1 above, based upon actual and necessary costs incurred by the Contractor as determined by the District on the basis of the Contractor's records. If the procedure set forth in this Article 9.5.1.2 is utilized to determine the extent of adjustment to the Contract Price on account of Changes to the Work, promptly upon determining the extent of adjustment to the Contract Price, the District shall notify the Contractor in writing of the same; the Contractor shall be deemed to have accepted the District's determination of the amount of adjustment to the Contract Price on account of a Change to the Work unless Contractor shall notify the District, the Architect and the Project Inspector, in writing, not more than fifteen (15) days from the date of the District's written notice, of any objection to the District's determination. Failure of the Contractor to timely notify the District, the Architect and the Project Inspector of Contractor's objections to the District's determination of the extent of adjustment to the Contract Price shall be deemed Contractor's acceptance of the District's determination and a waiver of any right or basis of the Contractor to thereafter protest or otherwise object to the District's determination. Notwithstanding any objection of the Contractor to the District's determination of the extent of any adjustment to the Contract Price pursuant to this Article 9.5.1.2, Contractor shall, pursuant to Article 9.6 below, diligently proceed to perform and complete any such Change.

9.5.2. Basis for Adjustment of Contract Price. If Changes in the Work require an adjustment of the

Contract Price pursuant to Articles 9.5.1.1 or 9.5.1.2 above, the basis for adjustment of the Contract Price shall be as follows:

9.5.2.1. Allowable Labor Costs. Except in the event adjustment of the Contract Price for a District authorized Change is computed by unit prices, the labor costs allowable for incorporation into a Contract Price adjustment for a Change shall be limited as set forth herein.

9.5.2.1.1. Limitation to Field Labor and Prevailing Wage Rates. The Contract Price adjustment for labor necessary to complete a Change shall be limited to the laborers of the Contractor or Subcontractors actually and necessarily engaged in the performance of the Change and for which there is a prevailing wage rate classification. Wage rates for laborers shall not exceed the applicable prevailing wage rates in the locality of the Site and shall be in the labor classification(s) necessary for the performance of the Change. Use of a labor classification which would increase labor costs associated with any Change shall not be permitted. Overtime labor charges for performing any part of the Change shall only be allowed if authorized in writing by the Architect, Project Manager and the District prior to Contractor's performance of the overtime labor.

9.5.2.1.2. Fringe Benefits, Payroll Taxes and Labor Burdens. The Contractor or Subcontractor may adjust the prevailing wage rate for allowable labor costs to reflect fringe benefits, payroll taxes and labor burdens actually incurred by Contractor and provided to such labor directly engaged in performing a Change. The allowable adjustment for fringe benefit payments, payroll taxes and labor burdens shall not, however, exceed fifteen percent (15%) of the applicable prevailing wage rate and shall not be subject to the additional mark-up set forth in Article 9.5.2.4 and the Special Conditions.

9.5.2.1.3. Excluded Labor Costs. The Contract Price adjustment for labor costs on account of a Change shall exclude costs: (i) for preparing estimate(s) of the costs of the Change; (ii) to maintain records relating to the costs of the Change; (iii) for coordination and assembly of materials and information relating to the Change or performance thereof; (iv) to supervise, coordinate or manage the Work of a Change; or (v) any other general administrative overhead or general conditions costs associated with the Change or performance thereof as such costs are incorporated into the overhead and general conditions mark-up costs set forth in Article 9.5.2.4.

9.5.2.2. Materials and Equipment. Contractor shall be compensated for the costs of materials and equipment necessarily and actually used or consumed in connection with the performance of Changes. Costs of materials and equipment may include reasonable costs of transportation from a source closest to the site of the Work and delivery to the Site. If discounts by Material Suppliers are available for materials necessarily used in the performance of Changes, they shall be credited to the District. If materials and/or equipment necessarily used in the performance of Changes are obtained from a supplier or source owned in whole or in part by the Contractor, compensation therefore shall not exceed the current wholesale price for such materials or equipment. If, in the reasonable opinion of the District, the costs asserted by the Contractor for materials and/or equipment in connection with any Change is excessive, or if the Contractor fails to provide satisfactory evidence of the actual costs of such materials and/or equipment from its supplier or vendor of the same, the costs of such materials and/or equipment

and the District's obligation for payment of the same shall be limited to the then lowest wholesale price at which similar materials and/or equipment are available in the quantities required to perform the Change. The District may elect to furnish materials and/or equipment for Changes to the Work, in which event the Contractor shall not be compensated for the costs of furnishing such materials and/or equipment or any mark-up thereon.

9.5.2.3. Construction Equipment. Contractor shall be compensated for the actual cost of the necessary and direct use of Construction Equipment in the performance of Changes to the Work. Use of such Construction Equipment in the performance of Changes to the Work shall

be compensated in increments of fifteen (15) minutes. Rental time for Construction Equipment moved by its own power shall include time required to move such Construction Equipment to the site of the Work from the nearest available rental source of the same. If Construction Equipment is not moved to the Site by its own power, Contractor will be compensated for the loading and transportation costs in lieu of rental time. The foregoing notwithstanding, neither moving time or loading and transportation time shall be allowed if the Construction Equipment is used for performance of any portion of the Work other than Changes to the Work. Unless prior approval in writing is obtained by the Contractor from the Architect, the Project Inspector and the District, no costs or compensation shall be allowed for time while Construction Equipment is inoperative, idle or on standby, for any reason. The Contractor shall not be entitled to an allowance or any other compensation for Construction Equipment or tools used in the performance of Changes to the Work where such Construction Equipment or tools have a replacement value of one thousand dollars ($1,000.00) or less. Construction Equipment costs claimed by the Contractor in connection with the performance of any Change to the Work shall not exceed rental rates established by distributors or Construction equipment rental agencies in the locality of the Site; any costs asserted which exceed such rental rates shall not be allowed or paid. Unless otherwise specifically approved in writing by the Architect, the Project Inspector, Project Manager and the District, the allowable rate for the use of Construction Equipment in connection with Changes to the Work shall constitute full compensation to the Contractor for the cost of rental, fuel, power, oil, lubrication, supplies, necessary attachments, repairs or maintenance of any kind, depreciation, storage, insurance, labor (exclusive of labor costs of the Construction Equipment operator), and any all other costs incurred by the Contractor incidental to the use of such Construction Equipment.

9.5.3. Mark-up on Costs of Changes to the Work. In determining the cost to the District and the extent of increase to the Contract Price resulting from a Change adding to the Work, the allowance for mark-ups on the costs of the Change for all overhead (including home office and field overhead), general conditions costs and profit associated with the Change shall not exceed the percentage set forth in the Special Conditions, regardless of the number of Subcontractors, of any tier, performing any portion of any Change to the Work. If a Change to the Work reduces the Contract Price, no profit, general conditions or overhead costs shall be paid by the District to the Contractor for the reduced or deleted Work. In such an event, the adjustment to the Contract Price shall be the actual cost reduction realized by the reduced or deleted Work multiplied by the percentage set forth in the Special Conditions for mark-ups on the cost of a Change adding to the scope of the Work.

9.5.4. Contractor Maintenance of Records. If the Contractor is directed to perform any Changes to the Work pursuant to Article 9.1 or 9.2, or should the Contractor encounter Work Conditions which

the Contractor, pursuant to Article 9.8, believes would obligate the District to adjust the Contract Price and/or the Contract Time, Contractor shall maintain detailed records itemizing each element of costs along with substantiating evidence of costs incurred on a daily basis. Such records shall include without limitation hourly records for labor and Construction Equipment and itemized records of materials and equipment used that day in connection with the performance of any Change to the Work. In the event that more than one Change to the Work is performed by the Contractor in a calendar day, Contractor shall maintain separate records of labor, Construction Equipment, materials and equipment for each such Change. If any Subcontractor, of any tier, shall provide or perform any portion of any Change to the Work, Contractor shall require that each such Subcontractor maintain records in accordance with this Article. Each daily record maintained hereunder shall be signed by Contractor Superintendent or Contractor's authorized representative; such signature shall be deemed Contractor's representation and warranty that all information contained therein is true, accurate, complete and relate only to the Change referenced therein. All records maintained by a Subcontractor, of any tier, relating to the costs of a Change to the Work shall be signed by such Subcontractor's authorized representative or Subcontractor's Superintendent. All records maintained hereunder shall be subject to inspection, review and/or reproduction by the District, the Architect, the Project Manager or the Project Inspector upon request. If the Contractor fails or refuses, for any reason, to maintain or make available for inspection, review and/or reproduction such records and the adjustment to the Contract Price on account of any Change to the Work is determined pursuant to this Article, the District's reasonable good faith determination of the extent of adjustment to the Contract Price on account of such Change shall be final, conclusive, dispositive and binding upon Contractor. Contractor's obligation to maintain records hereunder is in addition to, and not in lieu of, any other Contractor obligation under the Contract Documents with respect to Changes to the Work.

9.6. Adjustment to Contract Time. If any Change to the Work authorized pursuant to this Article 9, the Contract Time affects the critical path of the Work, the Contract Time shall be extended or reduced by Change Order for a period of time commensurate with the time reasonably necessary to perform such Change. The Contractor is solely responsible for submitting scheduling data, analysis and other materials necessary or required by the District to substantiate the Contract Time adjustment requested by the Contractor for a Change. The District is not obligated to consider any adjustment to the Contract Time on account of a Change until the Contractor has submitted such scheduling data, analysis and other materials. In the event that any Change shall require an extension of the Contract Time, the Contractor shall not be subject to Liquidated Damages for such period of time. If completion of the Work is delayed by causes for which the District is responsible and the delay is unreasonable under the circumstances involved, and not within the contemplation of the Contractor and the District at the time of execution of the Agreement, the Contractor shall not be precluded from the recovery of damages arising therefrom.

9.7. Addition or Deletion of Alternate Bid Item(s). If the Bid for the Work includes proposal(s) for Alternate Bid Item(s), during Contractor's performance of the Work, the District may elect, pursuant to this Article to add any such Alternate Bid Item(s) if the same did not form a basis for award of the Contract or delete any such Alternate Bid Item(s) if the same formed a basis for award of the Contract. If the District elects to add or delete any such Alternate Bid Item(s) pursuant to the foregoing, the cost or credit for such Alternate Bid Item(s) shall be as set forth in the Contractor's Bid Proposal. If any Alternate Bid Item is added or deleted from the Work pursuant to the foregoing, the Contract Time shall be adjusted by the number of days allocated for the added or deleted Alternate Bid Item in the Contract Documents; if days are not allocated for any Alternate Bid Item added or deleted pursuant to the foregoing, the Contract Time shall be equitably adjusted.

9.8. Change Orders. If the District approves of a Change, a written Change Order prepared by the Architect or the Project Manager on behalf of the District shall be forwarded to the Contractor describing the Change and setting forth the adjustment to the Contract Time and the Contract Price (broken down by costs for labor, materials, equipment, Subcontractor mark-ups and other costs incorporated into the Change Order), if any, on account of such Change. All Change Orders shall be in full payment and final settlement of all claims for direct, indirect and consequential costs, costs of delays or impacts related to, or arising out of, items covered and affected by the Change Order, including without limitation: impacts of any kind; preparation and processing of any and all related RFIs, ASIs, Bulletins, FCDs, Quotes, and/or CCDs; inefficiencies; productivity losses; delay; acceleration; field and home office overhead; and any and all other incidental costs for all of the work described in the Change Order, as well as any and all adjustments to the Contract Time necessitated thereby. Any claim or item relating to any Change incorporated into a Change Order not presented by the Contractor for inclusion in the Change Order shall be deemed waived. The Contractor shall execute the Change Order prepared pursuant to the foregoing; once the Change Order has been prepared and forwarded to the Contractor for execution, without the prior approval of the District which may be granted or withheld in the sole and exclusive discretion of the District, the Contractor shall not modify or amend the form or content of such Change Order, or any portion thereof. The Contractor's attempted or purported modification or amendment of any such Change Order, without the prior approval of the District, shall not be binding upon the District; any such unapproved modification or amendment to such Change Order shall be null, void and unenforceable. Unless otherwise expressly provided for in the Contract Documents or in the Change Order, any Change Order issued hereunder shall be binding upon the District only upon action of the District's Board of Education approving and ratifying such Change Order. In the event of any amendment or modification made by the Contractor to a Change Order for which there is no prior approval by the District, in accordance with the provisions of this Article 9.8, unless otherwise expressly stated in its approval and ratification of such Change Order, any action of the Board of Education to approve and ratify such Change Order shall be deemed to be limited to the Change Order as prepared by the Construction Manager or the Architect; such approval and ratification of such Change Order shall not be deemed the District's approval and ratification of any unapproved amendment or modification by the Contractor to such Change Order. The form and content of Change Orders shall be as set forth in the attachments to the Special Conditions.

9.9. Unilateral Change Order. A Unilateral Change Order is a Change Order issued by the District, in the sole and exclusive discretion of the District, before the Contractor and District have agreed on the extent of adjustment of the Contract Time or the Contract Price relating to a Change. The District may, in its sole discretion, issue a Unilateral Change Order for any Change to the Work authorized by the District when the Contractor and the District have been unable to reach mutual agreement as to the extent of any adjustment to the Contract Price or Contract Time on account of such Change. The Contractor shall proceed to perform the Change to the Work as set forth in Unilateral Change Orders; failure of the Contractor to strictly comply with and perform Changes in accordance with Unilateral Change Orders shall be deemed the Contractor's default of a material obligation hereunder. Any claim of the Contractor for adjustment of the Contract Time or Contract Price beyond the adjustments established by a Unilateral Change Order shall accrue as of the date of the Board of Education' action approving or ratifying a Unilateral Change Order; claims for adjustment of the Contract Time or Contract Price and shall be subject to the claim provisions set forth in Article 16.11. Notwithstanding any provision of the Contract Documents to the contrary, an express condition precedent to the Contractor's exercise of rights and remedies under Article 16.11 relating to a Unilateral Change Order, is the Contractor notification to the District, Architect and Construction Manager, if any, in writing of the Contractor's objections to all or any portion of a Unilateral Change

Order or the basis for adjustment of the Contract Time or Contract Price within ten (10) days after the date of the Board of Education meeting ratifying or approving a Unilateral Change Order; failure of the Contractor to do so is deemed the Contractor's acceptance of the entirety of a Unilateral Change Order, as approved or ratified by the District's Board of Education and an express, unequivocal waiver by the Contractor of any right or remedy of the Contractor, under the Contract Documents or the Laws to: (i) object to the Unilateral Change Order or any portion thereof; or (ii) further adjustment of the Contract Time or the Contract Price on account of the Change(s) incorporated into a Unilateral Change Order.

9.10. Contractor Notice of Changes. If the Contractor should claim that any instruction, RFI, FCD, ASI, Bulletin, request, the Drawings, the Specifications, action, condition, omission, default, or other situation (collectively "Work Conditions") obligates the District to increase the Contract Price or to extend the Contract Time, the Contractor shall notify the Project Inspector, the Construction Manager and the Architect, in writing, of such claim within ten (10) days from the date of its actual or Contractor's notice of the factual basis supporting the same. The District shall consider any such claim of the Contractor only if sufficient supporting documentation is submitted with the Contractor's notice to the Project Inspector, the Construction Manager and the Architect. Time is of the essence in Contractor's written notice pursuant to the preceding sentence so that the District can promptly investigate and consider alternative measures to address such Work Conditions. Accordingly, Contractor acknowledges that its failure, for any reason, to give written notice (with sufficient supporting documentation to permit the District's review and evaluation) within ten (10) days of its actual or Constructive knowledge of any Work Conditions for which the Contractor believes there should an adjustment of the Contract Time or the Contract Price shall be deemed Contractor's waiver, release, discharge and relinquishment of any right to assert or claim any entitlement to an adjustment of the Contract Time or the Contract Price on account of any such Work Conditions. If the District determines that the Contract Price or the Contract Time are subject to adjustment based upon the events, circumstances and supporting documentation submitted with the Contractor's written notice submitted hereunder, any such adjustment shall be determined in accordance with the provisions of Articles 9.5.1 and 9.5.2.

9.11. Disputed Changes. In the event of any dispute or disagreement between the Contractor and the District, the Project Manager or the Architect regarding the characterization of any item as a Change to the Work or as to the appropriate adjustment of the Contract Price or the Contract Time on account thereof, the Contractor shall promptly proceed with the performance and completion of such item of the Work, subject to a subsequent resolution of such dispute or disagreement in accordance with the terms of the Contract Documents. The Contractor's failure or refusal to proceed with such Work is the Contractor's default of a material obligation of the Contractor under the Contract Documents.

9.12. Emergencies. In an emergency affecting or threatening the safety of persons, or which affects or threatens the Work, or other property, the Contractor, without special instruction or prior authorization from the District, the Project Manager or the Architect, is permitted to act at its discretion to prevent such threatened loss or injury. Any compensation claimed by the Contractor on account of such emergency work shall be submitted and determined in accordance with this Article 9.

9.13. Minor Changes in the Work. The Architect or the Construction Manager may order minor Changes in the Work not involving an adjustment in the Contract Price or the Contract Time and not inconsistent with the intent of the Contract Documents. Such Changes shall be effected by written order and shall be binding on the District and the Contractor. The Contractor shall carry out such orders promptly.

9.14. Unauthorized Changes. Any Work beyond the extent of Work shown on the Contract Documents, or any extra Work performed or provided by the Contractor without notice to the Architect, the Construction Manager and the Project Inspector in the manner and within the time set forth in Articles
9.2 or 9.8 shall be considered unauthorized and at the sole expense of the Contractor. Work so done will not be measured or paid for, no extension to the Contract Time will be granted on account thereof and any such Work may be ordered removed at the Contractor's sole cost and expense. The failure of the District to direct or order removal of such Work shall not constitute acceptance or approval of such Work nor relieve the Contractor from any liability on account thereof.

10. SEPARATE CONTRACTORS

10.1. District's Right to Award Separate Contracts. The District reserves the right to perform Construction or operations related to the Project with the District's own forces or to award separate contracts in connection with other portions of the Project or other Construction or operations at or about the Site. If the Contractor claims that delay or additional cost is involved because of such action by the District, the Contractor shall seek an adjustment to the Contract Price or the Contract Time as provided for in the Contract Documents. Failure of the Contractor to request such an adjustment of the Contract Time or the Contract Price in strict conformity with the provisions of the Contract Documents applicable thereto shall be deemed a waiver of the same.

10.2. District's Coordination of Separate Contractors. The District shall provide for coordination of the activities of the District's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the District in reviewing their respective Construction Schedules when directed to do so. The Contractor shall make any revisions to the Approved Construction Schedule for the Work hereunder deemed necessary after a joint review and mutual agreement. The Construction Schedules shall then constitute the Construction Schedules to be used by the Contractor, separate contractors and the District until subsequently revised.

10.3. Mutual Responsibility. The Contractor shall afford the District and separate contractors a reasonable opportunity for storage of their materials and equipment and performance of their activities at the Site and shall connect and coordinate the Contractor's Work, Construction and operations with theirs as required by the Contract Documents.

10.4. Discrepancies or Defects. If part of the Contractor's Work depends for proper execution or results upon Construction or operations by the District or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect, the Project Manager and the Project Inspector any apparent discrepancies or defects in such other Construction that would render it unsuitable for such proper execution and results. Failure of the Contractor to so report shall constitute an acknowledgment that the District's or separate Contractors' completed or partially completed Construction is fit and proper to receive the Contractor's Work, except as to defects not then discoverable by the Contractor's reasonable diligence.

10.5. District's Right to Withhold for Delay to Separate Contractors.

10.5.1. Progress of Work. Unless caused by the District, Architect, Construction Manager, Project Inspector, or separate contractor, if the Contractor fails or refuses, for any reason and at any time, to furnish adequate materials, labor, equipment, tools and/or services to maintain progress of the Work in accordance with the then current Construction Schedule thereby delaying the Work of separate contractor(s), the District may, after forty-eight (48) hours advance written notice from the District to the Contractor of its failure or refusal, direct, instruct andauthorize

the separate contractor(s) to furnish or cause to be furnished such materials, labor, equipment, tools and/or services necessary to maintain progress of the Work in accordance with the then current Construction Schedule.

10.5.2. District's Right to Withhold. If the work of a separate contractor to the District on the Project is delayed by the acts or omissions of the Contractor, any and all costs, expenses, and/or other charges incurred by the District for the work of such separate contractor(s) resulting from such acts or omissions of the Contractor shall be the sole responsibility of, and be borne by, the Contractor, and the District may deduct the amount of any and all such costs, expenses, and/or other charges from the Contract Price then or thereafter due the Contractor. If the Contract Price then or thereafter due the Contractor is insufficient to cover such amounts, the Contractor and the Performance Bond Surety shall be jointly and severally liable to the District for such amounts in excess of the Contract Price, provided that the liability of the Performance Bond Surety shall be limited to the penal sum of the Performance Bond. The assessment and/or withholding of the amount of such costs, expenses, and/or other charges shall be in addition to, and not in lieu of, any liquidated damages assessed and/or withheld from Contractor under Article 7.5 hereof.

10.5.3. Non-exclusive Remedy. The District's exercise of rights pursuant to the foregoing shall not be deemed a waiver or limitation of any other right or remedy of the District under the Contract Documents, or arising by operation of the Laws.

11. TESTS AND INSPECTIONS

11.1. Tests; Inspections; Observations.

11.1.1. Contractor's Notice; Request for Construction Inspection. If the Contract Documents, the Laws or any public authority with jurisdiction over the Work requires the Work, or any portion thereof, to be specially tested, inspected or approved, the Contractor shall give the Architect, the Project Manager and the Project Inspector written notice of the readiness of such Work for observation, testing or inspection at least two (2) working days prior to the time for the conducting of such test, inspection or observation. If inspection, testing or observation is by authority other than the District, the Contractor shall inform the Project Inspector and the Construction Manager not less than two (2) working days prior to the date fixed for such inspection, test or observation. When requesting special tests, inspections or approvals, the Contractor shall complete and submit the District's form of Request for Construction Inspection. The Contractor shall not cover up any portion of the Work subject to tests, inspections or observations prior to the completion and satisfaction of the requirements of such test, inspection or observation. In the event that any portion of the Work subject to tests, inspection or approval shall be covered up by Contractor prior to completion and satisfaction of the requirements of such tests, inspection or approval, Contractor shall be responsible for the uncovering of such portion of the Work as is necessary for performing such tests, inspection or approval without adjustment of the Contract Price or the Contract Time on account thereof.

11.1.2. Cost of Tests and Inspections. The District will pay for fees, costs and expenses for the initial tests/inspections of materials/equipment forming a part of the Work which are conducted at the Site or a location within a one hundred (100) mile radius of the Site. All fees, costs or expenses for subsequent tests/inspections or for tests/inspections conducted at a location situated more than a one hundred (100) mile radius from the Site (including without limitation, travel and travel-related expenses) shall be borne solely and exclusively by the Contractor. The foregoing notwithstanding, if the portion(s) of the Work subject to tests/inspections is/are not ready for such test/inspection at the time indicated in the Contractor's notice under Article

11.1.1 or if upon completion of such test/inspection, the portion(s) of the Work subject to such test/inspection do not meet or exceed the minimum requirements of such test/inspection, the Contractor shall be solely responsible for the payment of all fees, costs or expenses arising out of or related in any manner to subsequent tests/inspections of such portion(s) of the Work, and resulting delays, disruptions or other impacts to completion of the Project. Further, notwithstanding the District's payment of fees, costs or expenses for conducting initial tests/inspections, if any actions or failures to act of the Contractor or person or entity providing or performing Work under the direction or control of the Contractor require tests/inspections to be conducted over a period of more than eight (8) hours per day by any single person or on weekends/holidays, the Contractor shall be solely responsible for the payment of fees, costs or expenses which result from test/inspection services which exceed eight (8) hours per day by any single person or on weekends/holidays.

11.1.3. Testing/Inspection Laboratory. The District shall select duly qualified person(s) or testing laboratory(ies) to conduct the tests and inspections to be paid for by the District and required by the Contract Documents. Tests and inspections required of the Work shall be as set forth in the Contract Documents and as required by the Laws, including without limitation, Title 24 of the California Code of Regulations. Test/inspection standards shall be as set forth in the Contract Documents or established by the Laws. Where inspection or testing is to be conducted by an independent laboratory or testing agency, materials or samples thereof shall be selected by the laboratory, testing agency, the Project Inspector, the Project Manager or the Architect and not by the Contractor.

11.1.4. Additional Tests, Inspections and Approvals. If the Architect, the Project Manager, the Project Inspector or public authorities having jurisdiction over the Work determine that portions of the Work require additional testing, inspection or approval, the Architect will, upon written authorization from the District, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the District, and the Contractor shall give timely notice to the Architect, the Project Manager and the Project Inspector of when and where tests and inspections are to be made so the Project Inspector and the Architect may observe such procedures. The District shall bear the costs of such additional tests, inspections or approvals, except to the extent that such additional tests, inspections or approvals reveal any failure of the Work to comply with the requirements of the Contract Documents, in which case the Contractor shall bear all costs made necessary by such failures, including without limitation, the costs of corrections, repeat tests, inspections or approvals and the costs of the Architect's services or its consultants in connection therewith.

11.2. Delivery of Certificates. Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Project Manager.

11.3. Timeliness of Tests, Inspections and Approvals. Tests or inspections required and conducted pursuant to the Contract Documents shall be made or arranged by Contractor to avoid delay in the progress of the Work.

12. UNCOVERING AND CORRECTION OF WORK

12.1. Inspection of the Work.

12.1.1. Access to the Work. All Work and all materials and equipment forming a part of the Work or incorporated into the Work are subject to inspection by the District, the Project Manager, the Architect and the Project Inspector for conformity with the Contract Documents. The Contractor shall, at its cost and without adjustment to the Contract Price or the Contract Time, furnish any

facilities necessary for sufficient and safe access to the Work for purposes of inspection by the District, the Construction Manager, the Architect, the Project Inspector, DSA or any other public or quasi-public authority with jurisdiction over the Work or any portion thereof.

12.1.2. Limitations Upon Inspections. Inspections, tests, measurements, or other acts of the Architect, the Project Manager and the Project Inspector hereunder are for the sole purpose of assisting them in determining that the Work, materials, equipment, progress of the Work, and quantities generally comply and conform to the requirements of the Contract Documents. These acts or functions shall not relieve the Contractor from performing the Work in full compliance with the Contract Documents. No inspection by the Architect, the Project Manager or the Project Inspector shall constitute or imply acceptance of Work inspected. Inspection of the Work hereunder is in addition to, and not in lieu of, any other testing, inspections or approvals of the Work required under the Contract Documents.

12.2. Uncovering Work. If any portion of the Work is covered contrary to the request of the Architect, the Project Manager, the Project Inspector or the requirements of the Contract Documents, it must, if required by the Architect, Project Manager or the Project Inspector, be uncovered for observation by the Architect, Project Manager and the Project Inspector and be replaced at the Contractor's expense without adjustment of the Contract Time or the Contract Price.

12.3. Rejection of Work. Prior to the District's Final Acceptance of the Work, any Work or materials or equipment forming a part of the Work or incorporated into the Work which is Defective or Non-Conforming Work may be rejected by the District, the Project Manager, the Architect or the Project Inspector and the Contractor shall correct such rejected Work without any adjustment to the Contract Price or the Contract Time, even if the Work, materials or equipment have been previously inspected by the Architect or the Project Inspector and the Defective or Non-Conforming Work was not observed.

12.4. Correction of Defective or Non-Conforming Work. The Contractor shall promptly correct any Defective or Non-Conforming Work whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting Defective or Non-Conforming Work, including additional testing and inspections and compensation for the Architect's services and expenses made necessary thereby. The Contractor shall bear all costs of correcting destroyed or damaged Construction Work, whether completed or partially completed, of the District or separate contractors, caused by the Contractor's correction or removal of Defective or Non-Conforming Work.

12.5. Removal of Non-Conforming or Defective Work. The Contractor shall, at its sole cost and expense, remove from the Site all Defective or Non-Conforming Work which is neither corrected by the Contractor nor accepted by the District.

12.6. Failure of Contractor to Correct Defective or Non-Conforming Work. If the Contractor fails to commence to correct Defective or Non-Conforming Work within three (3) days of notice by or on behalf of the District of such condition and promptly thereafter complete the same within a reasonable time, the District may correct it in accordance with the Contract Documents. If the Contractor does not proceed with correction of such Defective or Non-Conforming Work within the time fixed herein, the District may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage after written notice, the District may sell such materials or equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including without limitation compensation for the Project Manager's services, the Architect's services, attorneys' fees and other expenses made necessary thereby. If such proceeds

of sale do not cover costs which the Contractor should have borne, the Contract Price shall be reduced by the deficiency. If payments of the Contract Price then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor and the Surety shall promptly pay the difference to the District.

12.7. Acceptance of Defective or Non-Conforming Work. The District may, in its sole and exclusive discretion, elect to accept Defective or Non-Conforming Work instead of requiring its removal and correction, in which case the Contract Price shall be reduced as appropriate and equitable. The District's determination of the extent of reduction of the Contract Price on account of Defective or Non-Conforming Work accepted by the District shall be binding, conclusive, dispositive and not subject to appeal or other dispute resolution procedures, unless such determination is manifestly unreasonable.

13. WARRANTIES

13.1. Workmanship and Materials. The Contractor warrants to the District that (i) the Work and all materials and equipment incorporated therein conform to requirements of the Contract Documents; (ii) all materials and equipment incorporated into the Work are new, of good quality and of the most suitable grade and quality for the purpose intended, unless otherwise specified in the Contract Documents and (iii) all Work and workmanship shall be of good quality, free from faults and defects and in conformity with the requirements of the Contract Documents. If required by the Architect, Project Inspector, the Project Manager or the District, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment incorporated into the Work. Any Work, or portion thereof not conforming to these requirements, including substitutes or alternatives not properly approved in accordance with the Contract Documents may be deemed defective. Where there is an approved substitution of, or alternative to, material or equipment specified in the Contract Documents, the Contractor warrants to the District that such installation, Construction, material, or equipment will equally perform the function and have the quality of the originally specified material or equipment. The Contractor expressly warrants the merchantability, the fitness for use, and quality of all substitute or alternative items in addition to any warranty given by the manufacturer or supplier of such item.

13.2. Warranty Work. If, within one (1) year after the date of Final Acceptance, or such other time frame set forth elsewhere in the Contract Documents, any of the Work or workmanship is found to be defective or not in accordance with the requirements of the Contract Documents, or otherwise contrary to the warranties contained in the Contract Documents, the Contractor shall commence all necessary corrective action not more than seven (7) days after receipt of a written notice from the District to do so, and to thereafter diligently complete the same. If the Contractor fails or refuses to commence correction of any such item within said seven (7) day period or to diligently prosecute such corrective actions to completion, the District may, without further notice to Contractor, cause such corrective Work to be performed and completed. In such an event, Contractor and Contractor's Performance Bond Surety shall be responsible for all costs in connection with such corrective Work, including without limitation, general administrative overhead costs of the District in securing and overseeing such corrective Work. Nothing contained herein shall be construed to establish a period of limitation with respect to any obligation of the Contractor under the Contract Documents. The obligations of the Contractor hereunder shall be in addition to, and not in lieu of, any other obligations imposed by any special guarantee or warranty required by the Contract Documents, guarantees or warranties provided by any manufacturer of any item or equipment forming a part of, or incorporated into the Work, or otherwise recognized, prescribed or imposed by law. Neither the District's Final Acceptance, the making of Final Payment, any provision in Contract Documents, nor

the use or occupancy of the Work, in whole or in part, by District shall constitute acceptance of Work not in accordance with the Contract Documents nor relieve the Contractor or the Contractor's Performance Bond Surety from liability with respect to any warranties or responsibility for Defective or Non-Conforming Work, or materials, equipment and workmanship incorporated therein.

13.3. Guarantee. Upon completion of the Work, Contractor shall execute and deliver to the District the form of Guarantee included within the Contract Documents at Section 00 65 36. The Contractor's execution and delivery of the form of Guarantee is an express condition precedent to any obligation of the District to disburse the Final Payment to the Contractor and any right of the Contractor to Final Payment.

13.4. Survival of Warranties; Surety Obligations. The Contractor's warranty obligations hereunder shall survive the Contractor's completion of Work under the Contract Documents, the District's Final Acceptance or the termination of the Contract. The obligations of the Surety issuing the Performance Bond shall include assumption and discharge of the Contractor's warranty obligations if the Contractor fails or refuses to perform its warranty obligations hereunder in strict conformity herewith.

14. SUSPENSION OFWORK

14.1. District's Right to Suspend Work. The District may, without cause, and without invalidating or terminating the Contract, order the Contractor, in writing, to suspend, delay or interrupt the Work in whole or in part for such period of time as the District may determine. When all or a portion of the Work is to be suspended for any reason, the Contractor and each Subcontractor shall cover over, and securely fasten down all coverings, to protect the Work from damage, destruction or deterioration from any cause. The Contractor shall resume and complete the Work suspended by the District in accordance with the District's directive, whether issued at the time of the directive suspending the Work or subsequent thereto.

14.2. Adjustments to Contract Price and Contract Time. If the District orders suspension of the Work, an adjustment shall be made to the Contract Price for increases in the direct cost of performance of the Work of the Contract Documents, actually caused by suspension, delay or interruption ordered by the District; provided however that no adjustment of the Contract Price shall be made to the extent: (i) that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible under the Contract Documents; (ii) that an equitable adjustment is made or denied under another provision of the Contract Documents; or (iii) the suspension is determined to be reasonably necessary to comply with an order, instruction or similar directive of local, regional, state-wide or federal public health authorities. In the event of the District's suspension of the Work, the Contract Time shall be equitably adjusted.

15. TERMINATION

15.1. Termination for Cause.

15.1.1. District's Right to Terminate. The District may terminate the Contract by written notice to the Contractor upon the occurrence of any one or more of the following events of the Contractor's default: (i) if the Contractor refuses or fails to prosecute the Work with diligence as will insure Substantial Completion of the Work within the Contract Time, or if the Contractor fails to substantially Complete the Work within the Contract Time; (ii) if the Contractor becomes bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if the Contractor or a third party files a petition to reorganize or for protection under any bankruptcy or similar laws, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor's property on account of the Contractor's insolvency, and the Contractor or its

successor in interest does not provide adequate assurance of future performance in accordance with the Contract Documents within ten (10) days of receipt of a request for such assurance from the District; (iii) if the Contractor repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment; (iv) if the Contractor repeatedly fails to make prompt payments to any Subcontractor, of any tier, or Material Suppliers or others for labor, materials or equipment; (v) if the Contractor disregards the Laws or requirements of any public entity having jurisdiction over the Work; (vi) if the Contractor disregards proper directivesof the Architect, the Project Manager, the Project Inspector or District; (vii) Defective/Non-Conforming Work which the Contractor neglects or refuses to correct; or (viii) if the Contractor otherwise violates in any material way any provisions or requirements of the Contract Documents. Once the District determines that sufficient cause exists to justify the action, the District may terminate the Contract without prejudice to any other right or remedy the District may terminate the Contract for the Contractor's default by written notice to the Contractor. The Contract shall be deemed terminated for Contractor default as of the effective date set forth in the District's written notice of termination. The District shall have the sole discretion to permit the Contractor to remedy the cause(s) for the termination without waiving the District's right to terminate the Contract, or otherwise waiving, restricting or limiting any other right or remedy of the District under the Contract Documents or the Laws arising out of the Contractor's default(s).

15.1.2. District's Rights Upon Termination. If the Contract is terminated pursuant to this Article 15.1, the District may take over the Work and prosecute it to completion, by contract or otherwise, and may exclude the Contractor from the Site. The District may take possession of the Work and of all of the Contractor's tools, appliances, Construction equipment, machinery, materials, and plant which may be on the Site, and use the same to the full extent they could be used by the Contractor without liability to the Contractor. In exercising the District's right to prosecute the completion of the Work, the District may also take possession of all materials and equipment stored at the Site or for which the District has paid the Contractor but which are stored elsewhere, and finish the Work as the District deems expedient. In exercising the District's right to prosecute the completion of the Work, the District shall have the right to exercise its sole discretion as to the manner, methods, and reasonableness of the costs of completing the Work and the District shall not be required to obtain the lowest figure for completion of the Work. In the event that the District takes bids for remedial Work or completion of the Work, the Contractor shall not be eligible for the award of such contract(s).

15.1.3. Completion by the Surety. If the Contract is terminated pursuant to this Article 15.1, the District may demand that the Surety take over and complete the Work. The District may require that in so doing, the Surety not utilize the Contractor in performing and completing the Work. Upon the failure or refusal of the Surety to take over and begin completion of the Work within twenty (20) days after demand therefore, the District may take over the Work and prosecute it to completion as provided for above.

15.1.4. Assignment and Assumption of Subcontracts. The District shall, in its sole and exclusive discretion, have the option of requiring any Subcontractor or Material Supplier to perform in accordance with its Subcontract or Purchase Order with the Contractor and assign the Subcontract or Purchase Order to the District or such other person or entity selected by the District to complete the Work.

15.1.5. Costs of Completion. In the event of termination under this Article 15.1, the Contractor shall not be entitled to receive any further payment of the Contract Price until the Work is completed. If the unpaid balance of the Contract Price as of the date of termination exceeds the District's direct and indirect costs and expenses for completing the Work, including without limitation,

attorneys' fees, fees for additional professional and consultant services, and the District's administrative costs, such excess shall be used to pay the Contractor for the cost of the Work performed prior to the effective date of termination with a reasonable allowance for overhead and profit. If the District's costs and expenses to complete the Work exceed the unpaid Contract Price, the Contractor and the Surety are jointly and severally liable to the District for the difference between costs and expenses to complete the Work and the unpaid Contract Price as of the date of termination.

15.1.6. Contractor Responsibility for Damages. The Contractor and the Surety shall be jointly and severally liable for all damage sustained by the District resulting from, in any manner, the termination of Contract under this Article 15.1, including without limitation, attorneys' fees, and for all costs necessary for repair and completion of the Work exceeding the Contract Price.

15.1.7. Conversion to Termination for Convenience. If the Contract is terminated under this Article 15.1, and it is determined, for any reason, that the Contractor was not in default under the provisions hereof, the termination shall be deemed a Termination for Convenience of the District and thereupon, the rights and obligations of the District and the Contractor shall be determined in accordance with Article 15.2 hereof.

15.1.8. District's Rights Cumulative. If the Contract is terminated pursuant to this Article 15.1, the termination shall not affect or limit any rights or remedies of the District against the Contractor or the Surety. The rights and remedies of the District under this Article 15.1 are in addition to, and not in lieu of, any other rights and remedies provided by the Laws or under the Contract Documents. Any retention or payment of monies to the Contractor by the District shall not be deemed to release the Contractor or the Surety from any liability hereunder.

15.2. Termination for Convenience of the District. The District may at any time, in its sole and exclusive discretion, by written notice to the Contractor, terminate the Contract in whole or in part when it is in the interest of, or for the convenience of, the District. In such case, the Contractor shall be entitled to payment for: (i) Work actually performed and in place as of the effective date of such termination for convenience of the District, with a reasonable allowance for profit and overhead on such Work, and (ii) reasonable expenses for reasonable protection of Work in place and suitable storage and protection of materials and equipment delivered to the Site (as directed or authorized by the District) but not yet incorporated into the Work, provided that such payments shall not exceed the total Contract Price as reduced by payments previously made to the Contractor and as further reduced by the value of the Work not yet completed. The Contractor shall not be entitled to profit and overhead on Work which was not performed as of the effective date of the termination for convenience of the District. The District may, in its sole discretion, elect to have subcontracts assigned pursuant to Article 15.1.4 above after exercising the right hereunder to terminate for the District's convenience.

16. MISCELLANEOUS

16.1. Governing Law. This Contract shall be governed by and interpreted in accordance with the laws of the State of California.

16.2. Marginal Headings; Capitalized Headings; Interpretation. The titles of the various Articles of these General Conditions and elsewhere in the Contract Documents are used for convenience of reference only and are not intended to, and shall in no way, enlarge or diminish the rights or obligations of the District or the Contractor and shall have no effect upon the Construction or interpretation of the Contract Documents. Except as otherwise expressly provided, capitalized terms used in the Contract Documents shall have the meaning and definition for such terms as set forth in the Contract Documents. The Contract Documents shall be construed as a whole in accordance with their fair

meaning and not strictly for or against the District or the Contractor.

16.3. Successors and Assigns. Except as otherwise expressly provided in the Contract Documents, all terms, conditions and covenants of the Contract Documents shall be binding upon, and shall insure to the benefit of the District and the Contractor and their respective heirs, representatives, successors-in-interest and assigns.

16.4. Cumulative Rights and Remedies; No Waiver. Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not in lieu of or otherwise a limitation or restriction of duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the District shall constitute a waiver of a right or remedy afforded it under the Contract Documents or the Laws nor shall such an action or failure to act constitute approval of or acquiescence in a breach hereunder, except as may be specifically agreed in writing.

16.5. Severability. In the event any provision of the Contract Documents shall be deemed illegal, invalid, unenforceable and/or void, by a court or any other governmental agency of competent jurisdiction, such provision shall be deemed to be severed and deleted from the Contract Documents, but all remaining provisions hereof, shall in all other respects, continue in full force and effect.

16.6. No Assignment by Contractor. The Contractor shall not sublet or assign the Contract, or any portion thereof, or any monies due thereunder, without the express prior written consent and approval of the District, which approval may be granted, conditioned or withheld in the sole and exclusive discretion of the District. The District's approval to such assignment shall be upon such terms and conditions as determined by the District in its sole and exclusive discretion.

16.7. Gender and Number. Whenever the context of the Contract Documents so required, the neuter gender shall include the feminine and masculine, the masculine gender shall include the feminine and neuter, the singular number shall include the plural and the plural number shall include the singular.

16.8. Independent Contractor Status. In performing its obligations under the Contract Documents, the Contractor is an independent contractor to the District and not an agent or employee of the District. Nothing contained herein shall be deemed or construed as creating a relationship of employer and employee between the District and the Contractor or any Subcontractors, employees of the Contractor or Subcontractors or their respective agents and representatives. Neither the Contractor, Subcontractors nor any employees of the Contractor or Subcontractors are entitled to any rights or privileges of District employees.

16.9. Notices. Notices under this Agreement shall be delivered by United States Mail, Certified, Return Receipt Requested with postage fully prepaid or by email. Notices delivered by United States Mail shall be deemed effective the third (3rd) working day after the postmark date. Notices delivered by email before 12:00 PM on District work days shall be deemed effective four (4) hours after delivery to the recipient's email server. Emails delivered to the recipient's email server after 12:00 PM on a District work day or on District holiday days shall be deemed effective as of 12:00 PM the ensuing workday. The recipients and addresses for notices may be modified by the Parties by notice to the other. Notices shall be addressed as set forth in the Agreement.

16.10. Disputes; Continuation of Work. Notwithstanding any claim, dispute or other disagreement between the District and the Contractor regarding performance under the Contract Documents, the scope of Work thereunder, or any other matter arising out of or related to, in any manner, the Contract Documents, the Contractor shall proceed diligently with performance of the Work in accordance with the District's written direction, pending any final determination or decision regarding any such claim,

dispute or disagreement.

16.11. Dispute/Claims Resolution.

16.11.1. Contractor Continuation of Work. Notwithstanding any claim, dispute, disagreement or other matter in controversy between the District and the Contractor relating to the Contract Documents and/or the Work, the Contractor shall continue to diligently prosecute and perform the Work in accordance with requirements of the Contract Documents, pending any final determination or decision regarding any such claim, dispute, disagreement or matter in controversy.

16.11.2. Public Contract Code §9204 Claims Resolution Procedures. Claims of the Contractor are subject to the non-binding dispute resolution procedures set forth in Public Contract Code §9204 ("Section 9204") provided, however, that the Contractor's initiation of Section 9204 procedures is expressly subject to the Contractor's prior full and timely compliance with requirements and procedures of the Contract Documents relating to procedures for resolution of claims, change orders, disputes and other matters in controversy under the Contract Documents.

16.11.3. Claim Defined. The term "Claim" shall be as defined in Section9204.

16.11.3.1. Claim Documentation. The Contractor shall furnish reasonable documentation to support each Claim. "Reasonable documentation" includes, without limitation: (i) contractual and legal basis establishing Claim entitlement or merit; (ii) factual basis establishing District liability for the Claim; (iii) detailed breakdown of labor, materials, equipment and other costs included in the Claim; and (iv) detailed basis, including Schedule analysis and fragnets supporting any Contract Time adjustment or Liquidated Damages relief included in the scope of a Claim.

16.11.3.2. District Claim Review Statement. Within forty five(45) days (or such other time mutually agreed to by the District and the Contractor) after receipt of a properly submitted and properly documented Claim, the District will conduct a reasonable review of the Claim and provide the Contractor with a written statement identifying the disputed and undisputed portions of the Claim ("Claim Review Statement"). If the District does not provide the Contractor with the Claim Review Statement for any Claim within forty five (45) days (or other time mutually agreed to by the District and the Contractor) after receipt of a properly submitted and properly documented Claim, the Claim is deemed rejected in its entirety and thereupon, the Contractor may initiate the Meet and Confer process described below. A Claim deemed rejected pursuant to the foregoing does not constitute an adverse finding of Claim merit or the Contractor's responsibility or qualifications. If the Claim Review Statement identifies any undisputed portion of a Claim ("Undisputed Claim") and payment is due from the District on the Undisputed Claim, the District shall process and make payment on the Undisputed Claim within sixty (60) days after the issuance date of the Claim Review Statement.

16.11.4. Meet and Confer.

16.11.4.1. Meet and Confer Demand. If the Contractor disputes any portion of the Claim Review Statement, or if a Claim is deemed rejected by the District not providing the Contractor with the Claim Review Statement within the time permitted under Section 9204, the Contractor may demand an informal conference to meet and confer with the District for settlement of the issues in dispute ("Meet and Confer"). The Contractor's Meet and

Confer request must be submitted to the District: (i) in writing; (ii) by registered mail or certified mail, return receipt requested; and (iii) within ten (10) days after the Claim Review Statement is submitted to the Contractor or within ten (10) days after the date the Claim is deemed rejected, as applicable. Failure of the Contractor to strictly comply with the foregoing is deemed a waiver of the Contractor's right to request the Meet and Confer and the Non-Binding Mediation procedures under Section 9204. If the Contractor strictly complies with the foregoing, the District will schedule the Meet and Confer conference within thirty (30) days of the Contractor's Meet and Confer request for settlement of disputed portions of the Claim Review Statement.

16.11.4.2. Meet and Confer Statement. Within ten (10) business days after conclusion of the Meet and Confer conference, if any portion of a Claim remains disputed, the District shall provide the Contractor a written statement identifying the disputed and undisputed portions of the Claim ("Meet and Confer Statement"). If the Meet and Confer Statement identifies any Undisputed Claim and payment is due from the District on the Undisputed Claim, the District shall process and make payment on the Undisputed Claim within sixty (60) days after date the Meet and Confer Statement is issued

16.11.5. Non-Binding Mediation.

16.11.5.1. Contractor Initiation. The Contractor may request non-binding mediation ("Mediation") of disputed portions of a Claim identified in the Meet and Confer Statement. The Contractor's Mediation demand must be submitted to the District: (i) in writing; (ii) by registered mail or certified mail, return receipt requested; (iii) within ten (10) days after the Meet and Confer Statement is submitted to the Contractor; and (iv) with specific identification of the disputed Claims issues subject to Mediation. Failure of the Contractor to strictly comply with the foregoing is deemed a waiver of the Contractor's right to demand Mediation procedures under Section 9204.

16.11.5.2. Mediator Selection. The District and Contractor shall mutually agree to a mediator within ten (10) business days after the date of the Contractor's demand for Mediation. If the District and Contractor do not mutually agree to a mediator, the District and Contractor shall each select a mediator and the District/Contractor selected mediators shall select a qualified neutral third party to mediate the disputed portion of the Claim.

16.11.5.3. Mediation Procedures. Mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the District and Contractor in dispute resolution through negotiation or by issuance of an evaluation.

16.11.5.4. Mediation Costs. All costs, fees and expenses of the mediator(s) and mediation administration shall be shared equally by the District and Contractor. The foregoing notwithstanding, the Contractor and District shall each bear the costs, fees and expenses of their own attorneys, experts and consultants.

16.11.5.5. Post-Mediation Disputed Claims. Any Claims issues in dispute after Mediation shall be resolved in accordance with the applicable provisions of the Contract Documents.

16.11.5.6. Waiver. The District and Contractor may mutually agree to waive, in writing, Mediation under Section 9204 and subject to the Contractor's compliance with Government Code Claim requirements, proceed directly to commencement of a civil action or binding arbitration.

16.11.6. Payments of Undisputed Claims. If a payment due from the District for Undisputed Claims identified in the Claim Review Statement or the Meet and Confer Statement issued for a Claim is not made within the time established under Section 9204 the overdue portion of such payment shall bear interest at the rate of seven percent (7%) per annum from the date due. The District's credit application of any amount due for an Undisputed Claim against amounts due from the Contractor under the Contract Documents shall be deemed payment of the Undisputed Claim.

16.11.7. Subcontractor Claims.

16.11.7.1. Subcontractor Claim Submittal. If a Subcontractor, of any tier (collectively "Subcontractor") lacks legal standing to assert a Claim against the District because privity of contract does not exist, the Contractor may present the District a Claim on behalf of the Subcontractor ("Subcontractor Claim"). Each Subcontractor requesting submittal of a Subcontractor Claim to the District shall furnish reasonable documentation to support the Subcontractor Claim. Within forty-five (45) days of receipt of a Subcontractor's written request to submit a Subcontractor Claim, the Contractor shall notify the Subcontractor in writing as to whether the Contractor presented the Subcontractor Claim to the District. If the Contractor did not present the Subcontractor Claim, the Contractor shall provide the Subcontractor with a statement of the reasons for not having done so.

16.11.7.2. Contractor Certification of Subcontractor Claim. The District's review of Subcontractor Claims is expressly subject to the Contractor's submittal of a duly completed and executed form of Contractor Certification of Subcontractor Claim certifying that the Contractor has thoroughly reviewed the Subcontractor Claim and based on the Contractor's review, certify that: (i) the Subcontractor Claim is made by the Subcontractor in good faith; (ii) the Subcontractor Claim is supported by reasonable documentation establishing entitlement to the relief requested and District liability therefor; and (iii) the Subcontractor Claim does not incorporate any request constituting a False Claim under applicable law, including the California False Claim Act (Government Code §12650 et seq). The form of Contractor Certification of Subcontractor Claim is included in the Contract Documents.

16.11.7.3. District Review of Subcontractor Claim. Subcontractor Claims presented by the Contractor to the District are subject to the Section 9204 non-binding dispute resolution procedures set forth above, as modified herein. Requests for the District to conduct Meet and Confer and/or non-binding mediation procedures must be submitted jointly by the Contractor and the Subcontractor submitting the Subcontractor Claim. If Mediation proceedings are initiated in connection with a Subcontractor Claim, mediator and mediation administration fees and costs shall be borne equally by the District, Contractor and Subcontractor.

16.11.7.4. Disputed Subcontractor Claims. Subcontractor Claims which are not fully resolved by the Section 9204 non-binding dispute resolution procedures shall be resolved by Section 20104.4 Dispute Resolution Procedures or binding arbitration, as applicable. Commencement of Section 20104.4 Dispute Resolution Procedures or binding arbitration proceedings in connection with any Subcontractor Claim is subject to compliance with Government Code Claims requirements.

16.11.8. Government Code Claim Requirements. Pursuant to Government Code §930.6, any claim, demand, dispute, disagreement or other matter in controversy asserted by the Contractor,

whether on behalf of itself or a Subcontractor, against the District for money or damages, including without limitation Claims or portions thereof remaining in dispute after completion of the Section 9204 non-binding dispute resolution procedures described above are deemed a "suit for money or damages'' and shall be subject to the provisions of Government Code §§945.4, 945.6 and 946 ("Government Code Claims Process"). An express condition precedent to the Contractor's initiation of Section 20104.4 Dispute Resolution Procedures or binding arbitration proceedings pursuant to the following is the Contractor's compliance with the Government Code Claims Process, including without limitation, presentation of the claim, demand, dispute, disagreement or other matter in controversy between the Contractor and the District seeking money or damages to the District and acted upon or deemed rejected by the District in accordance with Government Code §900, et seq.

16.11.9. Section 20104.4 Dispute Resolution Procedures; Claims Less Than $375,000. Any Claim, or portion thereof, in dispute after completion of the Section 9204 non-bindingdispute resolution procedures and the Government Code Claims Process which is equal to or less $375,000 shall be resolved in accordance with the civil action procedures established in Public Contract Code §20104.4. Unless otherwise agreed to by the District and the Contractor in writing, the mediation conducted pursuant to Section 9204 procedures shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

16.11.10. Binding Arbitration of Claims Exceeding $375,000.

16.11.10.1. AAA Arbitration. Any Claim, or portion thereof in dispute after completion of the Section 9204 procedures and the Government Code Claims Process which exceeds $375,000 and any other claims, disputes, disagreements or other matters in controversy between the District and the Contractor arising out of, or related, in any manner, to the Contract Documents, or the interpretation, clarification or enforcement thereof shall be resolved by binding arbitration conducted in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association ("AAA") in effect as of the date that a Demand for Arbitration is filed, except as expressly modified herein. The locale for any arbitration commenced hereunder shall be the regional office of the AAA closest to the Site.

16.11.10.2. Demand for Arbitration. A Demand for Arbitration shall be filed and served within a reasonable time after the occurrence of the claim, dispute or other disagreement giving rise to the Demand for Arbitration, but in no event shall a Demand for Arbitration be filed or served after the date when the institution of legal or equitable proceedings based upon such claim, dispute or other disagreement would be barred by the applicable statute of limitations. If more than one Demand for Arbitration is filed by either the District or the Contractor relating to the Work or the Contract Documents, all Demands for Arbitration shall be consolidated into a single arbitration proceeding, unless otherwise agreed to by the District and the Contractor. The Contractor's Surety, a Subcontractor or Material Supplier to the Contractor and other third parties may be permitted to join in and be bound by an arbitration commenced hereunder if required by the terms of their respective agreements with the Contractor, except to the extent that such joinder would unduly delay or complicate the expeditious resolution of the claim, dispute or other disagreement between the District and the Contractor, in which case an appropriate severance order shall be issued by the Arbitrator(s).

16.11.10.3. Discovery. In connection with any arbitration proceeding commenced hereunder, the discovery rights and procedures provided for in California Code of Civil Procedure §1283.05 shall be applicable, and the same shall be deemed incorporated herein by this reference.

16.11.10.4. Arbitration Award. The award rendered by the Arbitrator ("Arbitration Award") shall be final and binding upon the District and the Contractor only if the Arbitration Award is: (i) supported by substantial evidence; (ii) based on applicable legal standards in effect that the time the Arbitration Award is issued; and (iii) supported by written findings of fact and conclusions of law in conformity with California Code of Civil Procedure §1296. Any Arbitration Award that does not conform to the foregoing is invalid and unenforceable. The District and Contractor hereby expressly agree that the Court shall, subject to California Code of Civil Procedure §§1286.4 and 1296, vacate the Arbitration Award if, after review, the Court determines either that the Arbitration Award does not fully conform to the foregoing. The confirmation, enforcement, vacation or correction of an arbitration award rendered hereunder shall be made by the Superior Court of the State of California for the county in which the Site is situated. The substantive and procedural rules for such post-award proceedings shall be as set forth in California Code of Civil Procedure §1285 et seq.

16.11.10.5. Arbitration Fees and Expenses. The expenses and fees of the Arbitrator shall be divided equally among all of the parties to the arbitration. Each party to any arbitration commenced hereunder shall be responsible for and shall bear its own attorneys' fees, witness fees and other costs or expenses incurred in connection with such arbitration. The foregoing notwithstanding, the Arbitrator may award arbitration costs, including Arbitrator's fees but excluding attorneys' fees, to the prevailing party. By this arbitration provision, the District and the Contractor acknowledge and agree that neither shall recover from the other any attorneys' fees associated with or arising out of any legal, administrative or other proceedings filed or instituted in connection with or arising out of the Contract Documents or the performance of either the District or the Contractor thereunder. The limited exceptions in the Contract Documents that provide attorneys' fees for specific issues shall neither be construed as applying to this arbitration provision under California Civil Code §1717(a) nor be deemed to be "authorized by the Laws."

16.11.10.6. Limitation on Arbitrator. The Superior Court for the State of California for the County in which the Project Site is situated has the sole and exclusive jurisdiction, and an arbitrator has no authority, to hear and/or determine a challenge to the commencement or maintenance of an arbitration proceeding on the grounds that: (i) the subject matter of the arbitration proceeding is barred by the applicable statute of limitations; (ii) the subject matter of the arbitration proceeding is barred by a provision of the California Government Claims Act; (iii) the subject matter of the arbitration proceeding is outside the scope of the arbitration clause; (iv) the Contractor has failed to satisfy all conditions precedent to commencement or maintenance of an arbitration proceeding; (v) waiver of the right to compel arbitration; (vi) grounds exist for the revocation of the arbitration agreement; and/or, (vii) there is the prospect that a ruling in arbitration would conflict or potentially with a ruling in a pending proceeding regarding the Project on a common issue of law or fact.

16.11.10.7. Inapplicability to Bid Bond. The arbitration proceedings described above are not applicable to disputes, disagreements or enforcement of rights or obligations under

the Bid Bond. All claims, disputes and actions to enforce rights or obligations under the Bid Bond shall be adjudicated only by judicial proceedings commenced in a court of competent jurisdiction.

16.12. Limitation on Special/Consequential Damages. In the event of the District's breach or default of its obligations under the Contract Documents, the damages, if any, recoverable by the Contractor shall be limited to general damages which are directly caused by the breach or default of the District and shall exclude any and all special or consequential damages, if any. The Contractor expressly acknowledges the foregoing limitation to recovery of only general damages from the District if the District is in breach or default of its obligations under the Contract Documents; the Contractor expressly waives and relinquishes any recovery of special or consequential damages from the District.

16.13. Capitalized Terms. Except as otherwise expressly provided, capitalized terms used in the Contract Documents shall have the meaning and definition for such terms as set forth in the Contract Documents.

16.14. Attorneys' Fees. Except as expressly provided for in the Contract Documents, or authorized by law, neither the District nor the Contractor shall recover from the other any attorneys' fees or other costs associated with or arising out of any legal, administrative or other proceedings filed or instituted in connection with or arising out of the Contract Documents or the performance of either the District or the Contractor thereunder.

16.15. Provisions Required by Law Deemed Inserted. Each and every provision of law and clause required by law to be inserted in the Contract Documents is deemed to be inserted herein and the Contract Documents shall be read and enforced as though such provision or clause are included herein, and if through mistake, or otherwise, any such provision or clause is not inserted or if not correctly inserted, then upon application of either party, the Contract Documents shall forthwith be physically amended to make such insertion or correction.

16.16. Days. Unless otherwise expressly stated, references to "days" in the Contract Documents shall be deemed to be calendar days.

16.17. Prohibited Interests. No employee of the District, who is authorized in such capacity on behalf of the District to negotiate, make, accept or approve, or to take part in negotiating, making, accepting or approving any architectural, engineering, inspection, Construction or material supply contract or subcontract in connection with the Work shall become directly or indirectly financially interested in the Work or any part thereof.

16.18. Entire Agreement. The Contract Documents contain the entire agreement and understanding between the District and the Contractor concerning the subject matter hereof, and supersedes and replaces all prior negotiations, proposed agreements or amendments, whether written or oral. No amendment or modification to any provision of the Contract Documents shall be effective or enforceable except by an agreement in writing executed by the District and the Contractor.

[END OF SECTION]

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COMMUNITY WORKFORCE AGREEMENT

BY AND BETWEEN THE

LYNWOOD UNIFIED SCHOOL DISTRICT

AND

LOS ANGELES AND ORANGE COUNTIES
BUILDING AND CONSTRUCTION TRADES COUNCIL

AND

THE SIGNATORY CRAFT COUNCILS AND UNIONS

FOR

CONSTRUCTION, REPAIR, UPGRADE, RENOVATION,
MODERNIZATION, EXPANSION, REHABILITATION AND IMPROVEMENT WORK

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LYNWOOD UNIFIED SCHOOL DISTRICT
COMMUNITY WORKFORCE AGREEMENT
FOR CONSTRUCTION, REPAIR, UPGRADE, RENOVATION, MODERNIZATION, EXPANSION, REHABILITATION AND IMPROVEMENT WORK

This Community Workforce Agreement ("Agreement") is entered into by and among the Board of Education of the Lynwood Unified School District ("District"), the Los Angeles/ Orange Counties Building and Construction Trades Council ("Council"), and the signatory Craft Councils and Unions signing this Agreement (hereinafter together with the Council, collectively, the "Union" or "Unions"). This Agreement establishes the labor relations guidelines and procedures for the District and for the Contractors and craft employees represented by the Unions and engaged in Project Work. The District, Council and Unions are hereinafter referred to herein, as the context may require, as "Party" or "Parties."

The Parties to this Agreement understand that if this Agreement is acceptable to the District, the policy of the District will be for Project Work to be contracted exclusively to Contractors who agree to execute and be bound by the terms of this Agreement, directly or through the Letter of Assent (a form of which is attached as "**Attachment A**"), and to require each of its subcontractors, of whatever tier, to become bound. The District shall include, directly or by incorporation by reference, the requirements of this Agreement in the advertisement of and/or specifications for each and every contract for Project Work to be awarded by the District.

The District shall actively administer and enforce the obligations of this Agreement to ensure that the benefits envisioned from it flow to all signatory Parties, the Contractors and crafts persons working under it, and the residents and students of the District. The District shall therefore designate a "Community Workforce Coordinator," either from its own staff or an independent entity acting on behalf of the District, to monitor compliance with this Agreement; assist, as the authorized representative of the District, in developing and implementing the programs referenced herein, all of which are critical to fulfilling the intent and purposes of the Parties and this Agreement; and to otherwise implement and administer this Agreement.

The term "Apprentice" as used in this Agreement shall mean those employees registered and participating in Joint Labor/Management Apprenticeship Programs approved by the Division of Apprenticeship Standards, Department of Industrial Relations of the State of California.

The term "Contractor" as used in this Agreement includes any individual, firm, partnership, or corporation, or combination thereof, including joint ventures, which as an independent Contractor has entered into a contract with the District with respect to the Project Work, or with another Contractor as a subcontractor of whatever tier utilized by such Contractors for Project Work.

The term "Joint Labor/Management Apprenticeship Program" as used in this Agreement means a joint Union and Contractor administered apprenticeship program certified by the Division of Apprenticeship Standards, Department of Industrial Relations of the State of California.

The term "Letter of Assent" as used in this Agreement means the document that each Contractor (of any tier) must sign and submit to the Community Workforce Coordinator and the

Council, before beginning any Project Work, which formally binds them to adhere to all the forms, requirements and conditions of this Agreement, in the letter attached hereto as Attachment A.

The term "Project" or "Project Work" as used in this Agreement means the District's Construction, Repair, Upgrade, Renovation, Modernization, Expansion, Rehabilitation and Improvement work and new construction projects which exceed the thresholds set forth in Section 2.2 of this Agreement and are contracted out by the District.

The term "Master Labor Agreements" as used in this Agreement, means the local collective bargaining agreements of the signatory Unions having jurisdiction over the Project Work and which have signed this Agreement.

The term "Subscription Agreement" means the contract between a Contractor and a Union's Labor/Management Trust Fund(s) that allows the Contractor to make the appropriate fringe benefit contributions in accordance with the terms of MLA.

The Union and all Contractors agree to abide by the terms and conditions of this Agreement and agree that this Agreement represents the complete understanding of the Parties. No Contractor is or will be required to sign or otherwise become a party to any other collective bargaining agreement with a signatory Union as a condition of performing work within the scope of this Agreement, except as may be required under Section 2.7.2.

The Parties agree that this Agreement will be made available to, and will fully apply to, any successful bidder for Project Work, without regard to whether that successful bidder performs work at other sites on either a union or non-union basis. This Agreement shall not apply to any work of any Contractor other than that on Project Work specifically covered by this Agreement.

The use of masculine or feminine gender or titles in this Agreement should be construed as including both genders and not as gender limitations unless the Agreement clearly requires a different construction. Further, the use of Article titles and/or Section headings are for information only, and carry no legal significance.

ARTICLE 1
INTENT AND PURPOSE

Section 1.1 Background: The District's new construction and major rehabilitation projects will affect the school buildings and offices that are owned, leased or controlled by the District. The goal of this Project is to provide new construction and rehabilitation of the District's facilities so as to provide sufficient facilities and technologies to educate properly the children within the District's boundaries. The District, therefore, wishing to utilize the most modern, efficient and effective procedures for construction, including assurances of a sufficient supply of skilled craftsperson's, and the elimination of disruptions or interference with Project Work, adopts this Agreement in the best interests of the students, parents, District staff, and the taxpayers of the District to meet the District's goal that Project Work be completed on time and within budget.

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Section 1.2 Identification and Retention of Skilled Labor and Employment of District Residents: The vast amount of new school construction, substantial rehabilitation, and capital improvement work scheduled to be performed by the District will require large numbers of craft personnel and other supporting workers. The parties understand and intend to use the opportunities provided by the extensive amount of work to be covered by this Agreement to identify and promote, through cooperative efforts, programs and procedures (which may include, for example, programs to prepare persons for entrance into formal apprenticeship programs, or outreach programs to the community describing opportunities available as a result of the Project), the interest and involvement of District residents in the construction industry; assist them in entering the construction trades, and through utilization of the joint labor/management sponsored apprenticeship programs, provide training opportunities for those District residents and other individuals wishing to pursue a career in construction. Further, with assistance of the Community Workforce Coordinator, the District, the contractors, the Unions and their affiliated regional and national organizations, will work jointly to develop and implement procedures promptly for the identification of craft needs, the scheduling of work to facilitate the utilization of available craft workers, and to secure the services of craft workers in sufficient numbers to meet the high demands of the Project Work to be undertaken.

Section 1.3 Encouragement of Local and Small Business: The Project will provide many opportunities for local and small business enterprises to participate as contractors or suppliers, and the parties therefore agree that they will cooperate with all efforts of the District, the Community Workforce Coordinator, and other organizations retained by the District for the purpose of encouraging and assisting the participation of local and small businesses in Project Work. Each party agrees that it shall employ demonstrable efforts to encourage utilization in an effort to achieve such goals. This may include, for example, participation in outreach programs, education and assistance to businesses not familiar with working on a project of this scope, and the encouragement of local residents to participate in Project Work through programs and procedures jointly developed to prepare and encourage such local residents for apprenticeship programs and formal employment on the Project through the referral programs sponsored and/or supported by the parties to this Agreement. Further, the Parties will attempt to ensure that the provisions of this Agreement do not inadvertently establish impediments to the participation of local and small businesses, and residents of the District.

Section 1.4 Project Cooperation: The parties recognize that the construction to take place under this Agreement involves unique and special circumstances which dictate the need for the parties to develop specific procedures to promote high quality, rapid and uninterrupted construction methods and practices. The smooth operation and successful and timely completion of the work is vitally important to the parents and the students of the District. The parties therefore agree that maximum cooperation among all parties involved is required; and that with construction work of this magnitude, with multiple contractors and crafts performing work on multiple sites of over an extended period of time, all parties agree to work in a spirit of harmony and cooperation, and with an overriding commitment to maintain the continuity of Project Work. Further, the parties recognize that an Act of God or on Act of War could require the District to partially or fully suspend Project Work. The parties shall fully cooperate with any request by the District to redirect their equipment, skills and expertise to support the District's efforts necessitated by such events.

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Section 1.5 Peaceful Resolution of All Disputes: In recognition of the special needs of the Project and to maintain a spirit of harmony, labor-management peace and stability during the term of this Community Workforce Agreement, the parties agree to establish effective and binding methods for the settlement of all misunderstandings, disputes and grievances; and in recognition of such methods and procedures, the unions agree not to engage in any strike, slowdowns or interruptions or disruption of Project Work, and the contractors agree not to engage in any lockout, or any other action impairing or impeding the Project Work.

Section 1.6 Binding Agreement on Parties: By executing this Agreement, the District, Council, Unions and Contractors agree to be bound by each and all of the provisions of this Agreement.

ARTICLE 2
SCOPE OF AGREEMENT

Section 2.1 General: This Agreement shall apply and is limited to all of the District's Project Work, as specified in Section 2.2 of this Article, performed by those Contractor(s) of whatever tier that have contracts awarded for such work, for the development of the District's facilities which, jointly, constitute the Project, and have been designated by the District for construction or rehabilitation.

Section 2.2 Specific: The Project is defined and limited to:

2.2.1 All Project work pursuant to prime multi-trade construction contracts that exceed seven hundred fifty thousand dollars ($750,000.00) and all subcontracts flowing from these prime multi-trade contracts; and;

2.2.2 All prime specialty contracts for Project Work that exceed two hundred twelve thousand five hundred dollars ($212,500), and all subcontracts flowing from these specialty contracts.

2.2.3 The Parties understand that the District may at any time, and at its sole discretion, determine to build segments of the Project under this Agreement which were not currently proposed, or to modify or not to build any one or more particular segments proposed to be covered and that the District may at any time, and at its sole discretion, add additional projects under this Agreement not otherwise covered by this Agreement.

Section 2.3 Bundling of Contracts: The Parties understand that, to the maximum extent feasible, and consistent with goals of the District to (i) utilize this Agreement as the Labor Relations Policy for its construction and rehabilitation program, and (ii) fully utilize the services of small and local business enterprises for such construction and rehabilitation work:

2.3.1 The District, in its sole discretion, will seek to group (or "bundle") for bidding, contracts not meeting the thresholds of Section 2.2.1 or 2.2.2 above. (Small contracts for like types of work, scheduled to be undertaken at the same school, in the same District or on the same project site, and within the same timeframe, will be considered for such bundling, consistent with economies of scale, and the purposes of this Agreement); and

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2.3.2 Project Work will not be split, divided or otherwise separated for contract award purposes to avoid application of this Agreement.

Section 2.4 Exclusions: Items specifically excluded from the Scope of this Agreement include the following:

2.4.1 Work of non-manual employees, including but not limited to: superintendents; administrators; teachers; supervisors; time keepers, mail carriers, clerks, office workers, messengers; guards, safety personnel, emergency medical and first aid technicians; and other professional, engineering, administrative, supervisory and management employees;

2.4.2 Equipment and machinery owned or controlled and operated by the District;

2.4.3 All off-site manufacture and handling of materials, equipment or machinery, including transportation of materials to and from a Project site; provided, however, that lay down or storage areas for equipment or material and manufacturing (prefabrication) sites, dedicated solely to the Project or Project Work, and the movement of materials or goods between locations on a Project site are within the scope of this Agreement;

2.4.4 All employees of the District, Community Workforce Coordinator, design teams (including, but not limited to architects engineers and master planners), or any other consultants for the District (including, but not limited to, project managers and construction managers and their employees not engaged in Project Work) and their sub-consultants, and other employees of professional service organizations, not performing manual labor within the scope of this Agreement; provided, however, that it is understood and agreed that Surveyors and Building/Construction Inspector and Field Soils and Materials Testers ("Inspector") are a covered craft under the CWA. This inclusion applies to the scope of work defined in the State of California Wage Determination for said Craft. This shall also specifically include such work where it is referred to by utilization of such terms as "quality control" or "quality assurance." Every Inspector performing under the Wage classification of Surveyor and Building/ Construction Inspector and Field Soils and Material Testers under a professional services agreement of a construction contract shall be bound to all applicable requirements of the CWA. Project Work as defined by this Agreement shall be performed pursuant to the terms and conditions of this Agreement regardless of the manner in which the work was awarded;

2.4.5 Any work performed on or near or leading to or into a site of work covered by this Agreement and undertaken by state, county, city or other governmental bodies, or their Contractors; or by public utilities, or their Contractors; and/or by the District or its Contractors (for work for which is not within the scope of this Agreement);

2.4.6 Off-site maintenance of leased equipment and on-site supervision of such work;

2.4.7 It is recognized that certain materials, equipment and systems of a highly technical and specialized nature will have to be installed at the Project. The nature of the materials, equipment and systems, together with requirements of manufacturer's or vendor's warranty, may dictate that it be prefabricated, pre-piped, and/or pre-wired and that it be installed

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under the supervision and direction of Owner's and/or manufacturer's personnel. The Unions agree to install such material, equipment and systems without incident. The intent of Section 2.4.7 is to ensure that no warranty could be voided as a result of the labor obligations of this Agreement;

2.4.8 Non-construction support services contracted by the District, Community Workforce Coordinator, or Contractor in connection with this Project;

2.4.9 Off-site laboratory work for testing.

Section 2.5 Awarding of Contracts:

2.5.1 The District and/or the Contractors, as appropriate, have the absolute right to award contracts or subcontracts on this Project to any Contractor notwithstanding the existence or non-existence of any agreements between such Contractor and any Union parties, provided only that such Contractor is ready, willing and able to execute and comply with this Community Workforce Agreement should such Contractor be awarded work covered by this Agreement.

2.5.2 It is agreed that all Contractors and subcontractors of whatever tier, who have been awarded contracts for work covered by this Agreement, shall be required to accept and be bound to the terms and conditions of this Community Workforce Agreement, and shall evidence their acceptance by the execution of the Letter of Assent set forth in **Attachment "A"** hereto, prior to the commencement of work. At the time that any Contractor enters into a subcontract with any subcontractor of any tier providing for the performance on the construction contract, the Contractor shall provide a copy of this Agreement to said subcontractor and shall require the subcontractor, as a part of accepting the award of a construction subcontract, to agree in writing in the form of a Letter of Assent to be bound by each and every provision of this Agreement prior to the commencement of work on the Project. No Contractor or subcontractor shall commence Project Work without having first provided a copy of the Letter of Assent as executed by it to the Community Workforce Coordinator and to the Council forty-eight (48) hours before the commencement of Project Work, or within forty-eight (48) hours after the award of Project Work to that Contractor (or subcontractor), whichever occurs later.

2.5.3 The District agrees that to the extent permitted by law and consistent with the economy and efficiency of construction and operation, it will use its best efforts to purchase materials, equipment and supplies which will not create labor strife. Under all circumstances, however, the District shall retain the absolute right to select the lowest reliable and responsible bidder for the award of contracts on all projects.

Section 2.6 Coverage Exception: This Agreement shall not apply if the District receives funding or assistance from any Federal, State, local or other public entity for the Construction Contract if a requirement, condition or other term of receiving that funding or assistance, at the time of the awarding of the contract, is that the District not require, bidders, contractors, subcontractors or other persons or entities to enter into an agreement with one or more labor organizations or enter into an agreement that contains any of the terms set forth herein. The District agrees that it will make every effort to establish the enforcement of this Agreement with any governmental agency or granting authority.

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Section 2.7 Master Labor Agreements:

2.7.1 The provisions of this Agreement, including the Master Labor Agreements (which are the local collective bargaining agreements of the signatory Unions having jurisdiction over the work on the Project, as such may be changed from time-to-time and which are incorporated herein by reference) shall apply to the work covered by this Agreement, notwithstanding the provisions of any other local, area and/or national agreement which may conflict with or differ from the terms of this Agreement. However, such does not apply to work performed under the National Cooling Tower Agreement, the National Stack Agreement, the National Transit Division Agreement (NTD), or within the jurisdiction of the International Union of Elevator Constructors and all instrument calibration and loop checking work performed under the terms of the UA/IBEW Joint National Agreement for Instrument and Control Systems Technicians except that Articles dealing with Work Stoppages and Lock-Outs, Work Assignments and Jurisdictional Disputes, and Settlement of Grievances and Disputes shall apply to such work. It is specifically agreed that no later agreement shall be deemed to have precedence over this Agreement unless signed by all Parties signatory hereto who are then currently employed or represented at the Project. Where a subject covered by the provisions of this Agreement is also covered by a Master Labor Agreements, the provisions of this Agreement shall apply. Where a subject is covered by a provision of a Master Labor Agreements and not covered by this Agreement, the provisions of the Master Labor Agreements shall prevail. Any dispute as to the applicable source between this Agreement and any Master Labor Agreements for determining the wages, hours of working conditions of employees on this Project shall be resolved under the procedures established in Article 9.

2.7.2 It is understood that this Agreement, together with the referenced Master Labor Agreements, constitutes a self-contained, stand-alone agreement and by virtue of having become bound to this Community Workforce Agreement, the Contractor will not be obligated to sign any other local, area or national collective bargaining agreement as a condition of performing work within the scope of this Agreement (provided, however, that the Contractor may be required to sign an uniformly applied, non-discriminatory "Subscription Agreement" or "Participation Agreement" at the request of the trustees or administrator of a trust fund established pursuant to Section 302 of the Labor Management Relations Act, and to which such Contractor is bound to make contributions under this Agreement, provided that such Participation Agreement does not purport to bind the Contractor beyond the terms and conditions of this Agreement and/or expand its obligation to make contributions pursuant thereto). It shall be the responsibility of the prime Contractor to have each of its subcontractors sign such Agreement with the appropriate Craft Union prior to the subcontractor beginning Project Work.

Section 2.8 Binding Signatories Only: This Agreement shall only be binding on the signatory Parties hereto, and shall not apply to the parents, affiliates, subsidiaries, or other ventures of any such Party.

Section 2.9 Other District Work: This Agreement shall be limited to the construction work within the Scope of this Agreement including, specifically, site preparation and related demolition work, and new construction and major rehabilitation work for new or existing facilities referenced in Section 2.2 above. Nothing contained herein shall be interpreted to

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prohibit, restrict, or interfere with the performance of any other operation, work or function not covered by this Agreement, which may be performed by District employees or contracted for by the District for its own account, on its property or in and around a Project site.

Section 2.10 Separate Liability: It is understood that the liability of the Contractor(s) and the liability of the separate Unions under this Agreement shall be several and not joint. The Unions agree that this Agreement does not have the effect of creating any joint employment status between or among the District or Community Workforce Coordinator and/or any Contractor.

Section 2.11 Completed Project Work: As areas of Project Work are accepted by the District, this Agreement shall have no further force or effect on such items or areas except where the Contractor is directed by the District or its representatives to engage in repairs, modification, check-out and/or warranties functions required by its contract(s) with the District.

ARTICLE 3
UNION RECOGNITION AND EMPLOYMENT

Section 3.1 Recognition: The Contractor recognizes the Council and the Unions as the exclusive bargaining representative for the employees engaged in Project Work.

Section 3.2 Contractor Selection of Employees: The Contractor shall have the right to determine the competency of all employees, the number of employees required, the duties of such employees within their craft jurisdiction, and shall have the sole responsibility for selecting employees to be laid off, consistent with Section 3.3 and Section 4.3, below. The Contractor shall also have the right to reject any applicant referred by a Union for any reason, subject to any reporting pay required by Section 6.6; provided, however, that such right is exercised in good faith and not for the purpose of avoiding the Contractor's commitment to employ qualified workers through the procedures endorsed in this Agreement.

Section 3.3 Referral Procedures:

3.3.1 For signatory Unions now having a job referral system contained in a Master Labor Agreements, the Contractor agrees to comply with such system and it shall be used exclusively by such Contractor, except as modified by this Agreement. Such job referral system will be operated in a nondiscriminatory manner and in full compliance with federal, state, and local laws and regulations which require equal employment opportunities and non-discrimination. All of the foregoing hiring procedures, including related practices affecting apprenticeship, shall be operated so as to consider the goals of the District to encourage employment of District residents and utilization of small local businesses on the Project, and to facilitate the ability of all Contractors to meet their employment needs.

3.3.2 The Unions will exert their best efforts to recruit and refer sufficient numbers of skilled craft workers to fulfill the labor requirements of the Contractor, including specific employment obligations to which the Contractor may be legally and/or contractually obligated; and to refer apprentices as requested to develop a larger, skilled workforce. The Unions will work with their affiliated regional and national unions, and jointly with the Community Workforce Coordinator and others designated by the District, to identify and refer competent

craft persons as needed for Project Work, and to identify and hire individuals, particularly residents of the District, for entrance into joint labor/management apprenticeship programs, or to participation in other identified programs and procedures to assist individuals in qualifying and becoming eligible for such apprenticeship programs, all maintained to increase the available supply of skilled craft personnel for Project Work and future construction of maintenance work to be undertaken by the District.

3.3.3 The Union shall not knowingly refer an employee currently employed by a Contractor on Project Work to any other Contractor.

3.3.4 The Parties are aware of the District's policy that Contractors and other employers shall not employ, on Project Work when minors may be present on or around the site of such Project Work during working hours, a person who would not be eligible for employment by the District under California Educational Code section 45123. The Parties shall endeavor to employ persons under this Article in compliance with this policy, and the Contractors agree to remove such an individual in their employ from the particular Project site at the request of the District or the Community Workforce Coordinator.

Section 3.4 Non-Discrimination in Referral, Employment, and Contracting: The Unions and Contractors agree that they will not discriminate against any employee or applicant for employment in hiring and dispatching on the basis of race, color, religion, sex, gender, national origin, age, membership in a labor organization, sexual orientation, political affiliation, marital status or disability.

Section 3.5 Employment of District Area Residents:

3.5.1 The Unions and Employers agree that, to the extent allowed by law, and as long as they possess the requisite skills and qualifications, the Unions will exert their best efforts to refer and/or recruit sufficient numbers of qualified area residents, as well as Veterans, regardless of their place of residence, to fulfill the requirements of the Employers. In recognition of the fact that the District and the communities surrounding Project Work will be impacted by the construction of the Project Work, the parties agree to support the hiring of workers from the residents of these surrounding areas ("Area Residents"), as well as Veterans and students which have graduated from the District, regardless of where they reside. Towards that end, the Unions agree that they will exert their best efforts to encourage and provide referrals and utilization of qualified workers:

(i) First, Area Residents residing in those first tier zip codes which cover the District service area, as reflected on the attached list of zip codes on Attachment B, as well as Veterans, students which have graduated from the District, and individuals who have successfully completed the Building Trades Multi-Craft Core Curriculum (MC3) Pre-Apprenticeship Program ("MC3 Graduates") , regardless of where they reside;

(ii) If the Unions cannot provide the Employers in the attainment of a sufficient number of qualified workers from paragraph (i), above, the Unions will exert their best efforts to then recruit and identify for referral qualified workers residing within a ten (10) mile

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radius from the District's headquarters, as reflected on the attached list of zip codes on "Attachment B."

(iii) If the Unions still have not provided the Employers in the attainment of a sufficient number of qualified workers from paragraphs (i) and (ii), above, the Unions will then exert their best efforts to recruit and identify for referral qualified workers residing within the remainder of the Counties of Los Angeles and Orange.

Qualified workers residing within any of these three (3) areas described above, as well as Veterans and student graduates, regardless of where they reside, shall be referred to as "Local Residents."

3.5.2 A goal of 30% of all of the labor and craft hours shall be from Local Residents described in 3.5.1, above. To facilitate the dispatch of Local Residents, all Contractors will be required to utilize the Craft Employee Request Form whenever they are requesting the referral of any employee from a Union referral list for any Project Work, a sample of which is attached as **Attachment "C**." When Local Residents are requested by the Contractors, the Unions will refer such workers regardless of their place in the Unions' hiring halls' list and normal referral procedures. Work performed by residents of states other than California shall not be included in the calculation of the labor and craft positions for purposes of the percentage requirements set forth above.

3.5.3 The Community Workforce Coordinator shall work with the Unions and Contractors in the administration of this Local Resident preference; and the Contractors and Unions shall cooperate by maintaining adequate records to demonstrate to the Community Workforce Coordinator that such preferences have been pursued.

3.5.4 Hours worked by residents of states other than California shall not be included in the calculation of total hours of Project Work for purposes of the percentage requirements set forth above.

Section 3.6 Helmets to Hardhats: The Employers and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The employers and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center") and the Center's "Helmets to Hardhats" program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the Parties. For purposes of this Agreement, the term "Eligible Veteran" shall have the same meaning as the term "veteran" as defined under Title 5, Section 2108(1) of the United States Code as the same may be amended or re-codified from time to time. It shall be the responsibility of each qualified District resident to provide the Unions with proof of his/her status as an Eligible Veteran.

The Unions and Employers agree to coordinate with the Center to create and maintain an integrated database of veterans interested in working on this Project and of apprenticeship and

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employment opportunities for this Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

Section 3.7 Core Employees:

3.7.1 Except as otherwise provided in separate collective bargaining agreement(s) to which the Contractor is signatory, Contractors may employ, as needed, first, a member of his core workforce, then an employee through a referral from the appropriate Union hiring hall, then a second core employee, then a second employee through the referral system, and so on until a maximum of five (5) core employees are employed, thereafter, all additional employees in the affected trade or craft shall be requisitioned from the craft hiring hall in accordance with Section 3.3. In the laying off of employees, the number of core employees shall not exceed one-half plus one of the workforce for an employer with ten (10) or fewer employees, assuming the remaining employees are qualified to undertake the work available. This provision applies only to Contractors who are not directly signatory to a current Master Labor Agreement for the craft worker in its employ and is not intended to limit the transfer provisions of the Master Labor Agreement of any trade. As part of this process, and in order to facilitate the contract administration procedures, as well as appropriate fringe benefit fund coverage, all Contractors shall require their core employees and any other persons employed other than through the referral process, to register with the appropriate Union hiring hall, if any, prior to their first day of employment at a project site.

3.7.2 The core work force is comprised of those employees whose names appeared on the Contractor's active payroll for sixty (60) of the one hundred (100) working days immediately before award of Project Work to the Contractor; who possess any license required by state or federal law for the Project Work to be performed; who have the ability to safely perform the basic functions of the applicable trade; and have worked a total of at least two thousand (2,000) hours in the specific construction craft during the prior four (4) years.

3.7.3 Prior to each Contractor performing any work on the Project, each Contractor shall provide a list of his core employees to the Community Workforce Coordinator and the Council. Failure to do so will prohibit the Contractor from using any core employees. Upon request by any Party to this Agreement, the Contractor hiring any core employee shall provide satisfactory proof (i.e., payroll records, quarterly tax records, driver's license, voter registration, postal address and such other documentation) evidencing the core employee's qualification as a core employee to the Community Workforce Coordinator and the Council.

Section 3.8 Time for Referral: If any Union's registration and referral system does not fulfill the requirements for specific classifications requested by any Contractor within forty-eight (48) hours (excluding Saturdays, Sundays and holidays), that Contractor may use employment sources other than the Union registration and referral services, and may employ applicants meeting such standards from any other available source. The Contractors shall inform the Union of any applicants hired from other sources within forty-eight (48) hours of such applicant being hired, and such applicants shall register with the appropriate hiring hall, if any.

Section 3.9 Lack of Referral Procedure: If a signatory Union does not have a job referral system as set forth in Section 3.3 above, the Contractors shall give the Union equal opportunity

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to refer applicants. The Contractors shall notify the Union of employees so hired, as set forth in Section 3.5.

Section 3.10 Union Membership: Employees are not required to become or remain union members or pay dues or fees as a condition of performing Covered Work under this Agreement. Employers shall make and transmit all deductions for union dues, fees, and assessments that have been authorized by employees in writing in accordance with the applicable Master Agreement. Nothing in this Section 3.10 is intended to supersede independent requirements of applicable Master Agreements as to those Employers otherwise signatory to such Master Agreements and as to the employees of those Employers who are performing Covered Work.

Section 3.11 Individual Seniority: Except as provided in Section 4.3, individual seniority shall not be recognized or applied to employees working on the Project; provided, however, that group and/or classification seniority in a Union's Master Labor Agreement as of the effective date of this Agreement shall he recognized for purposes of layoffs.

Section 3.12 Foremen: The selection and number of craft foreman and/or general foreman shall be the responsibility of the Contractor. All foremen shall take orders exclusively from the designated Contractor representatives. Craft foreman shall be designated as working foreman at the request of the Contractors.

Section 3.13 District Security Requirements: The Parties are aware of the District's policy that Contractors and other employers shall not employ a person who would not be eligible for employment by the District under California Education Code, Section 45123. All persons working on Project Work, including all employees hired by a Contractor (or referred by a Signatory Union) to work on Project Work, shall be required to comply with all criminal background check certification requirements and policies of District for those persons who may come in contact with, or work in close proximity to, minors in the course of performing work on a Project. Contractors may refuse to employ any person who declines to comply with District's background check requirements or who is otherwise determined to be disqualified from participating in Project Work because of a disqualifying conviction. Similarly, District may ban or order the immediate removal of any person disqualified from working in the presence of, or in close proximity to, minors.

ARTICLE 4
UNION ACCESS AND STEWARDS

Section 4.1 Access to Project Sites: Authorized representatives of the Union shall have access to Project Work, provided that they do not interfere with the work of employees and further provided that such representatives fully comply with posted visitor, security and safety rules.

Section 4.2 Stewards:

4.2.1 Each signatory Union shall have the right to dispatch a working journeyperson as a steward for each shift, and shall notify the Contractor in writing of the identity of the designated steward or stewards prior to the assumption of such person's duties as steward. Such

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designated steward or stewards shall not exercise any supervisory functions. There will be no non-working stewards. Stewards will receive the regular rate of pay for their respective crafts.

4.2.2 In addition to his/her work as an employee, the steward should have the right to receive, but not to solicit, complaints or grievances and to discuss and assist in the adjustment of the same with the employee's appropriate supervisor. Each steward should he concerned only with the employees of the steward's Contractor and, if applicable, subcontractor(s), and not with the employees of any other Contractor. A Contractor will not discriminate against the steward in the proper performance of his/her Union duties.

4.2.3 When a Contractor has multiple, non-contiguous work locations at one site, the Contractor may request and the Union shall appoint such additional working stewards as the Contractor requests to provide independent coverage of one or more such locations. In such cases, a steward may not service more than one work location without the approval of the Contractor.

4.2.4 The stewards shall not have the right to determine when overtime shall be worked or who shall work overtime.

Section 4.3 Steward Layoff/Discharge: The relevant Contractor agrees to notify the appropriate Union twenty-four (24) hours before the layoff of a steward, except in the case of disciplinary discharge for just cause. If the steward is protected against such layoff by the provisions of the applicable Master Labor Agreement, such provisions shall be recognized when the steward possesses the necessary qualifications to perform the remaining work. In any case in which the steward is discharged or disciplined for just cause, the appropriate Union will be notified immediately by the Contractor, and such discharge or discipline shall not become final (subject to any later filed grievance) until twenty-four (24) hours after such notice has been given.

Section 4.4 Employees on Non-Project Work: On work where the personnel of the District may be working in close proximity to the construction activities covered by this Agreement, the Union agrees that the Union representatives, stewards, and individual workers will not interfere with the District personnel, or with personnel employed by the any other employer not a Party to this Agreement.

ARTICLE 5
WAGES AND BENEFITS

Section 5.1 Wages: All employees covered by this Agreement shall be classified in accordance with work performed and paid by the Contractors the hourly wage rates for those classifications in compliance with the applicable prevailing wage rate determination established pursuant to applicable law. If a prevailing rate increases under law, the Contractor shall pay that rate as of its effective date under the law. Notwithstanding any other provision of this Agreement, this Agreement does not relieve Contractors directly signatory to one or more of the Master Labor Agreements from paying all wages set forth in such Agreements.

Section 5.2 Benefits:

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5.2.1 Contractors shall pay contributions to the established employee benefit funds in the amounts designated in the appropriate Master Labor Agreement and make all employee authorized deductions in the amounts designated in the appropriate Master Labor Agreement; provided, however, that such contributions shall not exceed the contribution amounts set forth in the applicable prevailing wage determination. Notwithstanding any other provision of this Agreement, Contractors directly signatory to one or more of the Master Labor Agreements are required to make all contributions set forth in those Master Labor Agreements without reference to the forgoing. Bona fide benefit plans with joint trustees or authorized employee deduction programs established or negotiated under the applicable Master Labor Agreement or by the Parties to this Agreement during the life of this Agreement may be added.

5.2.2 The Contractor adopts and agrees to be bound by the written terms of the applicable, legally established, trust agreement(s) specifying the detailed basis on which payments are to be made into, and benefits paid out of, such trust funds for its employees. The Contractor authorizes the Parties to such trust funds to appoint trustees and successor trustees to administer the trust funds and hereby ratifies and accepts the trustees so appointed as if made by the Contractor.

5.2.3 Each Contractor and subcontractor is required to certify to the Community Workforce Coordinator that it has paid all benefit contributions due and owing to the appropriate Trust(s) prior to the receipt of its final payment and/or retention. Further, upon timely notification by a Union to the Community Workforce Coordinator, the Community Workforce Coordinator shall work with any prime Contractor or subcontractor who is delinquent in payments to assure that proper benefit contributions are made, to the extent of requesting the District or the prime Contractor to withhold payments otherwise due such Contractor, until such contributions have been made or otherwise guaranteed.

Section 5.3 Wage Premiums: Wage premiums, including but not limited to pay based on height of work, hazard pay, scaffold pay and special skills shall not be applicable to work under this Agreement, except to the extent provided for in any applicable prevailing wage determination.

Section 5.4 Compliance with Prevailing Wage Laws: The Parties agree that the Community Workforce Coordinator shall monitor the compliance by all Contractors and subcontractors with all applicable federal and state prevailing wage laws and regulations, and that such monitoring shall include Contractors engaged in what would otherwise be Project Work but for the exceptions to Agreement coverage in Section 2.2. All complaints regarding possible prevailing wage violations shall be referred to the Community Workforce Coordinator for processing, investigation and resolution, and if not resolved within thirty (30) calendar days, may be referred by any party to the state labor commissioner.

ARTICLE 6
WORK STOPPAGES AND LOCK-OUTS

Section 6.1 No Work Stoppages or Disruptive Activity: The Council and the Unions agree that neither they, and each of them, nor their respective officers or agents or representatives, shall

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incite or encourage, condone or participate in any strike, walk-out, slow-down, picketing, observing picket lines or other activity of any nature or kind whatsoever, for any cause or dispute whatsoever with respect to or in any way related to Project Work, or which interferes with or otherwise disrupts Project Work, or with respect to or related to the District or Contractors or subcontractors, including, but not limited to economic strikes, unfair labor practice strikes, safety strikes, sympathy strikes and jurisdictional strikes whether or not the underlying dispute is subject to arbitration. Any such actions by the Council, or Unions, or their members, agents, representatives or the employees they represent shall constitute a violation of this Agreement. The Council and the Union shall take all steps necessary to obtain compliance with this Article and neither should be held liable for conduct for which it is not responsible.

Section 6.2 Employee Violations: The Contractor may discharge any employee violating Section 6.1 above and any such employee will not be eligible for rehire under this Agreement.

Section 6.3 Standing to Enforce: The District, the Community Workforce Coordinator, or any Contractor affected by an alleged violation of Section 6.1 shall have standing and the right to enforce the obligations established therein.

Section 6.4 Expiration of Master Labor Agreements: If the Master Labor Agreement, or any local, regional, and other applicable collective bargaining agreements expire during the term of the Project, the Union(s) agree that there shall be no work disruption of any kind as described in Section 6.1 above as a result of the expiration of any such agreement(s) having application on this Project and/or failure of the involved Parties to that agreement to reach a new contract. Terms and conditions of employment established and set at the time of bid shall remain established and set. Otherwise to the extent that such agreement does expire and the Parties to that agreement have failed to reach concurrence on a new contract, work will continue on the Project on one of the following two (2) options, both of which will be offered by the Unions involved to the Contractors affected:

6.4.1 Each of the Unions with a contract expiring must offer to continue working on the Project under interim agreements that retain all the terms of the expiring contract, except that the Unions involved in such expiring contract may each propose wage rates and employer contribution rates to employee benefit funds under the prior contract different from what those wage rates and employer contributions rates were under the expiring contracts. The terms of the Union's interim agreement offered to Contractors will be no less favorable than the terms offered by the Union to any other employer or group of employers covering the same type of construction work in Los Angeles County.

6.4.2 Each of the Unions with a contract expiring must offer to continue working on the Project under all the terms of the expiring contract, including the wage rates and employer contribution rates to the employee benefit funds, if the Contractor affected by that expiring contract agrees to the following retroactive provisions: if a new Master Labor Agreement, local, regional or other applicable labor agreement for the industry having application at the Project is ratified and signed during the term of this Agreement and if such new labor agreement provides for retroactive wage increases, then each affected Contractor shall pay to its employees who performed work covered by this Agreement at the Project during the hiatus between the effective dates of such expired and new labor agreements, an amount equal to any such retroactive wage

increase established by such new labor agreement, retroactive to whatever date is provided by the new labor agreement for such increase to go into effect, for each employee's hours worked on the Project during the retroactive period. All Parties agree that such affected Contractors shall be solely responsible for any retroactive payment to its employees.

6.4.3 Some Contractors may elect to continue to work on the Project under the terms of the interim agreement option offered under paragraph 6.4.1, above and other Contractors may elect to continue to work on the Project under the retroactivity option offered under paragraph 6.4.2, above. To decide between the two options, Contractors will be given one week after the particular labor agreement has expired or one week after the Union has personally delivered to the Contractors in writing its specific offer of terms of the interim agreement pursuant to paragraph 6.4.1 above, whichever is the later date. If the Contractor fails to timely select one of the two options, the Contractor shall be deemed to have selected option 6.4.2.

Section 6.5 No Lockouts: Contractors shall not cause, incite, encourage, condone or participate in any lock-out of employees with respect to Project Work during the term of this Agreement. The term "lock-out" refers only to a Contractor's exclusion of employees in order to secure collective bargaining advantage, and does not refer to the discharge, termination or layoff of employees by the Contractor for any reason in the exercise of rights pursuant to any provision of this Agreement, or any other agreement, nor does "lock-out" include the District's decision to stop, suspend or discontinue any Project Work or any portion thereof for any reason.

Section 6.6 Best Efforts to End Violations:

6.6.1 If a Contractor contends that there is any violation of this Article or Section 7.3, it shall notify, in writing, the Executive Secretary of the Council, the Senior Executive of the involved Union(s) and the Community Workforce Coordinator. The Executive Secretary and the leadership of the involved Union(s) will immediately instruct, order and use their best efforts to cause the cessation of any violation of the relevant Article.

6.6.2 If the Union contends that any Contractor has violated this Article, it will notify the Contractor and the Community Workforce Coordinator, setting forth the facts which the Union contends violate the Agreement, at least twenty-four (24) hours prior to invoking the procedures of Section 7.8. The Community Workforce Coordinator shall promptly order the involved Contractor(s) to cease any violation of the Article.

Section 6.7 Withholding of services for failure to pay wages and fringe benefits: Notwithstanding any provision of this Agreement to the contrary, it shall not be a violation of this Agreement for any Union to withhold the services of its members (but not the right to picket) from a particular Contractor who:

6.7.1 fails to timely pay its weekly payroll; or

6.7.2 fails to make timely payments to the Union's Joint Labor/Management Trust Funds in accordance with the provisions of the applicable Master Labor Agreements. Prior to withholding its members' services for the Contractor's failure to make timely payments to the Union's Joint Labor/Management Trust Funds, the Union shall give at least ten (10) days (unless

a lesser period of time is provided in the Union's Master Labor Agreement, but in no event less than forty-eight (48) hours) written notice of such failure to pay by registered or certified mail, return receipt requested, and by facsimile transmission to the involved Contractor and the District. Union will meet within the ten (10) day period to attempt to resolve the dispute.

6.7.3 Upon the payment of the delinquent Contractor of all monies due and then owing for wages and/or fringe benefit contributions, the Union shall direct its members to return to work and the Contractor shall return all such members back to work.

Section 6.8 Expedited Enforcement Procedure: Any party, including the District, which is an intended beneficiary of this Article, or the Community Workforce Coordinator, may institute the following procedures, in lieu of or in addition to any other action at law or equity, when a breach of Section 6.1, 6.5 or Section 7.3 is alleged.

6.8.1 The party invoking this procedure shall notify Najeeb Khoury, who has been selected by the negotiating Parties, and whom the Parties agree shall be the permanent arbitrator under this procedure. If the permanent arbitrator is unavailable at any time, the party invoking this procedure shall notify one of the alternates selected by the Parties, in that order on an alternating basis. Notice to the arbitrator shall be by the most expeditious means available, with notices to the Parties alleged to be in violation, and to the Council if it is a Union alleged to be in violation. For purposes of this Article, written notice may be given by telegram, facsimile, hand-delivery or overnight mail and will be deemed effective upon receipt.

6.8.2 Upon receipt of said notice, the arbitrator named above or his/her alternate shall sit and hold a hearing within twenty-four (24) hours if it is contended that the violation still exists, but not sooner than twenty-four (24) hours after notice has been dispatched to the Council of the involved Union(s) and/or Contractor as required by Section 8.6, above.

6.8.3 The arbitrator shall notify the Parties of the place and time chosen for this hearing. Said hearing shall be completed in one session, which, with appropriate recesses at the arbitrator's discretion, shall not exceed twenty-four (24) hours unless otherwise agreed upon by all Parties. A failure of any Party or Parties to attend said hearings shall not delay the hearing of evidence or the issuance of any award by the arbitrator.

6.8.4 The sole issue at the hearing shall be whether or not a violation of Sections 6.1, 6.5 or Section 7.3 has in fact occurred. The arbitrator shall have no authority to consider any matter in justification, explanation or mitigation of such violation or to award damages. The Award shall be issued in writing within three (3) hours after the close of the hearing, and may be issued without an opinion. If any party desires a written opinion, one shall be issued within fifteen (15) days, but its issuance shall not delay compliance with, or enforcement of, the Award. The arbitrator may order cessation of the violation of the Article and other appropriate relief, and such Award, upon issuance, shall be served on all Parties by hand or registered mail.

6.8.5 Such Award shall be final and binding on all Parties and may be enforced by any court of competent jurisdiction upon the filing of this Agreement and all other relevant documents referred to herein above in the following manner. Written notice of the filing of such enforcement proceedings shall be given to the other party. In any judicial proceeding to obtain a temporary order enforcing the arbitrator's Award as issued under Section 6.8(d) of this Article,

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all Parties waive the right to a hearing and agree that such proceedings may be ex parte. Such agreement does not waive any Party's right to participate in a hearing for a final order of enforcement. The court's order or orders enforcing the arbitrator's award shall be served on all Parties by hand or by delivery to their address as shown on this Agreement (for a Union), as shown in their business contract for work under this Agreement (for a Contractor) and to the representing Union (for an employee), by certified mail by the Party or Parties first alleging the violation.

6.8.6 Any rights created by statute or law governing arbitration proceedings inconsistent with the above procedure or which interfere with compliance hereto are hereby waived by the Parties to whom they accrue.

6.8.7 The fees and expenses of the arbitrator shall be equally divided between the party or Parties initiating this procedure and the respondent Party or Parties.

ARTICLE 7
WORK ASSIGNMENTS AND JURISDICTIONAL DISPUTES

Section 7.1 Assignment of Work: The assignment of Project Work will be solely the responsibility of the Employer performing the work involved; and such work assignments will be in accordance with the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry (the "Plan") or any successor Plan.

Section 7.2 The Plan: All jurisdictional disputes on this Project between or among the building and construction trades Unions and the Employers parties to this Agreement, shall be settled and adjusted according to the present Plan established by the Building and Construction Trades Department or any other plan or method of procedure that may be adopted in the future by the Building and Construction Trades Department. Decisions rendered shall be final, binding and conclusive on the Employers and Unions parties to this Agreement.

Section 7.3 If a dispute arising under this Article involves the Western States Regional Council of Carpenters or any of its subordinate bodies, an Arbitrator shall be chosen by the procedures specified in Article V, Section 5, of the Plan from a list composed of John Kagel, Robert Hirsch, and Thomas Pagan, and the Arbitrator's hearing on the dispute shall be held at the offices of the applicable Building and Construction Trades Council within fourteen (14) days of the selection of the Arbitrator. All other procedures shall be as specified in the Plan.

Section 7.4 No Work Disruption Over Jurisdiction: All jurisdictional disputes shall be resolved without the occurrence of any strike, work stoppage, or slow-down of any nature, and the Employer's assignment shall be adhered to until the dispute is resolved. Individuals violating this section shall be subject to immediate discharge.

Section 7.5 Pre-Job Conferences: As provided in Article 16, each Employer will conduct a pre-job conference with the Council prior to commencing work. The Primary Employer and the Owner will be advised in advance of all such conferences and may participate if they wish. Pre-job conferences for different Employers may be held together.

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Section 7.6 Resolution of Jurisdictional Disputes: If any actual or threatened strike, sympathy strike, work stoppage, slow down, picketing, hand-billing or otherwise advising the public that a labor dispute exists, or interference with the progress of Project Work by reason of a jurisdictional dispute or disputes occurs, the Parties shall exhaust the expedited procedures set forth in the Plan, if such procedures are in the plan then currently in effect, or otherwise as in Article 6 above.

ARTICLE 8
MANAGEMENT RIGHTS

Section 8.1 Contractor Rights: The Contractors retain the full and exclusive authority for the management of their operations, as set forth in this Article, unless expressly limited or required by a specific provision of this Agreement or an applicable Master Labor Agreement. The Contractor's rights include, but are not limited to, the right to:

8.1.1 Plan, direct and control operations of all work;

8.1.2 Hire, promote, transfer and layoff their own employees, respectively, as deemed appropriate to satisfy work and/or skill requirements;

8.1.3 Promulgate and require all employees to observe reasonable job rules and security and safety regulations;

8.1.4 Discharge, suspend or discipline their own employees for just cause;

8.1.5 Utilize, in accordance with District approval, any work methods, procedures or techniques, and select, use and install any types or kinds of materials, apparatus or equipment, regardless of source of manufacture or construction; assign and schedule work at their discretion; and

8.1.6 Assign overtime, determine when it will be worked and the number and identity of employees engaged in such work, subject to such provisions in the applicable Master Labor Agreement(s) requiring such assignments be equalized or otherwise made in a nondiscriminatory manner.

Section 8.2 Specific District Rights: In addition to the following and other rights of the District enumerated in this Agreement, the District expressly reserves its management rights and all the rights conferred on it by law. The District's rights (and those of the Contractor Administrator on its behalf) include but are not limited to the right to:

8.2.1 Inspect any construction site or facility to ensure that the Contractor follows the applicable safety and other work requirements;

8.2.2 Require Contractors to establish a different work week or shift schedule for particular employees as required to meet the operational needs of the Project Work at particular locations;

8.2.3 At its sole option, terminate, delay and/or suspend any and all portions of the Project Work at any time; prohibit some or all work on certain days or during certain hours of the day to accommodate the ongoing operations of the District's educational facilities and/or to mitigate the effect of ongoing Project Work on businesses and residents in the neighborhood of the Project site; and/or require such other operational or schedule changes it deems necessary, in its sole judgment, to effectively maintain its primary mission and remain a good neighbor to those in the area of its facilities. (In order to permit the Contractors and Unions to make appropriate scheduling plans, the District will provide the Community Workforce Coordinator, and the affected Contractor(s) and Union(s) with reasonable notice of any changes it requires pursuant to this section; provided, however, that if notice is not provided in time to advise employees not to report for work, show-up pay shall be due pursuant to the provisions of the applicable Master Labor Agreement);

8.2.4 Approve any work methods, procedures and techniques used by Contractors whether or not these methods, procedures or techniques are part of industry practices or customs; and

8.2.5 Investigate and process complaints, through its Community Workforce Coordinator, in the matters set forth in Articles 6 and 9.

Section 8.3 Use of Materials: There should be no limitations or restriction by Union upon a Contractor's choice of materials or design, nor, regardless of source or location, upon the full use and utilization, of equipment, machinery, packaging, precast, prefabricated, prefinished, or preassembled materials, tools or other labor saving devices, subject to the application of the State Public Contracts and Labor Codes as required by law in reference to offsite construction. Generally, the onsite installation or application of such items shall be performed by the craft having jurisdiction over such work. The District and its Community Workforce Coordinator shall advise all Contractors of, and enforce as appropriate, the off-site application of the prevailing wage law as it affects Project Work.

Section 8.4 Special Equipment, Warranties and Guaranties:

8.4.1 It is recognized that certain equipment of a highly technical and specialized nature may be installed at Project Work sites. The nature of the equipment, together with the requirements for manufacturer's warranties, may dictate that it be prefabricated, pre-piped and/or pre-wired and that it be installed under the supervision and direction of the District's and/or manufacturer's personnel. The Unions agree to install such equipment without incident.

8.4.2 The Parties recognize that the Contractor will initiate from time to time the use of new technology, equipment, machinery, tools, and other labor-savings devices and methods of performing Project Work. The Union agrees that they will not restrict the implementation of such devices or work methods. The Unions will accept and will not refuse to handle, install or work with any standardized and/or catalogue: parts, assemblies, accessories, prefabricated items, preassembled items, partially assembled items, or materials whatever their source of manufacture or construction.

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8.4.3 If any disagreement between the Contractor and the Unions concerning the methods of implementation or installation of any equipment, or device or item, or method of work, arises, or whether a particular part or pre-assembled item is a standardized or catalog part or item, the work will precede as directed by the Contractor and the Parties shall immediately consult over the matter. If the disagreement is not resolved, the affected Union(s) shall have the right to proceed through the procedures set forth in Article 9.

ARTICLE 9
SETTLEMENT OF GRIEVANCES AND DISPUTES

Section 9.1 Cooperation and Harmony on Site:

9.1.1 This Agreement is intended to establish and foster continued close cooperation between management and labor. The Council shall assign a representative to this Project for the purpose of assisting the Unions, and working with the Community Workforce Coordinator, together with the Contractors, to complete the construction of the Project economically, efficiency, continuously and without any interruption, delays or work stoppages.

9.1.2 The Community Workforce Coordinator, the Contractors, Unions, and employees collectively and individually, realize the importance to all Parties of maintaining continuous and uninterrupted performance Project Work, and agree to resolve disputes in accordance with the grievance provisions set forth in this Article or, as appropriate, those of Article 7 or 8.

9.1.3 The Community Workforce Coordinator shall oversee the processing of grievances under this Article and Articles 6 and 7, including the scheduling and arrangements of facilities for meetings, selection of the arbitrator from the agreed-upon panel to hear the case, and any other administrative matters necessary to facilitate the timely resolution of any dispute; provided, however, it is the responsibility of the principal parties to any pending grievance to insure the time limits and deadlines are met.

Section 9.2 Processing Grievances: Any questions arising out of and during the term of this Agreement involving its interpretation and application, which includes applicable provisions of the Master Labor Agreements, but not jurisdictional disputes or alleged violations of Section 6.1 and 6.5 and similar provisions, shall be considered a grievance and subject to resolution under the following procedures.

Step 1. Employee Grievances: When any employee subject to the provisions of this Agreement feels aggrieved by an alleged violation of this Agreement, the employee shall, through his Union business representative or, job steward, within ten (10) working days after the occurrence of the violation, give notice to the work site representative of the involved Contractor stating the provision(s) alleged to have been violated. A business representative of the Union or the job steward and the work site representative of the involved Contractor shall meet and endeavor to adjust the matter within ten (10) working days after timely notice has been given. If they fail to resolve the matter within the prescribed period, the grieving party may, within ten (10) working days thereafter, pursue Step 2 of this grievance procedure provided the grievance is reduced to writing, setting forth the relevant information, including a short description thereof, the date on which the alleged violation occurred, and the provision(s) of the Agreement alleged

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to have been violated. Grievances and disputes settled at Step 1 shall be non-precedential except as to the parties directly involved.

Union or Contractor Grievances: Should the Union(s) or any Contractor have a dispute with the other Party(ies) and, if after conferring within ten (10) working days after the disputing Party knew or should have known of the facts or occurrence giving rise to the dispute, a settlement is not reached within five (5) working days, the dispute shall be reduced to writing and processed to Step 2 in the same manner as outlined in 1(a) above for the adjustment of an employee complaint.

Step 2. The business manager of the involved Union or his designee, together with the site representative of the involved Contractor, and the labor relations representative of the Community Workforce Coordinator, shall meet within seven (7) working days of the referral of the dispute to this second step to arrive at a satisfactory settlement thereof. If the Parties fail to reach an agreement, the dispute may be appealed in writing in accordance with the provisions of Step 3 within seven (7) calendar days after the initial meeting at Step 2.

Step 3. (a) If the grievance shall have been submitted but not resolved under Step 2, either the Union or Contractor Party may request in writing to the Community Workforce Coordinator (with copy (ies) to the other Party (ies)) within seven (7) calendar days after the initial Step 2 meeting, that the grievance be submitted to an arbitrator selected from the agreed upon list below, on a rotational basis in the order listed. Those arbitrators are: (1) Najeeb Khoury; (2) Andrea Dooley; (3) Fredric Horowitz; (4) Sara Adler; and (5) David Weinberg. The decision of the arbitrator shall be final and binding on all Parties and the fee and expenses of such arbitrations shall be borne equally by the involved Contractor(s) and the involved Union(s).

(b) Failure of the grieving Party to adhere to the time limits established herein shall render the grievance null and void. The time limits established herein may be extended only by written consent of the Parties involved at the particular step where the extension is agreed upon. The arbitrator shall have the authority to make decisions only on issues presented and shall not have the authority to change, amend, add to or detract from any of the provisions of this Agreement.

(c) The fees and expenses incurred by the arbitrator, as well as those jointly utilized by the Parties (i.e., conference room, court reporter, etc.) in arbitration, shall be divided equally by the Parties to the arbitration, including Union(s) and Contractor(s) involved.

Section 9.3 Limit on Use of Procedures: Procedures contained in this Article shall not be applicable to any alleged violation of Articles 6 or 7, with a single exception that any employee discharged for violation of Section 6.2, or Section 7.3, may resort to the procedures of this Article to determine only if he/she was, in fact, engaged in that violation.

Section 9.4 Notice: The Community Workforce Coordinator (and the District, in the case of any grievance regarding the Scope of this Agreement) shall be notified by the involved Contractor of all actions at Steps 2 and 3, and further, the Community Workforce Coordinator shall, upon its own request, be permitted to participate fully as a party in all proceedings at such steps.

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ARTICLE 10
REGULATORY COMPLIANCE

Section 10.1 Compliance with All Laws: The Council and all Unions, Contractors, subcontractors and their employed shall comply with all applicable federal and state laws, ordinances and regulations including, but not limited to, those relating to safety and health, employment and applications for employment. All employees shall comply with the safety regulations established by the District, the Community Workforce Coordinator or the Contractor. Employees must promptly report any injuries or accidents to a supervisor.

Section 10.2 Monitoring Compliance: The Parties agree that the District shall require, and that the Community Workforce Coordinator and Council shall monitor, compliance by all Contractors and subcontractors with all federal and state laws regulation that, from time to time may apply to Project Work. It shall be the responsibility of both the Council and the Community Workforce Coordinator (on behalf of the District) to investigate or monitor compliance with these various laws and regulations. The Council may recommend to the Community Workforce Coordinator and/or the District procedures to encourage and enforce compliance with these laws and regulations.

Section 10.3 Prevailing Wage Compliance: The Council or Union shall refer all complaints regarding any potential prevailing wage violation to the Community Workforce Coordinator, who on its own, or with the assistance of the District's labor compliance program, shall process, investigate and resolve such complaints, consistent with Article 5, Section 5.4. The Council or Union, as appropriate, shall be advised in a timely manner with regard to the facts and resolution, if any, of any complaint. It is understood that this Section does not restrict any individual rights as established under the State Labor Code, including the rights of an individual to file a complaint with the State Labor Commissioner or to file a grievance for such violation under the grievance procedure set forth in this Agreement.

Section 10.4 Violations of Law: Based upon a finding of violation by the District of a federal and state law, and upon notice to the Contractor that it or its subcontractors are in such violation, the District, in the absence of the Contractor or subcontractor remedying such violation, shall take such action as it is permitted by law or contract to encourage that Contractor to come into compliance, including, but not limited to, assessing fines and penalties, and/or removing the offending Contractor from Project Work. Additionally, in accordance with the Agreement between the District and the Contractor, the District may cause the Contractor to remove from Project Work any subcontractor who is in violation of state or federal law.

ARTICLE 11
SAFETY AND PROTECTION OF PERSON AND PROPERTY

Section 11.1 Safety:

11.1.1 It shall be the responsibility of each Contractor to ensure safe working conditions and employee compliance with any safety rules contained herein or established by the District, the Community Workforce Coordinator or the Contractor. It is understood that employees have

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an individual obligation to use diligent care to perform their work in a safe manner and to protect themselves and the property of the Contractor and the District.

11.1.2 Employees shall be bound by the safety, security and visitor rules established by the Contractor, the Community Workforce Coordinator and/or the District. These rules will be published and posted. An employee's failure to satisfy his/her obligations under this section will subject him/her to discipline, up to and including discharge.

11.1.3 The Parties to this Agreement adopt the Los Angeles/Orange Counties Building and Construction Trades Council Approved Drug and Alcohol Testing Policy, a copy of which is attached hereto as **Attachment "D,"** and which shall be the policy and procedure utilized under this Agreement.

Section 11.2 Suspension of Work for Safety: A Contractor may suspend all or a portion of the job to protect the life and safety of employees. In such cases, employees will be compensated only for the actual time worked; provided, however, that where the Contractor requests employees to remain at the site and be available for work, the employees will be compensated for stand-by time at their basic hourly rate of pay.

Section 11.3 Water and Sanitary Facilities: The Contractor shall provide adequate supplies of drinking water and sanitary facilities for all employees as required by state law or regulation.

ARTICLE 12
TRAVEL AND SUBSISTENCE

Travel expenses, travel time, subsistence allowances, zone rates and parking reimbursements shall be paid in accordance with the applicable Master Labor Agreement unless superseded by the applicable prevailing wage determination.

ARTICLE 13
APPRENTICES

Section 13.1 Importance of Training: The Parties recognize the need to maintain continuing support of the programs designed to develop adequate numbers of competent workers in the construction industry, the obligation to capitalize on the availability of the local work force in the area served by the District, and the opportunities to provide continuing work under the construction program. To these ends, the Parties will facilitate, encourage, and assist local residents to commence and progress in Labor/Management Apprenticeship and/or training Programs in the construction industry leading to participation in such apprenticeship programs. The District, the Community Workforce Coordinator, other District consultants, and the Council, will work cooperatively to identify, or establish and maintain, effective programs and procedures

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for persons interested in entering the construction industry and which will help prepare them for the formal joint labor/management apprenticeship programs maintained by the signatory Unions.

Section 13.2 Use of Apprentices:

13.2.1 Apprentices used on Projects under this Agreement shall be registered in Joint Labor Management Apprenticeship Programs approved by the State of California. Apprentices may comprise up to thirty percent (30%) of each craft's work force at any time, unless the standards of the applicable joint apprenticeship committee confirmed by the Division of Apprenticeship Standards ("DAS"), establish a lower or higher maximum percentage, and where such is the case, the applicable Union should use its best efforts with the Joint Labor Management apprenticeship committee and, if necessary, the DAS to permit up to thirty percent (30%) apprentices on the Project.

13.2.2 The Unions agree to cooperate with the Contractor in furnishing apprentices as requested up to the maximum percentage. The apprentice ratio for each craft shall be in compliance, at a minimum, with the applicable provisions of the Labor Code relating to utilization of apprentices. The District shall encourage such utilization, and, both as to apprentices and the overall supply of experienced workers, the Community Workforce Coordinator will work with the Council to assure appropriate and maximum utilization of apprentices and the continuing availability of both apprentices and journey persons.

13.2.3 The Parties agree that apprentices will not be dispatched to Contractors working under this Agreement unless there is a journeymen working on the project where the apprentice is to be employed who is qualified to assist and oversee the apprentice's progress through the program in which he is participating.

13.2.4 All apprentices shall work under the direct supervision of a journeyman from the trade in which the apprentice is indentured. A journeyman shall be defined as set forth in the California Code of Regulations, Title 8 [apprenticeship], Section 205, which defines a journeyman as a person who has either completed an accredited apprenticeship in his or her craft, or has completed the equivalent of an apprenticeship in length and content of work experience and all other requirements in the craft which has workers classified as journeyman in the apprenticeship occupation. Should a question arise as to a journeyman's qualification under this subsection, the Contractor shall provide adequate proof evidencing the worker's qualification as a journeyman to the Construction Manager and the Council.

ARTICLE 14
WORK OPPORTUNITIES PROGRAM

Section 14.1 The Parties to this Agreement support the development of increased numbers of skilled construction workers from among Area Residents to meet the labor needs of the Project, specifically, and the requirements of the local construction industry generally. Towards that end the Parties agree to cooperate respecting the establishment of a work opportunities program for Area Residents, the primary goals of which shall be to maximize construction work opportunities for traditionally underrepresented members of the community. In furtherance of the foregoing, the Unions specifically agree to:

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14.1.1 Encourage the referral and utilization, to the extent permitted by law and hiring hall practices, of qualified Area Residents as journeymen, and apprentices on the Project and entrance into such qualified apprenticeship and training programs as may be operated by signatory Unions; and

14.1.2 Work together to promptly develop at the outset of each Project procedures for the identification of craft needs, the scheduling of work to facilitate the utilization of available craft employees, and the securing of services of craft employees in sufficient numbers to meet the demand of the Project work undertaken; and

14.1.3 Work cooperatively with the District and other District consultants to identify, or establish and maintain, effective programs, events and procedures for persons interested in entering the construction industry; and

14.1.4 Participate in District based job fairs, career days and outreach events; and

14.1.5 Provide speakers to speak at District programs and Academies as requested; and

14.1.6 Assist Area Residents in contacting pre-apprenticeship programs that utilize the Building Trades multi-craft core curriculum (MC3) and the Apprenticeship Training Committees for the crafts and trades they are interested in. The Unions shall assist Area Residents who are seeking Union jobs on the Project and Union membership in assessing their work experience and giving them credit for provable past experience in their relevant craft or trade, including experience gained working for non-union Contractors. The Unions shall put on their rolls qualified bona fide Area Residents for work on this Project; and

14.1.7 Allow tours of their JACs as requested; and

14.1.8 Provide a contact information list for all Union representatives and Joint Apprenticeship Committee representatives; and

14.1.9 Support local events and programs designed to recruit and develop adequate numbers of competent workers in the construction industry.

ARTICLE 15
WORKING CONDITIONS

Section 15.1 Meal and Rest Periods: There will be no non-working times established during working hours except as may be required by applicable state law or regulations. Meal periods and Rest periods shall be as provided for in Wage Order 16. Individual coffee containers will be permitted at the employees' work location; however, there will be no organized coffee breaks.

Section 15.2 Work Rules: The District, the Community Workforce Coordinator, and/or relevant Contractor shall establish such reasonable work rules as they deem appropriate and not inconsistent with this Agreement. These rules will be posted at the work sites by the Contractor

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and may be amended thereafter as necessary. Failure to observe these rules and regulations by employees may be grounds for discipline up to an including discharge.

Section 15.3 Emergency Use of Tools and Equipment: There should be no restrictions on the emergency use of any tools by any qualified employee or supervisor, or on the use of any tools or equipment for the performance of work within the jurisdiction, provided the employee can safely use the tools and/or equipment involved and is compliance with applicable governmental rules and regulations.

Section 15.4 Access Restrictions for Cars: Recognizing the nature of the work being conducted on the site, employee access by a private automobile may be limited to certain roads and/or parking areas.

ARTICLE 16
PRE-JOB CONFERENCES

Each Contractor will conduct a pre-job conference with the Unions not later than fourteen (14) calendar days prior to commencing work. The purpose of the conference will be to, among other things, determine craft manpower needs, schedule of work for the contract and project work rules/owner rules. The Council, the Community Workforce Coordinator, and the District shall be advised in advance of all such conferences and may participate if they wish. All work assignments shall be disclosed by the Prime Contractor and all Contractors at a pre-job conference. Should there be Project Work that was not previously discussed at the pre-job conference, or additional project work be added, the contractors performing such work will conduct a separate pre-job conference for such newly included work. Any Union in disagreement with the proposed assignment shall notify the Contractor of its position in writing, with a copy to Community Workforce Coordinator, within seven (7) calendar days thereafter. Within seven (7) calendar days after the period allowed for Union notices of disagreement with the Contractor's proposed assignments, but prior to the commencement of any work, the Contractor shall make final assignments in writing with copies to the Council and to the Community Workforce Coordinator.

ARTICLE 17
LABOR/MANAGEMENT COOPERATION

Section 17.1 Joint Committee: The Parties to this Agreement may establish a six (6) person Joint Administrative Committee (JAC). This JAC shall be comprised of three (3) representatives selected by the District and three (3) representatives selected by the Council to monitor compliance with the terms and conditions of this Agreement. Each representative shall designate an alternate who shall serve in his or her absence for any purpose contemplated by this Agreement.

Section 17.2 Functions of Joint Committee: The Committee shall meet on a schedule to be determined by the Committee or at the call of the joint chairs, to discuss the administration of the Agreement, the progress of the Project, general labor management problems that may arise, and any other matters consistent with this Agreement. Substantive grievances or disputes arising

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under Articles 6, 7 or 9 shall not be reviewed or discussed by this Committee, but shall be processed pursuant to the provisions of the appropriate Article. The Community Workforce Coordinator shall be responsible for the scheduling of the meetings, the preparation of the agenda topics for the meetings, with input from the Unions the Contractors and the District. Notice of the date, time and place of meetings, shall be given to the Committee members at least three (3) days prior to the meeting. The District should be notified of the meetings and invited to send a representative(s) to participate. The Community Workforce Coordinator shall prepare quarterly reports on apprentice utilization and the training and employment of District residents, and a schedule of Project Work and estimated number of craft workers needed. The Committee or an appropriate subcommittee, may review such reports and make any recommendations for improvement, if necessary, including increasing the availability of skilled trades, and the employment of local residents or other individuals who should be assisted with appropriate training to qualify for apprenticeship programs.

Section 17.3 Subcommittees: The Committee may form subcommittees to consider and advise the full Committee with regard to safety and health issues affecting the Project and other similar issues affecting the overall Project, including any workers' compensation program initiated under this Agreement.

ARTICLE 18
SAVINGS AND SEPARABILITY

Section 18.1 Savings Clause: It is not the intention of the District, the Community Workforce Coordinator, Contractor or the Union parties to violate any laws governing the subject matter of this Agreement. The Parties hereto agree that in the event any provision of this Agreement is finally held or determined to be illegal or void as being in contravention of any applicable law or regulation, the remainder of the Agreement shall remain in full force and effect unless the part or parts so found to be void are wholly inseparable from the remaining portions of this Agreement. Further, the Parties agree that if and when any provision(s) of this Agreement is finally held or determined to be illegal or void by a court of competent jurisdiction, the Parties will promptly enter into negotiations concerning the substantive effect of such decision for the purposes of achieving conformity with the requirements of any applicable laws and the intent of the Parties hereto. If the legality of this Agreement is challenged and any form of injunctive relief is granted by any court, suspending temporarily or permanently the implementation of this Agreement, then the Parties agree that all Project Work that would otherwise be covered by this Agreement should be continued to be bid and constructed without application of this Agreement so that there is no delay or interference with the ongoing planning, bidding and construction of any Project Work.

Section 18.2 Effect of Injunctions or Other Court Orders: The Parties recognize the right of the District to withdraw, at its absolute discretion, the utilization of the Agreement as part of any bid specification should a Court of competent jurisdiction issue any order, or any applicable statute which could result, temporarily or permanently in delay of the bidding, awarding and/or construction on the Project. Notwithstanding such an action by the District, or such court order or statutory provision, the Parties agree that the Agreement shall remain in full force and the fact on covered Project Work to the maximum extent legally possible.

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ARTICLE 19
WAIVER

A waiver of or a failure to assert any provisions of this Agreement by any or all of the Parties hereto shall not constitute a waiver of such provision for the future. Any such waiver shall not constitute a modification of the Agreement or change in the terms and conditions of the Agreement and shall not relieve, excuse or release any of the Parties from any of their rights, duties or obligations hereunder.

ARTICLE 20
AMENDMENTS

The provisions of this Agreement can be renegotiated, supplemented, rescinded or otherwise altered only by mutual agreement in writing, hereafter signed by the negotiating Parties hereto.

ARTICLE 21
DURATION OF THE AGREEMENT

Section 21.1 Duration:

21.1.1 This Agreement shall be effective from the date signed by all Parties and shall remain in effect for a period of five (5) years and shall continue in effect from year to year thereafter unless either Party provides written notice of its intent to terminate, sent no earlier than ninety (90) days or later than sixty (60) days prior to the termination date or successor termination date. Any covered Project awarded during the term of this Agreement shall continue to be covered hereunder, until completion of the Project, notwithstanding the expiration date of this Agreement.

21.1.2 This Agreement may be extended by mutual consent of the District and the Unions for such further periods as the Parties shall agree to.

Section 21.2 Turnover and Final Acceptance of Completed Work:

21.2.1 Construction of any phase, portion, section, or segment of Project Work shall be deemed complete when such phase, portion, section or segment has been turned over to the District by the Contractor and the District has accepted such phase, portion, section, or segment. As areas and systems of the Project are inspected and construction-tested and/or approved and accepted by the District or third parties with the approval of the District, the Agreement shall have no further force or effect on such items or areas, except when the Contractor is directed by the District to engage and repairs or modifications required by its contract(s) with the District.

21.2.2 Notice of each final acceptance received by the Contractor will be provided to the Council with the description of what portion, segment, etc. has been accepted. Final acceptance may be subject to a "punch" list, and in such case, the Agreement will continue to apply to each such item on the list until it is completed to the satisfaction of the District and Notice of Acceptance is given by the District or its representative to the Contractor. At the request of the Union, complete information describing any "punch" list work, as well as any additional work

required of a Contractor at the direction of the District pursuant to (a) above, involving otherwise turned-over and completed facilities which have been accepted by the District, will be available from the Community Workforce Coordinator.

IN WITNESS whereof the Parties have caused this Community Workforce Agreement to be executed as of the date and year above stated.

LYNWOOD UNIFIED SCHOOL DISTRICT

By: _____

Dated: 2/19/25

LOS COUNTIES ANGELES/ORANGE BUILDING & CONSTRUCTION TRADES COUNCIL

By: _____
Ernesto Medrano, Executive Secretary

Dated: _____

LOS ANGELES/ORANGE COUNTIES BUILDING AND CONSTRUCTION TRADES COUNCIL CRAFT UNIONS AND DISTRICT COUNCILS

Asbestos Heat & Frost Insulators (Local 5)	DocuSigned by: Mike Patterson 6C3223100AE94D4...
Boilermakers (Local 92)	DocuSigned by: Luis Miramontes 83A563BEFB8E48F...
Bricklayers & Allied Craftworkers (Local 4)	DocuSigned by: Lupe Alcaco EA7AF8519EAE486...
Cement Masons (Local 600)	DocuSigned by: Ricardo Gonzalez 59C2DDBBFF7F442...
Electricians (Local 11)	DocuSigned by: 41A6FAEF4F17461...
Elevator Constructors (Local 18)	DocuSigned by: Tony Gazzaniga B59D61C5C8BB417...
Gunite Workers (Local 345)	DocuSigned by: Ed Learn AEBFEA548C1F413...
Iron Workers (Reinforced – Local 416)	DocuSigned by: Frankie Jimenez E6E6E642A5F94466...
Iron Workers (Structural – Local 433)	DocuSigned by: CF417DC825EB4CC...
District Council of Laborers	DocuSigned by: Jon Preciado B5151D075BAB44A...
Laborers (Local 300)	DocuSigned by: SERGIO RASCON 9D9520D1C3F9449...
Laborers (Local 1184)	DocuSigned by: 1184 B569A3D2C62940C...
Operating Engineers (Local 12)	
Operating Engineers (Local 12)	
Operating Engineers (Local 12)	
Painters & Allied Trades DC 36	DocuSigned by: Ernesto Toscano 23762C55EA67401...
Pipe Trades (Local 250)	DocuSigned by: Ben Clayton B9F36A583E60494...
Pipe Trades (Local 345)	DocuSigned by: Ricardo Perez 8C144FFD6F5F464...
Pipe Trades (Plumbers Local 78)	DocuSigned by: Jeremy Diaz C4ADA0A7C1ED474...
Pipe Trades (Sprinkler Fitters Local 709)	DocuSigned by: Todd Golden 6D88CFF28138497...
Plasterers (Local 200)	DocuSigned by: Christian Betancourt 84A53707BA3143B...
Plaster Tenders (Local 1414)	DocuSigned by: Jose Sanchez 9DED4589AFE64A7...
Roofers & Waterproofers (Local 36)	DocuSigned by: Cliff Smith E6074B80D99147F...
Sheet Metal Workers (Local 105)	DocuSigned by: Steve Hinson B2A5B173AF441F...
Teamsters (Local 986)	DocuSigned by: Caesar Bonas B9F79ED2514D410...
Western States Regional Council of Carpenters	DocuSigned by: Josh Raper 4E0027DAA65B4D0...

LOS ANGELES/ORANGE COUNTIES BUILDING AND CONSTRUCTION
TRADES COUNCIL CRAFT UNIONS AND DISTRICT COUNCILS

Asbestos Heat & Frost Insulators (Local 5) _____

Boilermakers (Local 92) _____

Bricklayers & Allied Craftworkers (Local 4) _____

Cement Masons (Local 600) _____

Electricians (Local 11) _____

Elevator Constructors (Local 18) _____

Gunite Workers (Local 345) _____

Iron Workers (Reinforced – Local 416) _____

Iron Workers (Structural – Local 433) _____

District Council of Laborers _____

Laborers (Local 300) _____

Laborers (Local 1184) _____

Operating Engineers (Local 12) _____

Operating Engineers (Local 12) _____

Operating Engineers (Local 12) _____

Painters & Allied Trades DC 36 _____

Pipe Trades (Local 250) _____

Pipe Trades (Local 345) _____

Pipe Trades (Plumbers Local 78) _____

Pipe Trades (Sprinkler Fitters Local 709) _____

Plasterers (Local 200) _____

Plaster Tenders (Local 1414) _____

Roofers & Waterproofers (Local 36) _____

Sheet Metal Workers (Local 105) _____

Teamsters (Local 986) _____

Western States Regional Council of Carpenters _____

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ATTACHMENT A
LETTER OF ASSENT

To be signed by all contractors awarded work covered by the
Community Workforce Agreement prior to commencing work.

[Contractor's Letterhead]
Community Workforce Coordinator
C/O Lynwood Unified School District
11321 Bullis Rd.
Lynwood, CA 90262

Attn: _____

Re: Community Workforce Agreement - Letter of Assent

Dear Sir:

This is to confirm that [name of company] agrees to be party to and bound by the Lynwood Unified School District Community Workforce Agreement effective _____, 2024, as such Agreement may, from time to time, be amended by the negotiating parties or interpreted pursuant to its terms. Such obligation to be a party and bound by this Agreement shall extend to all work covered by the Agreement undertaken by this Company on the Project and this Company shall require all of its contractors and subcontractors of whatever tier to be similarly bound for all work within the scope of the Agreement by signing and furnishing to you an identical Letter of Assent prior to their commencement of work.

Sincerely,

[Name of Construction Company]

By: _____

Name: _____

Title: _____

Contractor State License No. _____

[Copies of this letter must be submitted to the Community Workforce Coordinator and to the Council per Section 2.5(b).]

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ATTACHMENT B
Local Resident Zip Codes

(Tier 1)
DISTRICT SERVICE AREA ZIP CODES

90723	90280	90262
90222	90221	90059

(Tier 2)
TEN-MILE RADIUS FROM THE DISTRICT'S HEADQUARTERS ZIP CODES

90001	90003	90007
90002	90011	90012
90013	90014	90015
90017	90018	90021
90022	90023	90033
90044	90040	90043
90061	90047	90058
90071	90062	90063
90201	90079	90089
90241	90220	90240
90248	90242	90247
90255	90249	90250
90301	90260	90270
90304	90302	90303
90502	90305	90501
90640	90504	90506
90713	90706	90712
90747	90745	90746
90806	90755	90805
90810	90807	90808
91754		

(Tier 3)
THE REMAINING AREA ZIP CODES IN LOS ANGELES COUNTY

91746	91208	91802
91077	90660	91804
91331	91105	91899
90605	90053	91896
90054	90602	91603
91745	91108	91610
90650	90604	91609
91604	90293	91612
91342	91207	91611
91102	90601	91615

93550	91109	91614
90803	90402	91617
93535	90398	91616
91335	90010	91618
93536	90212	91715
91706	93543	91714
90670	91024	91716
90606	91799	91734
91766	90659	91735
90055	90397	91747
90026	91399	91749
91402	90102	91756
90603	90665	91769
90037	90094	91771
91792	90077	91772
90731	90401	91346
91343	90211	91353
91114	91312	91357
90060	90056	91365
90019	91187	91372
91702	90888	91371
90004	93591	91376
91324	91020	91380
90042	91175	91382
91110	90715	91385
90006	93510	91386
90066	90290	91393
90813	90095	91392
90744	90612	91395
91406	91131	91394
93551	91191	91396
91770	93532	91404
91344	90704	91408
90070	92397	91407
91304	91186	91410
91801	91731	91412
91405	93553	91416
90714	93544	91413
92833	90067	91426
91303	90638	91470
91605	93243	91495
90034	91330	91482
91767	91008	91496
91316	91210	91116
90046	90822	90072
91115	91759	91384
91306	93563	91403

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90065	90840	91411
90703	91608	90185
90057	90090	91390
91789	90831	91775
91352	90073	90404
90027	91188	90292
90074	91795	91106
91790	91797	90403
90032	90101	91201
90716	90103	90717
90005	90835	90272
90025	90834	91040
91367	90899	91011
90639	90510	91202
93534	93539	90068
91755	93599	90069
90016	90009	91118
90503	91748	90732
90075	90263	90076
90028	90844	91101
91765	91383	90845
90024	91409	91117
91311	90233	91497
90631	93584	91602
91732	93590	90254
90815	93586	90048
90701	90030	91388
91733	90507	90265
93552	90509	90210
90278	90508	90814
90050	90607	90174
90275	90609	91506
91016	90608	91501
91401	90610	91203
91606	90637	91361
91387	90041	91345
91350	90652	91204
90052	90651	91723
90045	90662	90245
91744	90661	91381
91355	90671	91356
91321	90702	90097
90802	90707	90232
91776	90711	91436
90505	90405	91841
90804	90733	90313
90036	90734	91502

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90031	90749	90078
91711	90748	90080
91104	90801	90082
90277	90231	90081
91205	90239	90084
91001	90251	90083
90020	90261	90087
91325	90264	90086
90266	90267	90088
90049	90295	90093
91601	90294	90091
91326	90296	90096
91780	90307	90099
91340	90306	90189
91722	90309	90209
91006	90308	90202
91768	90311	90213
90230	90310	90223
90008	90312	90224
91773	90406	91778
91107	90408	91788
91750	90407	91793
91007	90410	90038
90039	90409	91740
91791	90411	91010
90710	90809	91354
90029	90833	91030
91505	90832	91741
91351	90842	90035
91803	90847	91103
91214	90846	91302
91423	90853	91042
91607	90848	90064
91724	90895	91364
91206	91003	91504
91046	91009	90291
91066	91012	90274
91043	91017	91301
91041	91023	91307
91031	91021	90051
91025		

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ATTACHMENT C

LYNWOOD UNIFIED SCHOOL DISTRICT
CRAFT REQUEST FORM

TO THE CONTRACTOR: Please complete and submit this form to the applicable union to request craft workers that fulfill the hiring requirements for this project. After faxing your request, please call the Union to verify receipt and substantiate their capacity to furnish workers as specified below. Please keep copies for your records.

The Lynwood Unified School District Community Workforce Agreement establishes a goal that 30% of all of the labor and craft positions shall be from qualified workers: first, Area Residents residing in those first tier zip codes which cover the District service area, as reflected on the attached list of zip codes on Attachment B, as well as Veterans. MC3 Graduates, and students which have graduated from the District, regardless of where they reside, second, qualified workers residing within a ten (10) mile radius from the District's headquarters, as reflected on the attached list of zip codes on Attachment B, third, qualified workers residing in the remainder of the County of Los Angeles. For Dispatch purposes, employees residing within any of these three (3) areas, as well as Veterans, MC3 Graduates, and students which have graduated from the District, regardless of where they reside, shall be referred to as Local Residents.

TO THE UNION: Please complete the "Union Use Only" section on the next page and return this form to the requesting Contractor. Be sure to retain a copy of this form for your records.

CONTRACTOR USE ONLY

To: Union Local # _____ **Fax#** (___) _____ **Date:** _____

Cc: **Community Workforce** Coordinator

From: Company: _____ Issued By: _____

Contact Phone: (___) _____ Contact Fax: (___) _____

PLEASE PROVIDE ME WITH THE FOLLOWING UNION CRAFT WORKERS.

Craft Classification (i.e., plumber, painter, etc.)	Journeyman or Apprentice	Local Resident or General Dispatch	Number of workers needed	Report Date	Report Time
TOTAL WORKERS REQUESTED = _____					

Please have worker(s) report to the following work address indicated below:

Project Name: _____ Site: _____ Address: _____

Report to: _____ On-site Tel: _____ On-site Fax: _____

Comment or Special Instructions: _____

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UNION USE ONLY

Date dispatch request received:
Dispatch received by:
Classification of worker requested:
Classification of worker dispatched:

WORKER REFERRED

Name:		
Date worker was dispatched:		
Is the worker referred a:	(check all that apply)	
JOURNEYMAN	Yes _____	No _____
APPRENTICE	Yes _____	No _____
LOCAL RESIDENT	Yes _____	No _____
GENERAL DISPATCH FROM OUT OF WORK LIST	Yes _____	No _____

[This form is not intended to replace a Union's Dispatch or Referral Form normally given to the employee when being dispatched to the jobsite.]

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ATTACHMENT D

LOS ANGELES/ORANGE COUNTIES BUILDING AND CONSTRUCTION TRADES COUNCIL APPROVED DRUG AND ALCOHOL TESTING POLICY

(rev. December 2019)

The Parties recognize the problems which drug and alcohol abuse have created in the construction industry and the need to develop drug and alcohol abuse prevention programs. Accordingly, the Parties agree that in order to enhance the safety of the workplace and to maintain a drug and alcohol-free work environment, individual Employers may require applicants or employees to undergo drug and alcohol testing.

1. It is understood that the use, possession, transfer or sale of illegal drugs, narcotics, or other unlawful substances, as well as being under the influence of alcohol and the possession or consuming alcohol is absolutely prohibited while employees are on the Employer's job premises or while working on any jobsite in connection with work performed under the Project Labor Agreement ("PLA").

2. No Employer may implement a drug testing program which does not conform in all respects to the provisions of this Policy.

3. No Employer may implement drug testing at any jobsite unless written notice is given to the Union setting forth the location of the jobsite, a description of the project under construction, and the name and telephone number of the Project Supervisor. Said notice shall be addressed to the office of each Union signing the PLA. Said notice shall be sent by email or by registered mail before the implementation of drug testing. Failure to give such notice shall make any drug testing engaged in by the Employer a violation of the PLA, and the Employer may not implement any form of drug testing at such jobsite for the following six months.

4. An Employer who elects to implement drug testing pursuant to this Agreement shall require all employees on the Project to be tested. With respect to individuals who become employed on the Project subsequent to the proper implementation of a valid drug testing program, such test shall be administered upon the commencement of employment on the project, whether by referral from a Union Dispatch Office, transfer from another project, or another method. Individuals who were employed on the project prior to the proper implementation of a valid drug testing program may only be subjected to testing for the reasons set forth in paragraphs 5(g)(l) through 5(g)(3) and paragraphs 6(a) through 6(e) of this Policy. Refusal to undergo such testing shall be considered sufficient grounds to deny employment on the project.

5. The following procedure shall apply to all drug testing:

a. The Employer may request urine samples only. The applicant or employee shall not be observed when the urine specimen is given. An applicant or employee, at his or her sole

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option, shall, upon request, receive a blood test in lieu of a urine test. No employee of the Employer shall draw blood from a bargaining unit employee, touch or handle urine specimens, or in any way become involved in the chain of custody of urine or blood specimens. A Union Business Representative, subject to the approval of the individual applicant or employee, shall be permitted to accompany the applicant or employee to the collection facility to observe the collection, bottling, and sealing of the specimen.

b. An employer may request an applicant to perform an alcohol breathalyzer test, at a certified laboratory only and cutoff levels shall be those mandated by applicable state or federal law.

c. The testing shall be done by a laboratory approved by the Substance Abuse & Mental Health Services Administration (SAMHSA), which is chosen by the Employer and the Union.

d. An initial test shall be performed using the Enzyme Multiplied Immunoassay Technique (EMIT). In the event a question or positive result arises from the initial test, a confirmation test must be utilized before action can be taken against the applicant or employee. The confirmation test will be by Gas Chromatography/Mass Spectrometry (GC/MS). Cutoff levels for both the initial test and confirmation test will be those established by SAMHSA. Should these SAMHSA levels be changed during the course of this Agreement or new testing procedures are approved, then these new regulations will be deemed as part of this existing Agreement. Confirmed positive samples will be retained by the testing laboratory in secured long-term frozen storage for a minimum of one year. Handling and transportation of each sample must be documented through strict chain of custody procedures.

e. In the event of a confirmed positive test result the applicant or employee may request, within forty-eight (48) hours, a sample of his/her specimen from the testing laboratory for purposes of a second test to be performed at a second laboratory, designated by the Union and approved by SAMHSA. The retest must be performed within ten (10) days of the request. Chain of custody for this sample shall be maintained by the Employer between the original testing laboratory and the Union's designated laboratory. Retesting shall be performed at the applicant's or employee's expense. In the event of conflicting test results the Employer may require a third test.

f. If, as a result of the above testing procedure, it is determined that an applicant or employee has tested positive, this shall be considered sufficient grounds to deny the applicant or employee his/her employment on the project.

g. No individual who tests negative for drugs pursuant to the above procedure and becomes employed on the project shall again be subjected to drug testing with the following exceptions:

1. Employees who are involved in industrial accidents resulting in damage to plant, property or equipment or injury to him/her or others may be tested for drug or alcohol pursuant to the procedures stated hereinabove.

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2. The Employer may test employees following thirty (30) days advance written notice to the employee(s) to be tested and to the applicable Union. Notice to the applicable Union shall be as set forth in paragraph 3 above and such testing shall be pursuant to the procedures stated hereinabove.

3. The Employer may test an employee where the Employer has reasonable cause to believe that the employee is impaired from performing his/her job. Reasonable cause shall be defined as being aberrant or unusual behavior, the type of which is a recognized and accepted symptom of impairment (i.e., slurred speech, unusual lack of muscular coordination, etc.). Such behavior must be actually observed by at least two persons, one of whom shall be a supervisor who has been trained to recognize the symptoms of drug abuse or impairment and the other of whom shall be the Job Steward. If the Job Steward is unavailable or there is no Job Steward on the project the other person shall be a member of the applicable Union's bargaining unit. Testing shall be pursuant to the procedures stated hereinabove. Employees who are tested pursuant to the exceptions set forth in this paragraph and who test positive will be removed from the Employer's payroll.

h. Applicants or employees who do not test positive shall be paid for all time lost while undergoing drug testing. Payment shall be at the applicable wage and benefit rates set forth in the applicable Union's Master Labor Agreement. Applicants who have been dispatched from the Union and who are not put to work pending the results of a test will be paid waiting time until such time as they are put to work. It is understood that an applicant must pass the test as a condition of employment. Applicants who are put to work pending the results of a test will be considered probationary employees.

6. The Employers will be allowed to conduct periodic jobsite drug testing on the Project under the following conditions:

a. The entire jobsite must be tested, including any employee or subcontractor's employee who worked on that project three (3) working days before or after the date of the test;

b. Jobsite testing cannot commence sooner than fifteen (15) days after start of the work on the project;

c. Prior to start of periodic testing, a Business Representative will be allowed to conduct an educational period on company time to explain periodic jobsite testing program to affected employees;

d. Testing shall be conducted by a SAMHSA certified laboratory, pursuant to the provisions set forth in paragraph 5 hereinabove.

e. Only two (2) periodic tests may be performed in a twelve (12) month period.

It is understood that the unsafe use of prescribed medication, or where the use of prescribed medication impairs the employee's ability to perform work, is a basis for the Employer to remove

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the employee from the jobsite.

Any grievance or dispute which may arise out of the application of this Agreement shall be subject to the grievance and arbitration procedures set forth in the PLA.

7. The establishment or operation of this Policy shall not curtail any right of any employee found in any law, rule or regulation. Should any part of this Agreement be found unlawful by a court of competent jurisdiction or a public agency having jurisdiction over the parties, the remaining portions of the Agreement shall be unaffected, and the parties shall enter negotiations to replace the affected provision.

8. Present employees, if tested positive, shall have the prerogative for rehabilitation program at the employee's expense. When such program has been successfully completed the Employer shall not discriminate in any way against the employee. If work for which the employee is qualified exists, he/she shall be reinstated.

9. The Employer agrees that results of urine and blood tests performed hereunder will be considered medical records held confidential to the extent permitted or required by law. Such records shall not be released to any persons or entities other than designated Employer representatives and the applicable Union. Such release to the applicable Union shall only be allowed upon the signing of a written release and the information contained therein shall not be used to discourage the employment of the individual applicant or employee on any subsequent occasion.

10. Employer shall indemnify and hold the Union harmless against any and all claims, demands, suits, or liabilities that may arise out of the application of this Agreement and/or any program permitted hereunder.

11. Employees who seek voluntary assistance for substance abuse may not be disciplined for seeking such assistance. Requests from employees for such assistance shall remain confidential and shall not be revealed to other employees or management personnel without the employee's consent. Employees enrolled in substance abuse programs will be subject to all Employer rules, regulations and job performance standards with the understanding that an employee enrolled in such a program is receiving treatment for an illness.

12. The parties agree to develop and implement a drug abuse prevention and testing program for all apprentices entering the industry.

13. This Memorandum of Understanding shall constitute the only Agreement in effect between the parties concerning drug and alcohol abuse, prevention and testing. Any modifications thereto must be accomplished pursuant to collective bargaining negotiations between the parties.

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APPENDIX A: SPECIMEN REPORTING CRITERIA

Initial Test Analyte	Initial Test Cutoff [1]	Confirmatory Test Analyte	Confirmatory Test Cutoff Concentration
Marijuana metabolites (THCA)[2]	50 ng/ml [3]	THCA	15 ng/ml
Cocaine metabolite (Benzoylecgonine)	150ng/ml[3]	Benzoylecgonine	100 ng/ml
Codeine/ Morphine	2000 ng/ml	Codeine Morphine	2000 ng/ml 2000 ng/ml
Hydrocodone/ Hydromorphone	300 ng/ml	Hydrocodone Hydromorphone	100 ng/ml 100 ng/ml
Alcohol	0.02%	Ethanol	0.02%
Oxycodone/ Oxymorphone	100 ng/ml	Oxycodone Oxymorphone	100 ng/ml 100 ng/ml
6-Acetylmorphine	10 ng/ml	6-Acetylmorphine	10 ng/ml
Phencyclidine	25 ng/ml	Phencyclidine	25 ng/ml
Amphetamine/ Methamphetamine	500 ng/ml	Amphetamine Methamphetamine	250ng/ml 250 ng/ml
MDMA[4]/MDA[5]	500 ng/ml	MDMA MDA	250ng/ml 250 ng/ml
Initial Test Analyte	Initial Test Cutoff	Confirmatory Test Analyte	Confirmatory Test Cutoff Concentration

[1] For grouped analytes (i.e., two or more analytes that are in the same drug class and have the same initial test cutoff):

Immunoassay: The test must be calibrated with one analyte from the group identified as the target analyte. The cross-reactivity of the immunoassay to the other analyte(s) within the group must be 80 percent or greater; if not, separate immunoassays must be used for the analytes within the group.

Alternate technology: Either one analyte or all analytes from the group must be used for calibration, depending on the technology. At least one analyte within the group must have a concentration equal to or greater than the initial test cutoff or, alternatively, the sum of the analytes present (i.e., equal to or greater than the laboratory's validated limit of quantification) must be equal to or greater than the initial test cutoff.

[2] An immunoassay must be calibrated with the target analyte, 9-tetrahydrocannabinoJ-9- carboxylic acid (THCA).

[3] **Alternate technology (THCA and benzoylecgonine):** The confirmatory test cutoff must be used for an alternate technology initial test that is specific for the target analyte (i.e., 15 ng/ml for THCA, 100 ng/ ml for benzoylecgonine).

[4] Methylenedioxymethamphetamine (MDMA)

[5] Methylenedioxyamphetamine (MDA)

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Barbiturates	300 ng/ml	Barbiturates	200 ng/ml
Benzodiazepines	300 ng/ml	Benzodiazepines	300 ng/ml
Methadone	300 ng/ml	Methadone	100 ng/ml
Methaqualone	300 ng/ml	Methaqualone	300 ng/ml
Propoxyphene	300 ng/ml	Propoxyphene	100 ng/ml

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TESTING POLICY FOR DRUG ABUSE

It is hereby agreed between the parties hereto that an Employer who has otherwise properly implemented drug testing, as set forth in the Testing Policy for Drug Abuse, shall have the right to offer an applicant or employee a "quick" drug screening test. This "quick" screen test shall consist either of the "ICUP" urine screen or similar test or an oral screen test. The applicant or employee shall have the absolute right to select either of the two "quick" screen tests, or to reject both and request a full drug test.

An applicant or employee who selects one of the "quick" screen tests, and who passes the test, shall be put to work immediately. An applicant or employee who fails the "quick" screen test, or who rejects the "quick" screen tests, shall be tested pursuant to the procedures set forth in the Testing Policy for Drug Abuse. The sample used for the "quick" screen test shall be discarded immediately upon conclusion of the test. An applicant or employee shall not be deprived of any rights granted to them by the Testing Policy for Drug Abuse as a result of any occurrence related to the "quick" screen test.

LYNWOOD
UNIFIED SCHOOL DISTRICT

SPECIFICATIONS/ DRAWINGS

LYNWOOD UNIFIED SCHOOL DISTRICT

Bid No. 14MOT26

Firebaugh High School HVAC Units Replacement at Administration/Library and Gym Buildings – DSA #03-125870

TECHNICAL SPECIFICATIONS

1) TECHNICAL SPECIFICATIONS

2) CARRIER EQUIPMENT PURCHASED SUBMITTAL

3) THERMOSTAT CUT SHEET

4) DSA-103-V2

5) DRAWINGS – V2

Lynwood Unified School District
11321 Bullis Road
Lynwood, CA 90262

SPECIFICATIONS MANUAL

App No: 03-125870

FIREBAUGH HIGH SCHOOL HVAC REPLACEMENT

5246 Martin Luther King Jr Blvd
Lynwood, CA 90262

FEBRUARY 23, 2026

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SECTION 01 11 00 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. The furnishing of all labor, materials, equipment, services, and incidentals necessary for the HAVC unit replacement at Building 2A and 5A at Firebaugh High School in the Lynwood Unified School District

Firebaugh High School
5246 Martin Luther King Jr Blvd
Lynwood, CA 90262

Work scope includes replacement of 6 roof top HVAC units, 3 units on Bldg 2A and 3 units on Bldg 5A. total weight of units on each building to be less than original. Work includes the electrical, mechanical, and structural components necessary to accommodate the new replacement equipment.

1.02 RELATED REQUIREMENTS:

1. Section 01 0450: Cutting and Patching.
2. Section 01 2000: Project Meetings.
3. Section 01 3000: Project Submittals.
4. Section 01 4050: Tests and Inspections.
5. Section 01 5000: Construction Facilities and Temporary Controls.
6. Section 01 6300: Substitutions
7. Section 01 7000: Contract Closeout

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.01 USE OF PREMISES

A. CONTRACTOR shall coordinate Work of all trades, Subcontractors, utility service providers, with OWNER and/or Separate Work Contract. CONTRACTOR shall sequence, coordinate, and perform the Work to impose minimum hardship on the operation and use of the existing facilities and/or Project site. CONTRACTOR shall install all necessary protection for existing improvements, Project site, property, and new Work against dust, dirt, weather, damage, vandalism, and maintain and relocate all protection to accommodate progression of the Work.

B. CONTRACTOR shall confine entrance and exiting to the Project site and/or facilities to routes designated by the OAR.

C. Within existing facilities, OWNER will remove portable equipment, furniture, and supplies from Work areas prior to the start of Work. CONTRACTOR shall cover and protect remaining items in areas of the Work.

D. CONTRACTOR is advised school may be in session during performance of the Work. CONTRACTOR shall utilize all available means to prevent generation of unnecessary noise and maintain noise levels to a minimum. When required by the OAR, CONTRACTOR shall immediately discontinue noise-generating activities and/or provide alternative methods to minimize noise generation. CONTRACTOR shall install and maintain air compressors, tractors, cranes, hoists, vehicles, and other internal combustion engine equipment with mufflers, including unloading cycle of compressors. CONTRACTOR shall discontinue operation of equipment producing objectionable noise as required by the OAR.

E. CONTRACTOR shall furnish, install, and maintain adequate supports, shoring, and bracing to preserve structural integrity and prevent collapse of existing improvements and/or Work modified and/or altered as part of the Work.

F. CONTRACTOR shall secure building entrances, exits, and Work areas with locking devices as required by the OAR.

G. CONTRACTOR assumes custody and control of OWNER property, both fixed and portable, remaining in existing facilities vacated during the Work.

H CONTRACTOR shall cover and protect surfaces of rooms and spaces in existing facilities turned over for the Work, including OWNER property remaining within as required to prevent soiling or damage from dust, dirt, water, and/or fumes. CONTRACTOR shall protect areas adjacent to the Work in a similar manner. Prior to OWNER occupancy, CONTRACTOR shall clean all surfaces including OWNER property.

I. CONTRACTOR shall not use or allow anyone other than OWNER employees to use facility telephones and/or other equipment, except in an emergency. CONTRACTOR shall reimburse OWNER for telephone toll charges originating from the facility except those arising from emergencies or use by OWNER employees.

J. CONTRACTOR shall protect all surfaces, coverings, materials, and finished Work from damage. Mobile equipment shall be provided with pneumatic tires.

K. CONTRACTOR is advised OWNER will award Separate Work Contracts at this Project site.

L. CONTRACTOR shall not permit the use of portable and/or fixed radio's or other types of sound producing devices including walkmans and similar devices.

3.02 PROPERTY INVENTORY

A. Property, OWNER intends to remove; will be removed by OWNER before a room or space is vacated for the Work. Before performing Work in each room or space, OAR and CONTRACTOR shall prepare a detailed initial written inventory of OWNER property remaining within, including equipment and telephone instruments and the condition thereof. OAR and CONTRACTOR shall retain a signed copy of the inventory dated and signed by both parties. Prior to subsequent OWNER occupancy of each such room or space, OAR and CONTRACTOR shall perform a final inventory of OWNER property and all discrepancies between the initial inventory and final inventory shall be the responsibility of CONTRACTOR.

3.03 FURNITURE, FIXTURES AND EQUIPMENT (MATERIALS) OWNER FURNISHED CONTRACTOR INSTALLED (OFCI)

A. Certain materials identified in the Contract Documents as OWNER Furnished CONTRACTOR Installed, OFCI, will be delivered to the Project site by the OWNER.

B. If designated in the Contract Documents to be OWNER furnished CONTRACTOR installed, (OFCI), CONTRACTOR shall unload, store, uncrate, assemble, install, and connect OWNER supplied materials.

C. Sixty days before the date the CONTRACTOR needs to have the OFCI materials on site, CONTRACTOR shall notify OWNER of the scheduled date for needed OFCI materials. Upon delivery to Project site, CONTRACTOR shall store OFCI materials inside rooms and/or protected spaces and will be responsible for security of OFCI materials until Substantial Completion. OAR will sign receipt or bill of lading as applicable.

D. CONTRACTOR shall, within ten days after delivery, uncrate and/or unpack OFCI materials in presence of OWNER who shall inspect delivered items. OWNER shall prepare an inspection report listing damaged or missing parts and accessories. OWNER shall transmit one copy of the report to CONTRACTOR. OWNER will procure and/or replace missing and or damaged OFCI materials, as indicated in inspection report.

E. CONTRACTOR shall install OFCI materials in the locations and orientation as indicated in the Contract Documents. CONTRACTOR shall verify exact locations with OAR before final installation of OFCI materials.

F. If required, OAR will furnish setting and or placement drawings for OFCI materials.

G. CONTRACTOR shall install OFCI materials by proper means and methods to ensure an installation as recommended by the manufacturer. CONTRACTOR shall furnish and install all necessary fasteners and required blocking to properly install OFCI materials.

H. CONTRACTOR shall install OFCI materials with manufacturer recommended fasteners for the type of construction to which the OFCI materials are being fastened and/or anchored.

I. CONTRACTOR shall provide final connections of any electrical, signal, gas, water, waste, venting and/or similar items to OFCI materials. CONTRACTOR shall, prior to final connection, verify the operating characteristics of OFCI materials are consistent with the designated supply.

3.04 FURNITURE, FIXTURES AND EQUIPMENT (Materials) - OWNER furnished, OWNER installed (OFOI)

A. Certain materials are identified in the Contract Documents as OWNER Furnished, OWNER Installed (OFOI)

B. On dates and during times designated by OWNER, CONTRACTOR shall provide clear off-loading, receiving, protected storage, and OWNER'S dumpster space areas for the use of OWNER or OWNER'S third party OFOI installation contractors. At such times, CONTRACTOR shall also make clear routes and access available to all rooms and spaces to receive OFOI materials.

C. CONTRACTOR shall cooperate fully with OWNER or OWNER'S third part OFOI installation contractors.

D. CONTRACTOR may be requested by OWNER to provide supplemental labor and equipment to support OFOI activities. Such requests must be submitted in accordance with the change order clauses of Contract.

E. Immediately prior to mobilization of OWNER or OWNER'S third party OFOI installation contractors, OWNER shall document the condition of the Work in areas to be utilized for OFOI activities.

F. CONTRACTOR shall not be responsible for damage caused by OWNER or OWNER'S forces. OWNER shall document the condition of the Work and report to CONTRACTOR any damage in areas utilized for OFOI activities.

END OF SECTION 01 11 00

SECTION 01 14 50 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements for cutting and patching.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION

3.1 SUBMITTALS

A. The word “cutting” as used in the Contract Documents includes, but is not limited to, cutting, drilling, chopping, and other similar operations and the word “patching” includes, but is not limited to, patching, rebuilding, reinforcing, repairing, refurbishing, restoring, replacing, or other similar operations.

B. Cutting and Patching Proposal: Contractor shall submit a proposal describing procedures well in advance of the time cutting and patching will be performed if the Contract Documents requires approval of these procedures before proceeding. Include the following information, as applicable, in the proposal:

1. Describe the extent of cutting and patching required. Denote how it will be performed and indicate why it cannot be avoided.
2. Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in the building’s appearance or other significant visual elements.
3. List products to be used and firms or entities that will perform this Work.
4. Indicate dates when cutting and patching will be performed.
5. Utilities: List utilities that cutting and patching operations will disturb or affect. List utilities to be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
6. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the original structure.
7. Review by Architect and/or DSA prior to proceeding with cutting and patching does not waive Architect right to later require complete removal and replacement of defective Work.

3.2 QUALITY ASSURANCE

A. Requirements for structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.

1. Obtain approval from Owner and/or Architect and the Division of the State Architect of the cutting and patching proposal before cutting and patching the following structural elements unless specifically detailed on the approved plans:

a. Foundation construction
b. Bearing and retaining walls
c. Structural concrete
d. Structural steel
e. Lintels

f. Timber and primary wood framing
g. Structural decking
h. Stair systems
i. Miscellaneous structural metals
j. Exterior curtain-wall construction
k. Equipment supports
l. Piping, ductwork, vessels, and equipment

B. Operational Limitations: Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.

1. Obtain review of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:

a. Primary operational systems and equipment
b. Air or smoke barriers
c. Water, moisture, or vapor barriers
d. Membranes and flashings
e. Fire protection systems
f. Noise and vibration control elements and systems
g. Control systems
h. Communication and/or data systems
i. Conveying systems
j. Electrical wiring systems

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the opinion of Architect, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

1. If possible, retain the original installer or fabricator to cut and patch the exposed Work listed below. If it is impossible to engage the original installer or fabricator, engage another recognized experienced and specialized firm.

a. Acoustical ceilings
b. Acoustical panels
c. HVAC enclosures, cabinets, or covers
d. Gypsum board

3.3 WARRANTY

A. Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

3.4 INSPECTION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.

1. Before proceeding, meet at the Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.5 PREPARATION

A. Temporary support: Provide adequate temporary support of existing improvements or Work to be cut.

B. Protection: Protect existing improvements and Work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of existing improvements or Work that might be exposed during cutting and patching operations.

C. Avoid interference with operation of adjoining areas or interruption of free passage to adjoining areas.

3.6 PERFORMANCE

A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay. Carefully remove existing Work to be salvaged and/or reinstalled. Protect and store for reuse into the Work. Verify compatibility and suitability of existing substrates before starting the Work.

B. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining Work. Where possible, review proposed procedures with the original installer; comply with the original installer's recommendations.

1. In general, where cutting, provide hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
3. Cut through concrete and masonry using a cutting machine, such as a carborundum saw or a diamond-core drill. Saw cut reinforcing bars and paint ends with bituminous paint except where bonded into new concrete or masonry. Cut and remove concrete paving from control joint to control joint.
4. Comply with requirements of applicable Division 2 Sections where cutting and patching requires excavating, backfill, or re-compaction.
5. Sheet Metal: Remove back to joint, lap, or connection. Secure loose or unfastened ends or edges and seal watertight.
6. Plaster: Cut back to sound plaster on straight lines, and back bevel edges of remaining plaster. Trim existing lath and prepare for new lath.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with required tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation. Verify conditions of existing substrates prior to executing Work.
2. Restore exposed finishes of patched areas and extend finish restoration into retaining adjoining construction in a manner that will eliminate all evidence of patching and refinishing.
3. Concrete: Maintain cut edges in a moist condition for twenty four (24) hours prior to the placement of new concrete. In lieu of this an epoxy adhesive may be provided. Finish placed concrete to match existing unless noted otherwise. Concrete shall provide a compressive strength 3,000 psi where installed to repair and/or match existing improvements, unless noted otherwise.
4. Metal Fabrications: Items to remain exposed shall have their edges cut and ground smooth and rounded.
5. Lath and Plaster: Install new lath materials to match existing and fasten to supports at 6"centers. Provide a 6" lap where new lath to adjoins existing lath. Fasten new lath as required for new Work.

Restore paper backings as required. Apply a bonding agent on cut edges of existing plaster. Apply three coat plaster of the type, thickness, finish, texture, and color to match existing.

6. Gypsum Wallboard: Fasten cut edges of wallboard. Install patches with at least two opposite edges centered on supports and secure at 6" centers. Tape and finish joints and fastener heads. Patching shall be non-apparent when painted and/or finished.
7. Painting: Prepare areas to be patched, patch and paint as specified under related sections of the Contract Documents.

3.7 CLEANING

A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged coverings to their original condition.

END OF SECTION 01 04 50

SECTION 01 20 00 - PROJECT MEETINGS

GENERAL

1.1 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements for Project meetings, including but not limited to, the following:

1. Job start meeting.
2. Pre-installation conferences.
3. Progress meetings.
4. Meetings as required by the Owner and/or Owner's Representative.

1.2 RELATED SECTIONS

A. Section 01 30 00: Submittals

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION CONFERENCE

A. The Pre-construction conference shall take place no more than 10 days after the Notice of Award in accordance with General Condition, Owner's Representative will schedule a job start meeting before starting the Work, at a time and date determined by Owner's Representative. Meeting shall be held at the Project site or another location as determined by Owner's Representative. Meeting will be held in order to review responsibilities, procedures, and other administrative requirements contained within the Contract Documents.

B. Owner, Owner's Representative, Contractor, all major subcontractors and other interested parties shall attend the meeting. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.

C. Agenda items shall include significant items which could affect progress of the Work, including, but not limited to the following:

1. Introduction and Identification of Owner's Representative, IOR, Owner's consultants, Contractor, Contractor's major subcontractors.
2. Construction schedule and updating frequency (establish schedule for progress meetings)
3. Critical work sequencing
4. Designation of responsible personnel: persons authorized to represent and sign documents for the Owner, Owner's Representative, Contractor, and major subcontractors, with examples of official signature of each. (list names, addresses and telephone numbers of those persons authorized to act for the Contractor in emergencies, include a 24 hour cell or phone number)
5. Modification Procedures and forms (i.e. RFI, Bulletins, etc.)
6. Contractor reports and frequency i.e. Daily site report, RFI log, Submittal log, Construction photograph log, etc.

7. Procedures and forms for processing Applications for Payment, including handling of retention, on site stored material payments, withholding payments, rejection of and/or modification of payment request, etc.
8. Owner supplied Contractor installed materials.
9. Testing and Inspections, Surveys and Layout.
10. Submittal schedules of Shop Drawings, Product Data, Material Lists, Samples. Etc.
11. Procedures and maintenance of project record documents.
12. Use of the Project site and/or premises: Contractors use of premises including location of office, construction and storage areas, equipment deliveries, parking availability and parking areas, and routes for construction traffic.
13. Owners site usage, school schedules, etc.
14. Safety and first aid procedures including designation of Contractors safety officer. Review safety program.
15. Security procedures
16. Housekeeping, project site clean up procedures
17. Normal working hours

D. Owner's Representative shall prepare and issue meeting minutes to attendees and interested parties. Response and/or to meeting minutes due to Owner's Representative no later than two (2) calendar days after the meeting date.

3.2 PRE-INSTALLATION CONFERENCES

A. Contractor shall coordinate and conduct pre-installation conferences at the Project site as required by related Sections of the Contract Documents.

B. Contractor, manufacturers, and fabricators involved in or affected by the installation and its coordination or integration with other pre-ceding and/or subsequent installations of Work shall attend the meeting. Contractor shall advise IOR, and Architect of scheduled meeting dates in order to secure their attendance.

1. Contractor shall review the progress of construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for the following:

a. Contract Documents
b. Options
c. Related Construction Directives and Change Orders
d. Purchases
e. Deliveries
f. Shop Drawings, Product Data, and quality-control samples
g. Review of mockups
h. Possible conflicts
i. Compatibility problems
j. Time schedules
k. Weather limitations
l. Manufacturer's recommendations
m. Warranty requirements
n. Compatibility of materials
o. Acceptability of substrates
p. Temporary facilities, barricades, utilities, sanitary facilities, signs and other temporary facility requirements.

q. Space and access limitations
r. Governing regulations
s. Safety
t. Inspecting and testing requirements
u. Required performance results
v. Recording requirements
w. Protection

C. Contractor shall record significant discussions and directives received from each conference. Contractor shall, within three (3) calendar days after the meeting date, distribute the minutes of the meeting to all concerned parties, including but not limited to, Owner's Representative, IOR, and Architect.

3.3 PROGRESS MEETINGS

A. Progress meetings will be held at the Project site at regular weekly intervals, or as determined by the Owner's Representative and/or Owner.

B. In addition to representatives of Contractor, Owner, IOR, Architect, each Subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of the Work shall, if requested by Owner's Representative, be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude all matters relating to the Work.

C. Failure of the Contractor to be so represented at any progress meeting which is held at a mutually agreed time or for which a written notice is given, shall not relieve Contractor from abiding by any and all Owner, Owner's Representative determinations or directives issued at such meeting.

D. Owner's Representative will review and correct or approve minutes of the previous progress meeting and will review other significant items affecting progress. Topics for discussion as appropriate to the status of the Project include but are not limited to:

1. Interface requirements
2. Construction Schedule
3. Sequence and coordination
4. Status of submittals / RFI's
5. Deliveries
6. Off-site fabrication
7. Access
8. Site utilization
9. Temporary Construction Facilities and Controls
10. Hours of work
11. Hazards and risks
12. Housekeeping
13. Quality and workmanship
14. Unforeseen conditions
15. Testing and Inspection
16. defective Work
17. Construction Directive
18. Request for Proposal
19. Change Order Proposals and Change Orders
20. Documentation of information for payment requests
21. Application for Payment

22. Other items as required or as brought forth.

E. No later than five (5) calendar days after each progress meeting, Owner's Representative will prepare and distribute minutes of the meeting to each present and absent party. Include a brief summary, in narrative form, of progress, decisions, directives, actions taken, and all other issues since the previous meeting and report.

3.4 ADDITIONAL MEETINGS

A. Owner's Representative, upon giving notice to the intended parties and without further obligation, may require additional meetings to discuss Work and/or Project related activities.

END OF SECTION 01 20 00

SECTION 01 30 00 - SUBMITTALS

GENERAL

1.1 SECTION INCLUDES

A. Procedures for submitting to the Architect/Engineer, schedules, shop drawings, product data, samples, material lists, manuals, warranties and certificates, etc., required by individual Specification Section and procedures for submitting finish hardware schedule and segregation of contract costs to the District.

B. Wherever possible, throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined by the name and catalog number of a manufacturer and by reference of recognized industry standards.

C. To ensure that specified products are furnished and installed in accordance with the design intent, procedures have been established for advance submittal of design data and for its review by the Architect.

1.2 RELATED SECTIONS

A. The General Conditions and Division 1 are part of this Section and the Contract for this Work and apply to this Section as if repeated fully herein.

B. Other Sections requiring submittals.

1.3 PROCEDURES

A. Contractor shall secure and submit Shop drawings, manufacturer's catalogs, samples, warranties, operating and instruction manuals, etc. to the Architect/Engineer for review and approval.

B. After the Architect has date-stamped, signed and reviewed submittals, with corrections noted, if any, the Architect will transmit submittals to Contractor.

1.4 SUBMITTALS

A. Approval of Submittals: Contractor shall clearly identify any deviations from the Contract Drawings and Specifications on submittals. Prior approval of any deviation by the District Architect/Engineer or his representative is required. Any deviation without said prior approval, even though stamped approved, is not acceptable.

1. Approval stamp is for design and quality only. No deviations. No quantities.

B. Deliver submittals to the Owner’s Representative. Identify project name and address, telephone number of Contractor, subcontractor and supplier. Identify, as appropriate, pertinent drawing sheets, detail numbers and Specification Section numbers. Clearly identify any deviations from Contract Documents.

C. Make submittals in accordance with the approved Construction Schedule, and approved Shop Drawing Submission Schedule, in sequence that avoids delaying work and progress of other Contractors.

D. CONTRACTOR SHALL THOROUGHLY REVIEW SUBMITTALS PRIOR TO SUBMISSION TO THE ARCHITECT/ ENGINEER.

E. Timing of Submittals:

1. In accordance with General Conditions, Contractor shall submit to Owner's Representative those Shop Drawings, Product Data, diagrams, materials lists, Samples and other submittals required by the Contract Documents.
2. The Contractor shall submit within ten (10) Days of the Award of Contract, a itemized listing of required submittals with a scheduled date for each submittal. The schedule of submittals shall provide adequate time between submittals in order to allow for proper review without negative impact to the Construction Schedule.
3. Schedule of submittals shall be related to Work progress, and shall be so organized as to allow sufficient time for transmitting, reviewing, corrections, resubmission, and re-reviewing.
4. Contractor shall coordinate submittal of related items and Owner's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received by Owner's Representative.
5. Contractor shall revise, update and submit submittal schedule to Owner's Representative on the first of each month, or as required by Owner's Representative.
6. Contractor shall allow in the Construction Schedule, at least sixteen (16) days for Owner's Representative review following Owner's Representative receipt of submittal. For mechanical, plumbing, electrical, and other submittals requiring joint review with CMR, and/or others Contractor shall allow a minimum of eighteen (18) days following Owner's Representative receipt of submittal.
7. No adjustments to the Contract Time and/or Milestones will be authorized because of a failure to transmit submittals to Owner's Representative sufficiently in advance of the Work to permit review and processing.

F. In case of product substitution, Shop Drawing preparation shall not commence until such time Owner's Representative reviews said submittal relative to the General Conditions. Each submittal shall be accompanied by a letter of transmittal containing a complete itemized and numbered list of submitted materials. Separate letters of transmittal shall accompany each submittal from different subcontractors.

G. Resubmission: If requested, resubmit submittals in a timely manner. Resubmit as specified for initial submittal but identify as such. Indicate any changes which have been made other than those requested by the Architect.

1.5 SHOP DRAWINGS

A. Shop Drawings are original drawings prepared by Contractor, subcontractor, supplier, or distributor which illustrate some portion of work by showing fabrication, layout, setting, or erection details.

B. Draw shop drawings to an accurate scale that is large enough to indicate all pertinent features and methods.

C. Copies Required and Distribution: Unless otherwise indicated in individual specification sections, submit 6 sets of blueline prints.

1.6 PRODUCT DATA

A. Manufacturer's Standard Schematic Drawings:

1. Delete information which is not applicable to Project.
2. Supplement standard Drawings to provide additional information applicable to Project.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data:

1. Clearly mark each copy to identify pertinent materials, products, or models.
2. Indicate dimensions and clearances required.
3. Indicate performance characteristics and capacities.
4. Indicate wiring diagrams and controls.

C. Copies Required and Distribution: Submit 3 copies.

1.7 SAMPLES

A. Samples:

1. Submit samples of sufficient size and quantity to clearly illustrate:

a. Functional characteristics of product or material, with integral parts and attachment devices.
b. Full range of colors, textures, and patterns.

2. Provide permanent identification for each sample.
3. Color and Pattern: Whenever a choice of color or pattern is available in a specified product, submit accurate color chips and pattern charts to the Architect/Engineer for review and selection.
4. Number Required: Submit 3 of each.

B. Field Samples: When specified, erect field samples and mock-ups at project site to illustrate materials, equipment, or workmanship and to establish standards by which completed work shall be judged.

C. After return of office samples or review of field samples, these items may be used in construction of project with approval of the Architect/Engineer.

1.8 MANUALS

A. Where Manuals are required to be submitted covering items included in Work, prepare Manuals in durable binders, approximately 8-1/2" by 11" in size, and provide following information:

1. Identification on, or readable through, front cover stating general nature of manual.
2. Neatly typewritten index at front of Manual, furnishing immediate information as to location in Manual of data or equipment involved.
3. Complete instructions regarding operation and maintenance of equipment involved.
4. Complete nomenclature of replaceable parts, their part numbers, current cost, and name and address of nearest vendor of parts.
5. Copy of all Guarantees and Warranties issued.
6. Copy of approved Shop Drawings with data concerning changes made during construction.

B. Extraneous Data: Where contents of Manuals include manufacturers' catalog pages, clearly indicate precise items included in this installation and delete, or otherwise clearly indicate, manufacturers' data which is not part of this installation.

C. Number of Copies Required: Deliver 6 copies to the Architect/Engineer for review, approval and distribution. The Architect/Engineer will return 3 copies to Contractor.

1.9 CERTIFICATES

A. Submit in triplicate, in accordance with requirements of each Specification Section.

1.10 COLOR SCHEDULES

A. The District shall review and approve color schedules prepared by the Architect/Engineer and distribute the approved schedules to Contractor.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION 01 30 00

SECTION 01 40 50 - TESTING AND INSPECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Testing and inspection services to meet requirements of the California Building Code (CBC), Title 24, Parts 1 and 2, as indicated on the Drawings.

C. Tests of materials are required by a DSA certified testing AGENCY as set forth in Section 4-335 of the California Building Standards Administrative Code.

1.02 RELATED SECTIONS

Provisions of the General Conditions, Supplemental Conditions and Division 01 apply to this Specification. Specifications that are referenced or related may include:

A. Section 01 04 50: Cutting and Patching

B. Section 01 10 00: Construction Documents

C. Section 01 30 00: Submittals

D. Section 01 50 00: Construction Facilities and Temporary Controls

E. Section 01 70 00: Contract Closeout

F. Section 01 74 00: Warranties and Guarantees

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION

3.01 TESTS

A. OWNER will select and provide an independent DSA approved certified testing agency (AGENCY) to conduct tests, sampling, and testing of materials. AGENCY shall have DSA Laboratory Evaluation and Acceptance (LEA) Program acceptance. Selection of material to be tested shall be by the AGENCY and not by CONTRACTOR. Lab to be approved by Architect of record/Structural Engineer (where applicable) DSA.

B. Any material shipped from the source of supply prior to having satisfactorily passed such testing and inspection, or prior to the receipt of notice from IOR such testing and inspection is not required, shall not be incorporated into the Work.

C. OWNER will select, and directly reimburse, the AGENCY for costs of all DSA required tests and inspections; however, the OWNER may be reimbursed by CONTRACTOR for such costs for re-testing of deficient Work.

D. The independent testing AGENCY is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.

E. The AGENCY shall not perform any duties of CONTRACTOR.

F. CONTRACTOR shall provide an insulated curing box with the capacity for twenty (20) concrete cylinders and will relocate said box and cylinders as rapidly as required in order to provide for progress of the Work.

3.02 TEST REPORTS

A. Test reports shall include all tests performed, regardless of whether such tests indicate the material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Records of special sampling operations, when and as required, shall also be reported. Reports shall indicate the material (or materials) was sampled and tested in accordance with requirements of CBC, Title 24, Parts 1 and 2, as indicated on the Drawings. Test reports shall indicate specified design strength and specifically state whether or not the material (or materials) tested comply with the specified requirements.

3.03 VERIFICATION OF TEST REPORTS

A. Each testing AGENCY shall submit to the Division of the State Architect, in duplicate, a verified report covering all tests required to be performed by that AGENCY during the progress of the Work. Such report, covering all required tests, shall be furnished prior to Substantial Completion and/or, when construction on the Work is suspended, covering all tests up to the time of Work suspension.

3.04 INSPECTION BY OWNER

A. OWNER, and its representatives, shall have access, for purposes of inspection, at all times to all parts of the Work and to all shops wherein the Work is in preparation. CONTRACTOR shall, at all times, maintain proper facilities and provide safe access for such inspection.

B. OWNER, and its representatives, shall have the right to reject materials and/or workmanship deemed defective Work and to require correction. Defective workmanship shall be corrected in a satisfactory manner and defective materials shall be removed from the premises and legally disposed of without charge to OWNER. If CONTRACTOR does not correct such defective Work within a reasonable time, fixed by written notice and in accordance with the terms and conditions of the Contract Documents, OWNER may correct such defective Work and proceed in accordance with related Articles of the Contract Documents.

C. CONTRACTOR is responsible for compliance to all applicable local, state, and federal regulations regarding codes, regulations, ordinances, restrictions, and requirements.

3.05 INSPECTOR OF RECORD

A. An Inspector of Record (IOR) shall be employed by OWNER, and approved by ARCHITECT, STRUCTURAL ENGINEER and DSA in accordance with requirements of Title 24 of the California Code of Regulations with their duties specifically defined therein. Additional DSA certified inspectors may be employed and assigned to the Work by OWNER in accordance with the requirements of California Building Standards Administrative Code with their duties as specifically defined in Section 4-333(b).

B. Inspection of Work shall not relieve CONTRACTOR from any obligation to fulfill all terms and conditions of the Contract Documents.

C. CONTRACTOR shall be responsible for scheduling times of inspection, tests, sample taking, and similar activities of the Work.

3.06 TESTS AND INSPECTIONS

The following tests and inspections do not limit inspection of the Work but are required by DSA, other agencies, or are required in related Sections of the Contract Documents.

1. Concrete - CBC, Chapter 19A:

    a. Materials:

        1) Test of Materials: 1705A.3, ACI 318-14 Sections 26.12 & 26.13
        2) Portland Cement Tests: ACI 318, ASTM C 150.
        3) Concrete Aggregate: 1903A.5, ACI 318 Section 26.4.1.2, ASTM C 33.

Reinforcing Bars: 1910A.2, ACI 318-14 Section 26.6.1.2

        5) Mix Designs: Table 1705A.3 Item 5, 1910A.1
        6) Admixtures: 1903A.6 ACI 318 Section 26.4.2.2 (b) and Table 26.4.2.2 (b)

    b. Quality:

        1) Proportions of Concrete: 1910A.1
        2) Mixing and Placing: Table 1705A.3 Item 5, 1910A.1
        3) Concrete Testing: 1905A.1.16, ACI 318-14 Section 26.12

Inspection:

        1) Project Site Inspection: 1905A.7, 1705A.3.5
        2) Batch Plant: 1705A.3.3
        3) Weigh-Master Inspection: 1705A.3.3.1

Reinforcing Bar Welding Inspection: 1705A.3.1 1903A.4.

2. Steel - CBC, Chapters 17A and 22A:

    a. Materials:

        1) Structural Steel: 2205A.1.
        2) Material Identification: 2203.A.1.

    b. Inspection and Tests:

        1) Test of Structural Steel: 1705A.2.
        2) Shop Fabrication Inspection: 1704A.2.5.
        3) Welding Inspection: 1705A.2.5.

END OF SECTION 01 40 50

SECTION 01 50 00 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Description of temporary utilities and protection of construction facilities which are to be provided and maintained by Contractor.

1.2 RELATED SECTIONS

A. General Conditions

1.3 TEMPORARY UTILITIES

A. Water:

1. Water used on work will be furnished and paid for by the Contractor. Contractor shall provide necessary temporary piping and temporary water meters from distribution point to points on site where water is necessary to carry on work, and upon completion of work shall remove temporary piping.
2. Provide suitable drainage system, subject to approval of the District Inspector, to carry construction waste water from site to an approved disposal location.

B. Electricity:

1. The Contractor will furnish and pay for electrical power necessary for construction purposes at site. The Contractor shall meter and pay for electrical utilities that are from sources installed temporarily for the project. Contractor shall provide necessary temporary wiring and lighting and shall remove all temporary wiring and lighting at the completion of the Work. Temporary wiring and lighting shall comply with requirements of the National Electrical Code. Contractor shall be responsible for all damage caused by overloading or other causes and the installation shall be satisfactory to the District Inspector.
2. Furnish and install area distribution boxes, so located that individual trades may use 100'-0" maximum length extension cords to obtain adequate power and artificial lighting, at points where required for work, for inspection and for safety.
3. Provide electricity needed for construction including connections for construction equipment requiring power.

C. Gas: Contractor shall provide and install gas equipment, gas meters and piping necessary to perform his work, and shall remove same upon completion of work. District shall pay for only the gas used in work which is drawn from existing meter sources.

D. Heating and Ventilation:

1. Provide, maintain, and pay for temporary heat sources needed for proper installation of work and to protect materials and finishes from damage due to weather.
2. Provide ventilation of enclosed areas to cure materials, to disperse humidity, and to prevent accumulation of dust, fumes, or gases.

E. Temporary Telephone: Contractor shall provide and pay all costs for all cellular telephones, business telephones, telephone, fax and data telephone lines at site for his use. Use of school telephones will not be permitted. The Contractor shall provide and pay all costs for two (2) telephone lines (1 voice, 1 fax) for the District Inspector.

F. Use means necessary to maintain temporary facilities and controls in proper and safe condition throughout progress of work.

G. Make required connections to existing utility systems with minimum disruption to services in existing utility systems. When disruption of existing service is required, do not proceed without the District Inspector's approval and, when required, provide alternate temporary service.

1.4 CONTRACTOR'S FACILITIES

A. Temporary Offices:

1. Contractor shall provide and maintain a trailer(s) on site for duration of project.

    a. Trailer(s) shall have ample headroom; shall be properly lighted, heated and ventilated. Contractor shall provide an electric drinking fountain or bottled water.

2. Trailer(s), equipment and furniture shall remain Contractor's property. Contractor shall remove such property upon completion of work.

3. District's Inspector: The Contractor shall provide on site at the Contractor's sole expense, a temporary office structure of no less than 200 square feet and the said structure shall be utilized by the Inspector and Inspector shall be separate from space utilized by Contractor or construction personnel. All equipment and furnishings described herein shall remain the property of the Contractor and be maintained in good working order by the Contractor. Office is to be located as approved by the District Inspector and to be adequately maintained in fully operational condition until final acceptance of the project by the Board of Education. This office shall be of substantial waterproof construction with adequate natural light and ventilation. The door shall have a key-type lock and a deadbolt key lock. Equipment shall be as follows:

    a. One office desk, a table satisfactory for the study of plans, one chair on wheels with arms, and two standard chairs, a lockable one 2-drawer filing cabinet with key, one plan rack and one large bookshelf.

B. Storage Units:

1. Provide secure and waterproof storage units where required for the temporary storage of furniture, equipment and other items.
2. Storage Unit Construction: Walls, roof and doors minimum 16 gage steel; floors 1" tongue and groove hardwood or 3/4" minimum exterior type plywood, with undercarriage designed to accommodate forklift blades 42" to 60" long; doors at one end of storage unit, double wide swing out with waterproof gaskets and lockable steel locking bars.

3. Pay all charges and set the storage unit where directed by the District Inspector.
4. Remove storage unit from the site after removal of all the items that were temporarily stored and when directed by the District Inspector.

C. Sanitary Facilities:

1. Contractor shall provide temporary toilet facilities including which may consist of portable chemical toilets. Number of toilets shall be provided according to Cal OSHA requirement. Handwash facilities shall be provided according to Cal OSHA requirements.
2. Toilet facilities shall be kept supplied with toilet paper and kept in a clean and sanitary condition until completion of work, and then be removed from work site. Upon removal, that portion of site shall be properly cleaned and graded.

D. Contractor's Security Barricade:

1. Contractor shall erect temporary security barricade as required for safety and as specified. New or used material may be used.
2. Unless otherwise indicated or specified, barricade shall be constructed of 6'-0" high chain link fencing. Space posts not to exceed 10'-0" on centers. Posts shall be of following nominal pipe dimensions: terminal, corner, and gate posts 2-1/2", line posts 2". Chain link mesh shall be not less than #13 gage, 2" mesh, and in one width. Posts, mesh and accessories shall be galvanized. Contractor shall provide a durable green fabric screening in one width at all temporary security barricades.

    a. Mesh shall be attached to posts with #14 gage tie wire at 16" centers. A #6 gage steel tension wire with turnbuckles shall be installed at top and bottom of barricade fencing. Wire tie mesh to tension wires at 18" centers.
    b. Fabric shall be attached to mesh at top and bottom with wire ties at 2’0” centers.

3. Chain link fencing shall be free from barbs, icicles or other projections resulting from galvanizing process. Fence mesh and fabric having such defects will be rejected even though it has been erected.
4. Gates shall be fabricated of steel pipe with welded corners, and bracing as required. Mesh to be attached to frame at 12" centers. Provide all gate hardware of a strength and quality to perform satisfactorily until barricade is removed upon completion of work.
5. At completion of work, remove barricade and concrete post footings from site; backfill and compact fence footing holes. Existing surface paving that is cut into or removed shall be patched and sealed to match surrounding areas.

E. Other Enclosures:

1. Provide lockable, temporary weather-tight enclosures at openings in exterior walls to create acceptable working conditions, to allow for temporary heating and for security.
2. Provide protective barriers around trees, plants and other improvements designated to remain.

F. Storage Yards and Sheds:

1. Contractor shall fence and maintain storage yards in an orderly manner.
2. Storage for materials that cannot be stored outside may be stored within building.
3. Exact location, size and access of storage yards shall be approved by District Inspector.
4. Remove storage yards and sheds as rapidly as progress of work will permit.

G. Contractor's Parking: Contractor is responsible for parking offsite at his expense and in locations acceptable to the District and local governing authorities.

1.5 GENERAL ITEMS

A. Staging areas for delivery of materials and equipment will be at locations designated by the Project Manager.

B. Safety and Security Lighting: Provide the foot candles minimum inside building(s) and the foot candles outside that comply with Cal OSHA requirements..

C. Noise Control: Contractor shall comply with all noise ordinances of the local authorities. Additionally the Contractor shall provide suspend all operations during District testing of students, two (2) separate days anticipated.

1.6 TRENCHES

A. Open trenches for installation of utility lines (water, gas, electrical and similar utilities) and open pits outside barricaded working areas shall be barricaded at all times. Barricades, such as traffic safety type saw horses or post should be used. High visibility orange netting shall be strung between horses or posts. Trenches shall be backfilled and patch-paved within 72 hours after approval of installation by the District Inspector, or shall have "walk plates" installed.

B. Open trenches deeper than 3'-0", and not located within a public street access, shall be enclosed within an 6'-0" high chain-link fence.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION 01 50 00

SECTION 01 63 00 - SUBSTITUTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Procedures for submittal of requests for substitution for materials.

B. Related Documents: General Conditions and Division 1 are a part of this Section and the Contract for this Work and apply to this Section as if repeated fully herein.

1.2 GENERAL REQUIREMENTS

A. Submit a written request for proposed substitutions to the District's Representative according to the General Conditions.

B. Where materials or items of manufacturer are specified in groups and are made or furnished by one manufacturer, no substitution will be considered that is not made or furnished similarly by one manufacturer. Where the Contractor proposes to use a system of equipment other than that specified or detailed on the Drawings the substitution shall be proposed as a complete system.

1.3 REQUIREMENTS FOR SUBMITTING SUBSTITUTIONS:

A. Changes to approved drawings and specifications shall be made by Addenda or Construction Change Document (CCD) and approved by the Division of the State Architect as required by CCR, Title 24, Part 1, Section 4-338 (C), IR-A-6. Prior to fabrication and installation.

1. Construction Change Documents must be signed by all of the following:

    a. Architect of Record
    b. Structural Engineer (where applicable)
    c. Designated Design Professional (where applicable)
    d. DSA

B. Submit written request for each proposed substitution on form shown at the end of this Section. Provide data substantiating request as well as a "Certificate of Suitability" certifying that the proposed substitution is equal or better in all respects to that specified and that it will, in all respects perform the function for which it is intended. Include with request all required samples. Submit 3 copies of all written requests and data for proposed substitutions.

C. Submit complete information to the Owner's Representative so that proper evaluation can be made. The burden of proof of equality of the substituted item shall be on the Contractor. Acceptance of such substitutions is entirely at the discretion of the Owner's Representative and District. All materials or items of manufacturer, which the Contractor proposes to substitute for those specified, must be accepted by the Owner's Representative before they may be ordered.

D. The Owner's Representative will issue to the Contractor a list setting forth those items for which substitutions are accepted. No substitution will be accepted for any materials or item of manufacture

called for in the Contract Documents which is not of equal quality and utility and which does not possess equal design or color characteristics to those of the specified material or item.

E. If, in the opinion of the Owner's Representative or District, the proposed substitution is not equal or better in every respect to that so indicated or specified, or was not submitted for acceptance in the manner outlined above, the Contractor shall furnish the specified materials.

F. It shall be the responsibility of the Contractor, in proposing a substitution for any item herein specified, to inform all other trades, vendors, and subcontractors of effects said substitution will have upon their construction activities or products. Failure to so notify shall require that the Contractor make all payments arising from alterations in specified materials or methods necessary to complete the Work in an approved and acceptable manner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 63 00

SUBSTITUTION REQUEST FORM

Re:

Project Name

Project Manual Section Number

Item

To:

Owner's Representative

From:

General Contractor

We hereby submit for your consideration the following product comparisons of the specified item and the proposed substitution:

A.	Comparison	Specified Item	Substitution
1.	Product Name/Model	_____	
2.	Manufacturer	_____	
	Address	_____	
	Phone Number	_____	
3.	Product Cost	_____	
	Installation/Labor Cost	_____	
4.	Delivery Time	_____	
	Installation Time	_____	
5.	Product Characteristics	_____	
		_____	
		_____	
		_____	
6.	Dimensions	_____	
	Effects	_____	
		_____	
7.	Guarantee/Warranty	_____	

8. ICC-ES No. _____

9. UL Rating _____

B. Substantiating Data:

Attach manufacturer's literature for both specified item and substitution.

C. Samples:

Provide samples for both specified item and substitution, if applicable.

D. Similar Projects

1. _____
Name Date

Address

2. _____
Name Date

Address

E. What Effect does this substitution have on applicable code requirements?

F. Change Data:

Attach complete information as to whether the proposed substitution:

1) Is equal in quality/service/ability to the Specified Item;
2) Will entail no changes in detail, construction, and scheduling of related work;
3) Will be acceptable in consideration of the required design and artistic effect;
4) Will provide no cost disadvantage to the District;
5) Will require no excessive or more expensive maintenance, including adequacy and availability of replacement parts; and
6) Will require no change of the construction schedule.

Submitted by:

_____
Signature Name
Title

_____
Firm Date

Address

Signature must be by persons having authority to legally bind his firm to the above terms. Failure to provide legally binding signature will result in retraction of approval.

* * * * * * *

For Use by Owner's Representative:

_____ Accepted _____ Not Accepted

Owner's Consultant:

By:

Date:

_____ Accepted _____ Not Accepted

School District:

By:

Date:

* * * * * * *

SECTION 01 70 00 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for Contract Closeout, including but not limited to, the following:

1. Inspections.

B. Closeout requirements for specific Work activities are included in the appropriate Sections in Divisions 01 through 16.

1.2 REQUIREMENTS FOR PREPARATORY TO FINAL INSPECTION

A. Remove temporary facilities from the Project site.

B. Thoroughly clean the Buildings and Project site.

C. All plumbing and mechanical equipment shall operate quietly and free from vibrations. Properly adjust, repair, balance, or replace equipment producing objectionable noise or vibration in the occupied areas of the buildings. Provide additional brackets, bracing, or other methods to prevent objectionable noise or vibration. All systems shall operate without humming, surging, or rapid cycling.

D. Properly mount all operation instructions for equipment and post as specified in their respective Sections.

E. Job Record specifications and prints “as builts” shall be completed, signed, and submitted to the Owner’s Representative as specified in respective Specification Sections.

F. Submit to the Owner’s Representative, the material and equipment maintenance instructions, as specified in the body of the Specification Sections.

G. Submit to the Owner’s Representative, all warranties, guarantees, and bonds, as specified in the body of the Specification Sections.

H. When requested, submit certificates indicating payment of all debts and Claims arising from the Work.

I. Deliver all tools which are a permanent part of equipment installed in the Work to the Owner.

J. Deliver all keys, construction and permanent, properly identified, to the Owner.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION

3.1 SUBSTANTIAL COMPLETION

A. Inspection Procedures: On receipt of a request for a certificate of Substantial Completion, Owner's Representative and/or Owner will either authorize commencement of inspection or advise Contractor of unfilled requirements. IOR, Owner's Representative, and/or Owner and Contractor will inspect the Work and Owner's Representative shall prepare a comprehensive punch list of items to be completed.

1. IOR will repeat inspection when requested by the Contractor and assure the Work is complete.
2. Results of the completed inspection will form a partial basis of the requirements for Final Completion.

B. Re-inspection Procedures: IOR, Contractor and Owner's Representative will inspect the Work upon notice the Work, including final inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to Owner's Representative.

1. Upon completion of inspection, OWNER'S REPRESENTATIVE will recommend Final Completion. If the Work is incomplete, OWNER'S REPRESENTATIVE will advise Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for Final Completion.
2. If necessary, re-inspection will be repeated, but may be assessed against Contractor if Owner is subject to additional professional service and or additional costs of inspection.

C. After all requirements preparatory to the final inspection have been completed as herein specified in the Specification Sections, the Contractor will notify the Owner's Representative and IOR to perform the final inspection.

END OF SECTION 01 70 00

SECTION 01 74 00 - WARRANTIES AND GUARANTEES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers and/or installer's standard warranties on products and special product warranties.

B. Refer to General Conditions for terms of the guarantee period for the Work.

1.2 RELATED SECTIONS

A. Section 01 0450: Cutting and Patching

B. Section 01 3000: Submittals

C. Section 01 7000: Contract Closeout

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION

3.1 WARRANTY REQUIREMENTS

A. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties shall not relieve Contractor of the warranty of the Work incorporating such materials, products, and/or equipment. Manufacturer's disclaimers and limitations on warranties do not relieve suppliers, manufacturers, installers, and Subcontractors of the requirement to countersign special warranties with Contractor.

B. Standard warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to Owner.

C. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for Owner.

D. Related Damages and Losses: When correcting failed or defective warranted Work, remove and replace Work that has been damaged as a result of such failure or which must be removed and replaced to provide access for correction of warranted Work.

E. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement with the reinstated warranty equal to the original warranty.

F. Replacement Cost: Upon determination the Work covered by a warranty has failed and/or is defective, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether Owner has benefited from use of the Work through a portion of its anticipated useful service life.

G. Owner Recourse: Expressed warranties made to Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which Owner can enforce such other duties, obligations, rights, or remedies.

H. Rejection of Warranties: Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

I. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, Owner reserves the right to refuse to accept the Work until Contractor presents evidence the entities required to countersign such commitments have done so.

3.2 SUBMITTALS

A. Submit written warranties to Owner's Representative prior to Final Completion of the Work. If the certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, submit written warranties as set forth in the certificate of Substantial Completion.

B. When a designated portion of the Work is partially used and/or occupied by Owner, submit properly executed warranties to OWNER'S REPRESENTATIVE within fifteen (15) days of the Partial Use or Occupancy of the designated portion of the Work.

C. When the Contract Documents require Contractor (s), or Contractor and a Subcontractor, installer, supplier or manufacturer to execute a special warranty, prepare a written document containing appropriate terms and identification, ready for execution by the required parties. Submit a draft to Owner, through the Owner's Representative, for approval fifteen (15) days in advance prior to final execution.

D. Refer to Divisions 02 through 16 for specific content requirements and particular requirements for submitting special warranties.

E. Form of Submittal: Prior to Final Completion of the Work, compile two copies of each required warranty properly executed by Contractor, or by Contractor and Subcontractor, installer, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the Specifications.

F. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8½ by 11" (115 by 280 mm) paper.

1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the item or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the installer.
2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title and/or name, and name of Contractor.
3. When warranted Work requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

END OF SECTION 01 74 00

SECTION 01 74 50 - CLEANING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The CONTRACTOR shall be solely responsible for the cleaning of the Project site.
B. Keep premises, and adjacent private and public properties free from accumulation of waste, debris and rubbish caused by construction process.
C. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus material, and clean all exposed surfaces. Remove remaining mock-ups and samples.
D. Leave Project clean and ready for occupancy.

1.2 ELATED SECTIONS

A. Section 01 5000: Construction Facilities and Temporary Control.
B. Section 01 7000: Contract Closeout

1.3 SAFETY

A. The CONTRACTOR shall be solely responsible for cleaning safety.
B. Standards: Maintain Project in accord with Federal, State, Local safety regulations, ordinances, anti-pollution laws and insurance standards.
C. Hazard Control: Maintain Project in accord with Federal, State, Local safety regulations, ordinances, anti-pollution laws and insurance standards.
D. Conduct cleaning and disposal operations to comply with Federal, State, Local safety regulations, ordinances, and anti-pollution laws.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 DURING CONSTRUCTION

A. The CONTRACTOR is solely responsible for the cleaning of all public and private property.
B. Keep premises, and adjacent private and public properties free from accumulations of waste materials and rubbish. Remove debris and dirt from public property promptly; clean sidewalks and adjacent streets daily when soiled by work performed under this Contract.
C. As often as necessary, and/or as required the CONTRACTOR shall clean site and dispose of waste materials, debris, and rubbish off the site in a legal manner. Remove all combustible materials in a legal manner.
D. Provide on-site containers for collection of waste materials, debris, and rubbish. Provide a collection can at each location used as an eating area. Pick-up and dispose of all garbage daily.
E. Remove waste materials, debris, and rubbish from site and legally dispose of at legal public or private dumping areas or recycling center off OWNER'S property.
F. Do not allow debris and combustible materials to accumulate in voids, cavities, and plenums created by wall partition, and ceiling construction. These areas must be thoroughly cleaned out before being sealed or closed off by installation of finish materials.
G. Do not allow debris to clog drains. Keep roof drains, scuppers, floor drains and area drains clean and free of debris.

H. Vacuum clean interior areas when ready to be painted, installation of carpet, installation of floor tile, etc. Refer to Sections for other provisions on preparations of finish surfaces.
I. Handle materials in a controlled manner with as few handling as possible; do not drop or throw materials from heights.
J. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on newly finished surfaces.
K. Wet down materials and rubbish to lay dust and prevent it form blowing.

3.2 FINAL CLEANING

A. Complete cleaning operations before requesting inspection for a certificate of Substantial Completion.
B. Employ experienced workers, or professional cleaners, for all final cleaning.
C. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
D. Remove labels that are not permanent labels.
E. Clean transparent materials, including mirrors and glass in doors and windows. Remove misplaced glazing compound and other substances. Replace chipped or broken mirrors, glass and other damaged transparent materials.
F. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors, walkways, and the like broom clean. Vacuum carpeted surfaces.
G. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
H. Clean the site, including landscaped areas, of rubbish litter and other foreign substances.

1. Contaminated earth:

a. Final clean-up operation includes the removal and disposal of earth contaminated or unsuitable for support of plant life in planting areas, and filling of resulting excavations with suitable soil.
b. Contaminated areas include those used for disposal of waste concrete, mortar, plaster, masonry, and similar materials, areas in which washing out of concrete and plaster mixers or washing of tools and like cleaning operations have been performed, and areas that have been oiled, paved, or chemically-treated.

2. Sweep paved areas broom clean; remove stains, spills and other foreign deposits.

3. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

I. The CONTRACTOR is to keep Project clean until it is occupied by OWNER.

END OF SECTION 01 74 50

SECTION 01 78 00 - OPERATING AND MAINTENANCE MANUALS

PART 1 - GENERAL

1.1 SUMMARY

A. Principal work in this Section:
   1. Compilation of product data and related information appropriate for OWNER'S maintenance and operation of products furnished under the Contract.
   2. Instructions of OWNER'S personnel in the maintenance of products and in the operation of equipment and systems.

B. Related work:
   1. Submittals of shop drawings, product data and samples
   2. Contract closeout submittals
   3. Submittals of warranties

1.2 RELATED SECTIONS

A. Section 01 70 00: Contract Close Out
B. Section 01 74 00: Warranties and Guarantees
C. Section 01 78 50: Project Record Documents

1.3 SUBMITTALS

A. Preliminary:
   1. Submit three (3) copies of proposed manual or manuals to the CMR, for review by ARCHITECT seven (7) days prior to request for final inspection, start-up of systems, and/or training, which ever comes first. Allow enough time for corrections and final review.
   2. Show general arrangement, nature of contents in each portion or section, proposed method of binding, and covering for the manual or manuals.

B. Final:
   1. Following instruction of operation and maintenance personnel, make all necessary revisions of the manual.
   2. Submit specified number of copies of approved data in final form at final inspection or acceptance.
   3. Distribution of final copies with be to CMR who will distribute to the OWNER.

1.4 QUALITY ASSURANCE

A. Preparation of data shall be done by personnel trained and experienced in maintenance and operation of the described products.

1.5 FORMAT

A. Prepare data in the form of an instruction manual for use by OWNER'S personnel.

B. Text: 20 lbs. white bond paper, 8 – 1/2 in. by 11 in.
C. Drawing:
   1. Provide reinforced punched binder tab. Bind drawings with text.
   2. Fan-fold larger drawings to size of text pages.
D. Fly-leaf: For each separate product or each piece of operating equipment provide the following.
   1. Brief description of product, and major component parts of equipment.
   2. Indexed tabs.
E. Cover: Identify each volume with typed or printed title **OPERATION AND MAINTENANCE INSTRUCTIONS.** List the following:
   1. Title of Project.
   2. Identity of separate structures as applicable
   3. A brief and general identification of the subject matter covered in the manual.
F. Binders:
   1. Commercial quality D-ring type three (3) ring binders with durable vinyl covers.
   2. When multiple binders are used, correlate the date into related groupings.
G. Labels
   1. Provide front and end spine labels for each manual clearly indentified with the following information.

OPERATING AND MAINTENANCE INSTRUCTION
Name of school site
Address
City, CA. zip code

Name of Contractor
General subject of the manual
Space for approval date

1.6 CONTENT OF MANUAL

A. Table of contents:
   1. List of each product required to be included, indexed to the content of the volume.
   2. List, with each product, the name, address and telephone number of ;
      a. subcontractor and installer
      b. maintenance contractor, as appropriate
      c. local source of supply of parts, and replacements.
B. Product data:
   1. Include only those sheets which are pertinent to the specific product.
   2. Annotate each sheet to clearly identify the data applicable to the installation. Delete references to inapplicable information.
C. Drawings: Supplement product data with drawings as necessary to illustrate:
   1. Relations of components parts of equipment and systems.
   2. Project record drawings shall not be used as maintenance drawings.
D. Instructions:
   1. Written text as required to supplement product data for the particular installation.
E. Warranties
   1. Provide a copy of each warranty, guaranty, bond, and service contract issued.
   2. Provide information sheet for OWNER'S personnel, giving the following information:
      a. Proper procedures in the event of failure or emergency.
      b. Instances which might affect the validity of warranties, guaranties, or bonds.

3. Warranties will be addressed to each Building in particular method for assurance of operations as if owned by one entity.

1.7 MANUAL FOR MATERIALS AND FINISHES

A. Instructions for care and maintenance including:
1. Manufacturer's recommendation for types of cleaning agents and methods.
2. Cautions against cleaning agents and methods which may be detrimental to the product.
3. Recommended schedule for cleaning and maintenance.

1.8 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Content, for each unit of mechanical equipment and system, as appropriate:
1. Description of unit and component parts:
a. Function, normal operating characteristics, and limiting conditions.
b. Performance curves, engineering data and tests.
c. Complete nomenclature and commercial number of all replaceable
d. parts.
2. Operating procedures:
a. Start-up, break-in, routine, and normal operating instructions
b. Regulation, control, stopping, shut-down, and emergency instructions.
c. Summer and winter operating instructions.
3. Maintenance procedures:
a. Routine operations.
b. Guide to "trouble-shooting".
c. Disassembly, repair, and reassembly.
d. Alignment, adjusting, and checking.
4. Servicing and lubrication:
a. Schedule for maintaining equipment.
b. List of manufacturer approved lubricants.
5. Manufacturer's printed operating and maintenance instructions.
6. Description of sequence of operation by control manufacturer.
7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
a. Predicted life of parts subject to wear.
b. Items recommended to be stocked as spare parts.

8. Control diagrams by manufacturer on controls as installed in Project.
9. Coordination drawings of color-coded piping diagrams as installed by each subcontractor.
10. Charts of valve tag numbers with the location and function of each valve.
11. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.

B. Content, of each electric and electronic system, appropriate:

1. Description of system and component parts.

a. Function, normal operating characteristics, and limiting conditions.
b. Performance curves, engineering data and test results.
c. Complete nomenclature and commercial number of replacement parts.

2. Circuit directories of panel boards.
    a. Electrical service
    b. Controls
    c. Communications.
3. As-installed color coded wiring diagrams.
4. Operating procedures.
    a. Routine and normal operating instructions.
    b. Sequences required.
    c. Special operating instructions.
5. Maintenance procedures:
    a. Routine operations.
    b. Guide to “trouble-shooting”.
    c. Disassembly, repair, and reassembly.
    d. Adjustment and checking.
6. Manufacturer’s printed operating and maintenance instructions.

C. Prepare and include additional date when the need for such data becomes apparent during instruction of OWNER’S personnel.

1.9 INSTRUCTION OF OWNER’S PERSONNEL

A. Prior to final inspection of acceptance, instruct OWNER’S designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment, and systems installed in Project.
B. Provide services on factory-trained instructors from the manufacturer of each major item of equipment of system.
C. Operating and maintenance manual shall constitute the basis of instruction.
D. Review contents of manual(s) with personnel in full detail to explain all aspects of operations and maintenance.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

END OF SECTION 01 78 00

SECTION 01 78 50 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements governing Project Record Documents.

1.2 RELATED SECTIONS

A.	Section 01 1000:	Construction Documents
B.	Section 01 3000:	Submittals
C.	Section 01 4050:	Testing and Inspection
D.	Section 01 7000:	Contract Closeout
E.	Section 01 700:	Warranties and Guarantees
F.	Section 01 78 00:	Operating and Maintenance Manuals

1.3 SUMMARY

A. Maintain one copy of the following in the CONTRACTOR'S field office at the site.
   1. Contract Drawings, including DSA stamped set.
   2. Complete Set of Specifications and Addenda.
   3. Reviewed shop drawings.
   4. Bulletins, change orders, field change authorization, request of information, and all other modifications to Contract.
   5. Approved submittal.

B. File record documents apart from construction documents and maintain in clean, dry, legible condition. Make record documents available for review by IOR, ARCHITECT, OWNER, and OWNER'S representatives during regular business hours. The CONTRACTOR will use all means necessary to protect "Project Record Documents" set from deterioration, loss or damage until completion of work.

C. Do not use record documents for construction purpose.

D. Record documents will be subject to a monthly review by the OWNER'S representatives prior to approval of each progress payment.

1.4 PAYMENTS

A. The OWNERS representative's approval of current status of "Project record Documents" will be a prerequisite to the OWNER'S representative's approval of requests for progress payments and request for final payment
   1. Progress Approvals: Prior to submitting each request for progress payments, secure the IOR approval of status of "Project Record Documents".

B. Final Payment: Prior to submitting request for final payment and final inspection, CONTRACTOR shall submit "Project Record Documents" set to the OWNER'S Representative and/or OWNER, with transmittal letter, in duplicate, containing date, Project title and number, CONTRACTOR'S name and address, title and number of each record document.

C. CONTRACTOR shall certify that the "Project Record Documents" are complete and accurately reflect all changes or modifications to the original Construction Documents.

D. Transmittal letters with signature of CONTRACTOR or its authorized representative shall be notarized by state authorized agent.

1.5 RECORDING

A. Promptly following Contract Award, CONTRACTOR shall secure from the OWNER'S Representative or OWNER one complete set of Specifications and Contract Drawings and clearly mark them as "Project Record Documents".
B. CONTACTOR shall keep record documents current.
C. CONTACTOR shall be responsible for maintaining and recording changes on "Project Record Documents".
D. Do not use "Project Record Documents" set for any other purpose except entry of new data and for review by the OWNERS' representatives, IOR, ARCHITECT, and/or OWNER. Maintain separate job sets for subcontractors and workers daily use.
E. CONTRACTOR shall record entries and properly dimension deviations on the record drawing within 24 hours after receipt of information of work in affected area.
F. Making entries on "Project Record Documents"
    1. Use erasable colored pencils, other than blue or colors not easily seen, not ink or indelible pencil.
    2. Clearly describe change by note and by graphic line as required.
    3. Date all entries.
    4. Call attention to entry by a "cloud" around area or areas affected.
    5. In event of overlapping changes, different colors may be used for each entry.
    6. RFI submissions shall be referenced on each affected sheet, Drawing and/or Shop Drawing.

1.6 RECORD DRAWINGS

A. Maintain a clean, undamaged set of blue or black line white prints of Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which Drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Drawings. Provide detailed and accurate field dimensions for concealed elements that would be difficult to measure and record at a later date.
    1. Utility location and depth below finished grade and/or above ceilings and attic spaces shall be fully dimensioned and indicated on record drawings. Dimensions shall be measured from building lines or permanent landmarks and shall be triangulated to those features.
    2. Dimensions shall be taken to building lines or permanent landmarks.
    3. Horizontal and vertical location of underground utilities are appurtenances referenced to permanent surface improvements. Cut-off points and points of connection of utilities.
    4. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
    5. Details not on original Contract Drawing.
    6. Do not permanently conceal any work until required information has been recorded.
B. Prior to Final Completion of the Work, and review of the project record drawings by ARCHITECT, the CONTRACTOR shall prepare a final set of project record drawings using reproducible Mylar (5 mil.) and electronic CAD files on CD's of all Contract Drawing. Submit final set of transparencies and CD's to OWNER'S Representative who will then forward the project record drawings to the ARCHITECT.
    1. Incorporate on transparencies and AUTO CAD files all changes noted on record set. This requirement applies to all disciplines. Work shall be performed by experienced, competent draftsmen. AUTO CAD work shall be performed in the same protocol as the files provided. Identify documents as "**RECORD DRAWINGS".**

1.7 RECORD SPECIFICATIONS

A. Maintain two complete copies of the Specifications, including Addenda. Include with the Specifications two copies of other written Contract Documents, such as Change Orders and/or Construction Directives issued during construction.
   1. Mark these record documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
   2. Give particular attention to substitutions and selection of options and information on concealed Work that cannot otherwise be readily discerned later by direct observation.
   3. Note related record document information with Product Data.
   4. Prior to Final Completion of the Work, submit record Specifications to OWNER'S representative for ARCHITECT review, and for OWNER'S records.

1.8 RECORD PRODUCT DATA

A. Maintain two copies of each Product Data submittal. Note related Change Orders and Construction Directives and mark-up of record drawings and Specifications.
   1. Mark these documents to illustrate significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the Project site and from the manufacturer's installation instructions and recommendations.
   2. Provide detailed and accurate information regarding concealed products and portions of Work that cannot otherwise be readily discerned later by direct observation. The CONTRACTOR should give particular attention to concealed areas of Work.
   3. Prior to Final Completion of the Work, submit complete set of record Product Data to the OWNER'S Representative for the ARCHITECT'S review and for OWNER records.

1.9 RECORD SAMPLES

A. Immediately prior to Substantial Completion, CONTRACTOR shall meet with OWNER'S representative and/or OWNER, ARCHITECT at the Project site to determine which Samples are to be transmitted to OWNER for record purposes. Comply with OWNER'S representative for OWNER instructions regarding delivery to OWNER storage area.

1.10 MISCELLANEOUS RECORDS

A. Refer to other Specification sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date of Final Completion, complete and compile miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to OWNER'S representative for ARCHITECT review and for OWNER records.

1.11 SUBMITTALS

A. Deliver all "Project Record Documents" to OWNER'S representative at completion of Project as specified in Specification Sections.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

END OF SECTION 01 78 50

SECTION 05 50 00 – MISCELLANEOUS METAL FABRICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes: Completion of miscellaneous metal fabrications such as angles, plates, sheet goods, castings, railings, nosings, ladders, and stairs as indicated on the drawings and specified herein.
B. Substrates to which fabrications are to be attached or embedded.
C. Related Sections:
1. Finish painting, Section 09 9000.

1.02 REFERENCE STANDARDS (LATEST EDITION UNLESS NOTED OTHERWISE)

A. In addition to mandatory compliance with governing bodies and codes having jurisdiction over the project, provide materials complying with the following standards and industry recommendations: ASTM A36, A47, A48, A53, A108, A223, A283, A296, A307, A312, A314, F3125 Grade A325, A366, A475, A500, A525, A526, A554, A569, B108, B209, B221, SSPC, NAAMM, AND AA.
B. Materials shall conform to California Building Code (CBC), Title 24, Part 2, Chapter 22A.

1.03 SUBMITTALS

A. Submit fabrication shop drawings on items to be provided.
B. Where other than mill finishes are specified, provide samples of required finish which will be reviewed for color, texture, style, and finish.
C. Submit mill test reports and chemical analyses of materials bearing heat numbers not required to be tested, in accordance with other sections of these specifications.
D. Submit testing results in accordance with other sections of these specifications.
1. Provide one tensile, and elongation test, and one bend or flattening test for each five tons or fraction, of each shape and size, for unidentified material.
2. The Owner reserves the right to reject materials, installed or not, which exhibit defects or do not pass inspections or tests.
E. Scrap collection and recycling plan: Contractor shall prepare and submit a scrap collection and recycling plan for all miscellaneous and structural steel.

1.04 SOURCE QUALITY CONTROL

A. Inspection and Testing:
1. Testing for steel, welding and fabrication shall be in accordance with California Building Code (CBC), Title 24, Part 2, Section 1705A.2.
2. Welding inspection shall be in accordance with Title 24, Part 2, Section 1705A.2.5.
3. Shop Welding: Ensure that shop welding is performed in an approved, licensed shop. Continuous inspection shall be required as noted in DSA 103.
4. Field Welding: Stress-carrying welds are to be inspected by a qualified welding inspector. Inspections will be paid for by Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Structural steel shall comply with ASTM A6 and requirements of Title 24, Part 2, Chapter 22A.
B. Steel Plates, Shapes and Bars: ASTM A36.
C. Steel Plates to be Bent or Cold-Formed: ASTM A283, Grade C.
D. Steel Bars and Bar-Sized Shapes: ASTM A36.
E. Steel Tubing (Cold-Formed, Welded or Seamless): ASTM A500, Grade B.
F. Cold-Finished Steel Bars: ASTM A108, grade selected by fabricator.
G. Cold-Rolled Carbon Steel Sheets: ASTM A569.
H. Galvanized Carbon Steel Sheets: ASTM A526, with ASTM A525, G90 zinc coating.
I. Gray Iron Castings: ASTM A48, Class 30.
J. Malleable Iron Castings: ASTM A47, grade as selected.

K. Steel Pipe: ASTM A53, type as selected, Grade B, black finish, standard weight Schedule 40.
L. Steel Wire Rope: ASTM A475, zinc coated steel wire strand, size and number of wires required, common grade with Class B zinc coating.
M. Expanded Aluminum Grating: ASTM B209, alloy 5052.
N. Aluminum Extrusions: ASTM B221, alloy 6063-T5 except alloy 6063-T6 for pipe.
O. Aluminum Sheet or Plate: ASTM B209, alloy 6061-T6, mill finish.
P. Aluminum Castings: ASTM B108, alloy 214.
Q. Stainless Steel Castings: ASTM A296, CF8 or CF20.
R. Stainless Steel Pipe: ASTM A312.
S. Stainless Steel Tube: ASTM A554, Type 302/304.
T. Stainless Steel Bars: ASTM A314, Type 302/304.
U. Shop Primer: Tnemec 10-99, or other approved.
V. Field Galvanizing: Provide ZRC Chemical, or other approved.
W. Arc Welding Electrodes: ASTM A233 or 3-70
X. Bolts and Nuts: ASTM A307

2.02 FABRICATION

A. Verify actual field dimensions prior to fabrication.
B. Fabricate items with joints neatly fitted and properly secured.
C. Fit and shop assemble in largest practical sections for delivery to site.
D. Welding shall comply with California Building Code (CBC) Title 24, Part 2, Section 1704A.3. Employ certified welders in accordance with UBC Std. 27-6. Grind exposed welds smooth and flush with adjacent finished surfaces. Defective welds must be cut out and replaced per AWS D1.1.
E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts unobtrusively located, consistent with design of structure, except where specifically noted otherwise.
F. Make exposed joints flush butt type hair-line joints where mechanically fastened.
G. Supply components required for proper anchorage of metal fabrications. Fabricate anchorage and related components of same material and finish as metal fabrication, unless otherwise specified or shown.
H. Thoroughly clean surfaces of rust, scale, grease and foreign matter prior to prime painting and galvanizing.
I. Galvanize miscellaneous ferrous metal fabrications exposed to view and prime paint other items. Do not shop prime surfaces in direct contact with concrete or other cementitious materials, or requiring field welding. Shop prime in two coats. Provide minimum G90 galvanized coating where galvanizing is required.

2.03 MANUFACTURED UNITS

A. Ladders: Meet or exceed State Industrial Construction Safety Orders and OSHA.
    1. Steel: As Detailed on Drawings - 2 1/2-inches by 3/8-inch side rails and braces; 3/4-inch round rungs. Galvanized after fabrication.
B. Galvanized Railings for Stairs and Ramps: Provide nominal diameter extra strong steel, galvanized 1-1/4" inch diameter with actual 1.66" inch outside diameter unless otherwise noted per American Institute of Steel Construction. (Wall handrail and guardrail mounted 1-1/2" clear from side walls.)
    1. All welded joints and surfaces shall be ground smooth, no sharp or abrasive corners, edges or surfaces. Wall surfaces adjacent to handrail shall be smooth.
    2. Handrail brackets shall mount to the bottom of the handrail. The vertical arm of the bracket shall provide a minimum 1-1/2 inches (38 mm) clearance from the top surface of the horizontal surface of the bracket that attaches to the wall.
C. Bollards: Galvanized extra heavy weight (Schedule 80) steel pipe set in a concrete foundation and filled solid with 2000 psi concrete.
D. Stair Nosing:
    1. Design is based on Spectra Safety Treads manufactured by Wooster Products, Inc., or equal. Profiles and types shall be as detailed, or as follows:
        a. Solid Concrete Stair: Type WP3C with blanked-out anchor Steel Pan Concrete Filled Stairs: Type WP3J, or, other Architect approved product for type of construction.
    2. Provide at exterior stairs not scheduled to receive other finish.
    3. Treads and Nosings: Provide 2 inch contrasting color warning stripe 1 inch maximum from edge of nosing of each exterior stair and top and bottom nosing only at interior stairs. Color shall be as selected by the Architect.
    4. Install nosings flush with top of traffic surface. Nosings shall terminate no more than 4-inches from ends of steps for poured concrete stairs and full length of steps less 1/8-inch clearance at

concrete filled steel pan stairs.

E. Trench Covers, Expansion and Seismic Joint Covers:
   1. Acceptable Manufacturers:
      a. Construction Specialties, Inc., a member of the C/S Group, Los Angeles.
      b. MM Systems Corporation, Tucker, Georgia.
      c. Balco/Metalines, Inc., Wichita, Kansas
   2. Joint Covers: Equal to C/S AFW Series extruded aluminum finished to match predominant adjacent material. Provide compatible shapes and configurations at intersecting floor, wall, and ceiling conditions where required.
   3. Trench Cover: Equal to MM Systems, Model No. TF-2812(R). Trench cover plate recessed for VCT Flooring.
   4. Install work in accordance with manufacturer's recommendations. Runs shall be in continuous lengths without butt joints.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Surface Conditions: Inspect surfaces and work in place by others, and verify that such work is in a condition appropriate to receive work of this section. Do not apply or install work of this section until unsatisfactory work of others is in a condition which will ensure the correct installation of materials and products of this section.

3.02 INSTALLATION

A. Obtain approval of Architect prior to site cutting or making adjustments which are not part of intended work, or are not shown on shop drawings.
B. Install items square and level, accurately fitted and free from distortion and defects.
C. Make provisions for erection stresses by temporary bracing. Keep work in alignment.
D. Replace items damaged during installation.
E. Perform field welding in accordance with AWS D1.1.
F. After installation, touch-up field welds and scratched and damaged paint, or coated surfaces. Use primer and paint consistent with shop finish.
G. Supply and assist with setting items requiring to be cast into concrete, or embedded in masonry, complete with necessary setting templates.
H. Stairs:
   1. Ensure that stair stringer supports are square or rectangular steel tubing or steel channels.
   2. Unless shown otherwise, treads are to be pan type, with galvanized coating.
   3. Where required, provide support sleeves for handrails.
   4. Provide adequate strength and stiffness to limit deflection on every stair tread and landing such that when a 300-pound person places entire weight on stair tread or landing, deflection is limited to 1/8-inch maximum at point.
   5. Prime paint surfaces of stair assembly after fabrication, and grind smooth welds as specified.
   6. Secure handrails to stair and steel supports where shown, at top or bottom with screws or welds, and achieve a lateral resistance as required by California Building Code (CBC).

3.03 CLEANING

A. Clean site after work of this section.
B. Remove weld splatters.
C. Use galvanizing repair coating specified, then re-prime areas of materials damaged during installation and other construction activities, and leave in condition for subsequent finish painting or application of additional finish materials provided by others.

END OF SECTION 05 50 00

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

SECTION 07 01 50.73 - REHABILITATION OF MODIFIED BITUMINOUS ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Roof rehabilitation and coating preparation for penetrations or duct supports as identified by architect.

2. Application of coating on modified bituminous membrane roofing for penetrations or duct supports as identified by architect.

1.2 MATERIALS OWNERSHIP

A. Demolished materials shall become Contractor's property and shall be removed from Project site.

1.3 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 "Standard Terminology Relating to Roofing and Waterproofing" and glossary in NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" for definition of terms related to roofing work in this Section.

B. Existing Roofing System: Modified bituminous roofing, and components and accessories between deck and roofing membrane.

C. Roofing Coating Preparation: Existing roofing that is to remain and be prepared to accept restorative coating application.

D. Patching: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system and replacement with similar materials.

E. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

F. Existing to Remain: Existing items of construction that are not indicated to be removed.

G. Manufacturer: Manufacturer of roofing rehabilitation products, unless otherwise indicated.

H. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

I. Demolition Waste: Building and site improvement materials resulting from re-roofing preparation, demolition or selective demolition operations.

J. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

1.4 ROOFING CONFERENCES

A. Roofing Rehabilitation Preinstallation Conference: Conduct conference at Project site to review methods and procedures related to roofing system.

1. Meet with Owner; roofing re-coating materials manufacturer's representative; roofing re-coating Installer including project manager and foreman; and installers whose work interfaces with or affects re-coating including installers of roof accessories and roof-mounted equipment requiring removal and replacement as part of the Work.

2. Review methods and procedures related to coating preparation, including membrane roofing system manufacturer's written instructions.

3. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.

4. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.

5. Review roof drainage during each stage of coating and review roof drain plugging and plug removal procedures.

6. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

7. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect re-coating.

8. Review HVAC shutdown and sealing of air intakes.

9. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.

10. Review existing conditions that may require notification of Owner before proceeding.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product specified.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, Manufacturer, and Roofing Inspector.

1. Letter written for this Project indicating manufacturer approval of Installer to apply specified products and provide specified warranty.

B. Manufacturer's Certificate: Provide manufacturer's UL listing certificate for roofing system.

C. Contractor's Product Certificate: Submit original signed letter on Contractor's letterhead, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.

D. Product Test Reports: Upon request, submit reports based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing rehabilitation system.

E. Warranties: Unexecuted sample copies of special warranties.

F. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, and for dust control. Indicate proposed locations and construction of barriers.

G. Existing Conditions Photographs: Show existing conditions of adjoining construction and site improvements, including exterior finish surfaces adjacent to the Work, which might be misconstrued as having been damaged by re-coating operations. Submit before Work begins.

H. Inspection Reports: Reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions required and carried out.

1. Submit report within 48 hours after inspection.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: To include in maintenance manuals.

B. Warranties: Executed copies of approved warranty forms.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and the following:

1. Installer qualified by the manufacturer to install manufacturer's products and furnish warranty of type specified.

B. Manufacturer Qualifications: Primary product manufacturer that is UL-listed for roofing system identical to that specified for this Project with minimum five years' experience in manufacture of comparable products in successful use in similar applications, and able to furnish warranty with provisions matching specified requirements.

C. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:

1. An authorized full-time technical employee of the manufacturer.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with rehabilitation work only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.

1. Store all materials prior to application at temperatures recommended by manufacturer.

2. Apply coatings within range of ambient and substrate temperatures recommended by manufacturer.

3. Do not apply roofing in snow, rain, fog, or mist.

B. Protect building to be rehabilitated, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from rehabilitation operations.

C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

D. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

E. Owner will occupy portions of building immediately below re-coating area. Conduct re-coating so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

1.10 WARRANTY

A. Installer Warranty: Installer's warranty signed by Installer, as follows.

1. Form of Warranty: Form acceptable to Roofing Manufacturer and Owner.

2. Scope of Warranty: Work of this Section.

3. Warranty Period: 2 years from date of completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: The roof system specified in this Section is based upon products of Tremco, Inc., Beachwood, OH, (800) 562-2728, www.tremcoroofing.com that are named in other Part 2 articles. Provide specified products.

2.2 PERFORMANCE REQUIREMENTS

A. General Performance: Rehabilitated roofing shall withstand exposure to weather without failure or leaks due to defective manufacture or installation.

1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

C. Exterior Fire-Test Exposure: Roofing system exterior fire-test exposure performance following application of rehabilitation coating shall be not be less than that of the pre-rehabilitated roof performance when tested in accordance with ASTM E 108, based upon manufacturer's tests of identical applications.

2.3 MATERIALS, GENERAL

A. General: Roof rehabilitation coating materials recommended by roofing system manufacturer for intended use and compatible with components of existing membrane roofing system.

B. Temporary Roofing Materials: Selection of materials and design of temporary roofing is responsibility of Contractor.

C. Temporary Roof Drainage: Design and selection of materials for temporary roof drainage are responsibilities of the Contractor.

D. Infill Materials: Where required to replace test cores and to patch existing roofing, use infill materials matching existing membrane roofing system materials, unless otherwise indicated.

2.4 POLYURETHANE COATINGS

A. Polyurethane Roof Coating System Base Coat: Bio-based, low-odor low-VOC two-part, for use with a compatible top coat.

1. Basis of design product: Tremco, AlphaGuard BIO Base Coat.

2. Combustion Characteristics, UL 790: Maintains combustion characteristics of existing roof system.

3. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 1 g/L.

4. Accelerated Weathering, 5000 hours, ASTM G154: Pass.

5. Hardness, Shore A, minimum, ASTM D2240: 80.

6. Solids, by volume, ASTM D2697: 100 percent.

7. Bio-Based Content, Minimum: 70 percent.

8. Minimum Thickness, Base Coat reinforced over Granular Surfaced MB: 64 mils (1.62 mm) wet.

B. Polyurethane roof coating system top coat, bio-based low-odor low-VOC two-part, for application over compatible base coat.

1. Basis of design product: Tremco, AlphaGuard BIO Top Coat.

2. Combustion Characteristics, UL790: Maintains combustion characteristics of existing roof system.

3. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 6 g/L.

4. Solar Reflectance Index (SRI), ASTM E1980: For white, not less than 103.

5. Accelerated Weathering, 5000 hours, ASTM G 154: Pass.

6. Hardness, Shore A, minimum, ASTM D2240: 81.

7. Solids, by volume, ASTM D2697: 100 percent.

8. Bio-Based Content, Minimum: 60 percent.

9. Minimum Thickness, reinforced system: 32 mils (0.81 mm) wet.

10. Color: White.

C. Primer for Non-Porous Surfaces: Single-part, water based primer to promote adhesion of urethanes to metals, PVC and other non-porous surfaces.

1. Basis of design product: Tremco, AlphaGuard M-Prime.

2. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 22 g/L.

3. Nonvolatile Content, minimum, ASTM D2369: 5 percent.

4. Density at 77 deg F (25 deg C): 8.3 lb/gal (1kg/L).

2.5 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with existing roofing system.

B. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.

C. Seam Sealer: Waterproof seam and patching material compatible with applied coating.

1. Seam Sealer: Aliphatic polyurethane sealer, single-component, moisture curing, high solids, low-VOC, formulated for compatibility and use with specified roofing substrates.

a. Basis of design product: Tremco, SOLARGARD Seam Sealer.

b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 75 g/L.

c. Tensile Strength, ASTM D412: 270 psi (1860 kPa).

d. Tear Strength, ASTM D412: 35 pli (6 kN/m).

e. Elongation, ASTM D412: 700 percent.

f. Color: White.

D. Reinforcing Fabric:

1. Polyester Reinforcing and Protection Fabric: 100 percent stitch-bonded mildew-resistant polyester fabric intended for reinforcement of compatible fluid-applied membranes and flashings and as a protection layer under pavers or stone aggregates.

a. Basis of design product: Tremco, Permafab.

b. Tensile Strength, Minimum, ASTM D1682: 50 lbf (23 kg) avg..

c. Elongation, Minimum, ASTM D1682: 60 percent.

d. Tear Strength, Minimum, ASTM D1117: 16 lbf (7.3 kg) avg..

e. Weight: 3 oz./sq. yd (102 g/sq. m).

E. Joint Sealant: Elastomeric joint sealant compatible with applied coating, with movement capability appropriate for application.

1. Joint Sealant, Polyurethane: ASTM C920, Type S, Grade NS, Class 50 single-component moisture curing sealant, formulated for compatibility and use in dynamic and static joints; paintable.

a. Basis of design product: Tremco, TremSEAL Pro.

b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 40 g/L.

c. Hardness, Shore A, ASTM C661: 40.

d. Adhesion to Concrete, ASTM C794: 35 pli.

e. Tensile Strength, ASTM D412: 350 psi (2410 kPa).

f. Color: White.

F. Fasteners: Factory-coated steel fasteners and metal plates meeting corrosion-resistance provisions in FM 4470; designed for fastening roofing membrane components to substrate; tested by manufacturer for required pullout strength; and acceptable to roofing system manufacturer.

G. Metal Flashing Sheet: Provide metal flashing sheet matching type, thickness, finish, and profile of existing metal flashing and trim.

H. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.6 WALKWAYS

A. Slip Resistant Fluid-Applied Walkways:

1. Polyurethane roof coating system top coat, bio-based low-odor low-VOC two-part, for application over compatible base coat.

a. Basis of design product: Tremco, AlphaGuard BIO Top Coat.

b. Combustion Characteristics, UL790: Maintains combustion characteristics of existing roof system.

c. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 6 g/L.

d. Solar Reflectance Index (SRI), ASTM E1980: For white, not less than 103.

e. Accelerated Weathering, 5000 hours, ASTM G 154: Pass.

f. Hardness, Shore A, minimum, ASTM D2240: 81.

g. Solids, by volume, ASTM D2697: 100 percent.

h. Bio-Based Content, Minimum: 60 percent.

i. Minimum Thickness, Slip-Resistant Coat: 24 mils (0.60 mm) wet.

j. Color: As selected from manufacturer's standard color.

B. Rubber Blocks: 100% rubber blocks with steel channels and reflective strips designed for supporting conduit. In areas where rubber blocks cannot be installed, use new redwood blocks on walkpads.

PART 3 - EXECUTION

3.1 PREPARATION

A. Pollution Control: Comply with environmental regulations of authorities having jurisdiction. Limit spread of dust and debris.

1. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

2. Remove debris from building roof by chute, hoist, or other device that will convey debris to grade

B. Shut down air intake equipment in the vicinity of the Work in coordination with the Owner. Cover air intake louvers before proceeding with re-coating work that could affect indoor air quality or activate smoke detectors in the ductwork.

1. Verify that rooftop utilities and service piping affected by the Work have been shut off before commencing Work.

C. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

1. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

3.2 ROOFING COATING PREPARATION

A. Existing Flashing and Detail Preparation: Repair flashings, gravel stops, copings, and other roof-related sheet metal and trim elements. Reseal joints, replace loose or missing fasteners, and replace components where required to leave in a watertight condition.

1. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish.

2. Roof Drains: Remove drain strainer and clamping ring. Grind metal surfaces down to clean, bare, metal.

B. Membrane Surface Preparation:

1. Remove loose granular aggregate from granular aggregate-surfaced built-up bituminous roofing using a power broom.

2. Remove blisters, rides, buckles, protruding fastener buttons, and other substrate irregularities from existing membrane that would inhibit application of uniform waterproof coating.

3. Broom clean existing substrate.

4. Substrate Cleaning: Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating by power washing at maximum 2,000 psi.

   a. Dispose of waste water in accordance with requirements of authorities having jurisdiction.

5. Verify that existing substrate is dry before proceeding with application of coating. Spot check substrates with an electrical capacitance moisture-detection meter.

C. Verify adhesion of products before proceeding with application. Primer may need to be used on existing roofing to promote adhesion. If primer promotes adhesion, proceed with primer.

D. Metal Surface Priming: Prime surfaces to receive coating using coating manufacturer's recommended product for surface material. Apply at application rate recommended by manufacturer.

1. Ensure primer does not puddle and substrate has complete coverage.

2. Allow to cure completely prior to application of coating.

E. Membrane Repair: Repair membrane at locations with irregularities using seam sealer mastic and reinforcing fabric.

F. Membrane Seam Reinforcement: Reinforce membrane seams using seam sealer mastic and reinforcing fabric overlapping onto field of existing membrane not less than width required by roof coating manufacturer.

3.3 ROOF COATING APPLICATION

A. Coating, Polyurethane Base Coat and Finish Coats: Once seam reinforcement mastic has adequately cured, coat prepared roof membrane and flashing surfaces with polyurethane base and finish coats in number of coats and thickness of application recommended in writing by manufacturer for application. Allow to cure between coats.

B. Joint Sealant: Apply joint sealant at terminations and penetrations of coatings as required to maintain weathertight application.

3.4 WALKWAY INSTALLATION

A. Install walkways following application of coating. Locate as indicated, or as directed by Owner.

B. Fluid-Applied Slip-Resistant Walkway Topcoat: Apply walkway second topcoat following application of polyurethane top coat, in accordance with manufacturer's written instructions. Locate as indicated on Drawings.

1. Protect adjacent surfaces.

2. Prime top coat if walkway top coat is not applied within 72 hours of the top coat application, using manufacturer's recommended primer.

3. Apply walkway top coat and back roll to achieve minimum wet mil thickness of 20 mils.

4. Broadcast Slip-Resistant Top Coat Aggregate in wet top coat in application amount specified in Part 2 product listing.

a. Back roll aggregate and top coat creating even dispersal of aggregate.

3.5 DISPOSAL

A. Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

1. Storage or sale of demolished items or materials on-site is not permitted.

B. Transport and legally dispose of demolished materials off Owner's property.

3.6 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period.

B. Correct deficiencies in or remove coating that does not comply with requirements, repair substrates, and reapply coating.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 070150.7

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

SECTION 07 51 23– GLASS FIBER REINFORCED ASPHALT EMULSION ROOFING

@BUILDING 5A GYM BUILDING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Seamless Fluid Applied Composite Roof Systems.

B. Roof Flashings.

C. Roof Accessories.

1.2 RELATED SECTIONS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 REFERENCES

A. National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual.

B. American Society of Civil Engineers (ASCE) - ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

C. ASTM International (ASTM):
1. ASTM C 728 - Standard Specification for Perlite Thermal Insulation Board.
2. ASTM C 1153 - Standard Practice for Location of Wet Insulation in Roofing Systems Using Infrared Imaging.
3. ASTM D 570 - Standard Test Method for Water Absorption of Plastics.
4. ASTM D 1079 - Standard Terminology Relating to Roofing, Waterproofing, and Bituminous Materials.
5. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing.
6. ASTM D 1227 - Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
7. ASTM D 2523 - Standard Practice for Testing Load-Strain Properties of Roofing Membranes.
8. ASTM D 3019 - Standard Specification for Lap Cement Used with Asphalt Roll Roofing, Non-Fibered, and Fibered.
9. ASTM D 3909 - Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules.
10. ASTM D 4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
11. ASTM D 4830 - Standard Test Methods for Characterizing Thermoplastic Fabrics Used in Roofing and Waterproofing.
12. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.
13. ASTM E 548 - Standard Guide for General Criteria Used for Evaluating Laboratory Competence.
14. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.

D. Underwriters Laboratories (UL):
1. TGFU - Roofing Systems and Materials Guide.
2. UL 790 - Standard Test Methods of Roof Coverings.
3. UL 2218 - Impact Resistance of Prepared Roof Covering Materials

E. CRRC - Cool Roof Rating Council.

F. California Building Standards Code - Title 24.

G. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) - Architectural Sheet Metal Manual.

1.4 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to Work in this Section.

1.5 PERFORMANCE REQUIREMENTS

A. General: Provide watertight roofing membrane and flashing system that does not permit the passage of water, resists uplift pressures specified in this section, and is capable of withstanding thermally induced movement and exposure to weather without failure.

B. Energy Performance:
   1. Low-Slope Roofs: Provide a roofing system with Solar Reflectance Index not less than 78 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.
   2. Roof membrane finish must comply with current California Title 24 Part 6 requirements:
      a. Minimum three (3) year aged solar reflectance: 0.63.
      b. Minimum Thermal Emittance: 0.75.

C. Wind Resistance: Provide roofing membrane, base flashings and component materials that comply with requirements in FMG 4450, FMG 4470, UL 580 or UL 1897 as part of a membrane roofing system.
   1. Wind Load Resistance: 45 psf (1-90).

D. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings from the applicable testing and inspecting agency.
   1. Exterior Fire-Test Exposure: Class A in accordance with ASTM E 108 for application and roof slopes indicated.

1.6 SUBMITTALS

A. Submit in accordance with Section 01 30 00 - Administrative Requirements.

B. Product Data: For each product note in this section, submit printed or digital copies of the manufacturer’s product information including the following:
   1. Printed affirmation of performance characteristics.
   2. Roofing system design.
   3. Application Instructions.
   4. Technical Data Sheets.
   5. Material Safety Data Sheets.

C. LEED Submittals:
   1. Product Data for Credit SS 7.2: For roof materials, indicating that roof materials comply with Solar Reflectance Index requirement.
   2. Product Data for Credit EQ 4.1: For adhesives and sealants, including printed statement of VOC content.

D. Warranty Documents: Provide sample copies of the Manufacturer’s standard form outlining the terms and conditions of the warranty specified for the Work in this section.

E. Shop Drawings: Provide plan, elevation, section, and isometric drawings outlining waterproofing conditions at transitions, terminations, penetrations and attachments to adjacent work.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of the roofing system.

G. Thermographic Roof Evaluation Reports: Where existing roofs are to remain in place and be encapsulated or “re-roofed”, submit evaluation reports provided by a Certified Infrared Thermographer.

H. Research & Evaluation Reports: For components of the roofing system.
   1. Include reports from UL, ICC, FMG or another testing and inspecting agency acceptable to authorities having jurisdiction, stating entire system meets fire-test-response characteristics listed.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Installer must be authorized by roofing system manufacturer to perform all Work specified in this section and provide an executed manufacturer's warranty.

B. Manufacturer Qualifications: A qualified manufacturer that has UL listing for roofing system identical to that used for this project.

C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

D. Moisture Analysis: Where existing roofs are to remain in place and be encapsulated or “re-roofed”, it is the responsibility of the contractor to perform a moisture analysis in accordance with ASTM C 1153 to determine suitability.

1.8 PRE-INSTALLATION CONFERENCE

A. Prior to commencement of Work, conduct a conference at project site. Comply with the requirements of Section 01 31 00 - Project Management and Coordination. Review and affirm methods and procedures related to the work specified in this section, including but not limited to the following:

1. Meet with owner, architect, owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer’s representative, deck installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including the manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates, if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.9 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to project site in original containers, with seals unbroken, and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage. For bulk-delivered materials, identify manufacturer’s name and product designation with delivery receipts and material manifests.

B. Protect roofing materials from physical damage and from deterioration due to sunlight, moisture, soiling and other sources. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

C. Store liquid materials in their original, undamaged containers in a clean, dry, and protected location, between 50 degrees F to 80 degrees F (10 degrees to 26.7 degrees C). Ensure jobsite storage is in a shaded and well-ventilated area, away from open flame or welding sparks. Indoor Storage is recommended.

D. Do not stockpile materials on roof without first obtaining acceptance from the Architect.

E. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

1.10 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecast weather conditions permit the roofing system to be installed according to manufacturer's written instructions and warranty requirements.

B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by the manufacturer for optimum results. Do not install products under environmental conditions outside Manufacturer's absolute limits.

C. The minimum temperature for application of Emulsion and Acrylic Coating is 50 degrees F (10 degrees C) and rising.

D. When ambient temperatures are above 100 degrees F (37 C), membrane application should be performed in two equal passes to ensure premature skinning does not occur.

E. Product application must not be performed when rain or other ambient moisture conditions such as fog or heavy dew are possible within 72-hours of completion. Roof surface must be a minimum of 6 degrees F (3 C) above the dew point and rising.

F. Safety Data Sheets (SDS) must be on location during transportation, storage, and application of materials.

G. Schedule and phase work such that new roofing materials are not subject to construction traffic. Protect new roof sections and inspect for damage upon completion.

H. When applying materials with spray equipment, take precautions to prevent overspray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles, or other property.

I. The surface on which the roof system is applied must be clean, smooth, dry, and free of projections or contaminants that could prevent proper application of or be incompatible with the new installation. Correct all sharp edges, foreign materials, oil, and grease.

J. Take precautions to ensure that materials do not freeze.

K. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent relative humidity or until fully cured.

1.11 WARRANTY

A. No Dollar Limit (NDL) Warranty: Provide Manufacturer's written and signed No Dollar Limit (NDL) warranty document, affirming coverage in the event of a leak in the roofing membrane or base flashings applied within the scope of work outlined in this section.
   1. Warranty Period: Forty (40) years from date of Substantial Completion.
   2. Coating Warranty: Twelve (12) years from date of Substantial Completion.

B. Project Warranty: Submit roofing installer's signed and executed warranty document affirming coverage of all work of this Section, including but not limited to insulation, cover board, fasteners, base sheet, roofing membrane, base flashings, and walkway products.
   1. Warranty Period: Two (2) years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer(s): _____.

2.2 COMPOSITE MEMBRANE SYSTEM

A. General:
   1. Roofing system must comply with 2022 CBC, Chapter 15.
   2. Subject to compliance with requirements, provide the specified membrane configuration, applied over existing low slope roofs.

B. Basis of Design: Insulated composite roof applied over approved substrates with CA Title 24 compliant cool roof surface coating.
   1. Physical Properties:
      a. Total Weight: 2.2 pounds per square foot (1.0 kg) dry.
      b. Nominal Thickness: 350 mil Dry Film Thickness (DFT).
      c. Minimum Strength: 600 psi (4136 kN/m2) per ASTM D 2370.
      d. Minimum Elongation: 10% per ASTM D 4830.
      e. Minimum Puncture Resistance: 700 lb. (318 kg) per ASTM D 4830.
      f. Water Absorption: 1% max by weight per ASTM D 570.
      g. Fire Rating: UL Class “A” assembly.
   2. Thermal Protection:
      a. Insulation: Rigid polyisocyanurate insulation. Attachment method in accordance with requirements for each deck type. Thickness and thermal resistance as specified in this section.
      b. Cover Board: Gypsum roof board adhered to insulation with low rise foam. Thickness as specified in this section.
   3. System Configuration:
      a. Base Sheet: Self-adhering base sheet fully adhered to coverboard and backrolled.
      b. Fiberglass Roving: 16 lbs. per 100 square feet.
      c. Asphalt Emulsion: 30 gallons per 100 square feet.
      d. Acrylic Base Coating: 1.5 Gallons per 100 square feet.
      e. CA Title 24 Cool Roof Reflective Coating: 1.5 Gallons per 100 square feet.

2.3 THERMAL PROTECTION

A. Insulation: Rigid polyisocyanurate board, with a fibrous glass facer meeting or exceeding the requirements of ASTM C 1289.
   1. Thickness / Thermal Resistance: As required to meet CA Title 24 requirements.
   2. Tapered Slope: As required to ensure positive drainage throughout the roof surface.

B. Substrate Board: Underlayment board with a water-resistant gypsum core and glass fiber facers embedded on both sides. Pre-primed on one side.
   1. Board Thickness: 1/2 inch (13 mm).

2.4 COMPOSITE MEMBRANE MATERIALS

A. Asphalt Emulsion: Asphalt Emulsion meeting or exceeding the requirements of ASTM D 1227;.
   1. VOC Content (Maximum): 0 g/l.
   2. Wet Weight: 8.7 Lbs./Gal. (1041 g/l).
   3. Dry Weight: 4.35 Lbs./Gal. (521 g/l).
   4. Solids Content by Volume: 49-53%.

B. Fiberglass Reinforcement (Type E): Multi-end continuous fiberglass roving designed for spray operations;.
   1. Yield: 207 yd/lb.
   2. Tex: 2400 g/km.
   3. Spool Weight: 41.9 LB (19kg).

C. Cool Roof Reflective Acrylic Coating:
   1. Basecoat: Elastomeric base coating as supplied by the manufacturer of the membrane system.
      a. Solids Content by Volume: 50%.
      b. VOC Content (maximum): <50 g/l.

c. Weight: 10.4 lbs./Gal. (1246 g/l).
d. Color: Grey.

2. Topcoat: CA Title 24 Cool Roof Reflective Coating as supplied by the manufacturer of the membrane system.
   a. Solids Content by Volume: 50%.
   b. VOC Content (maximum): <50 g/l.
   c. Weight: 10.4 lbs./Gal. (1246 g/l).
   d. Color: White.
   e. Solar Reflectance:
      1) Initial: 0.83.
      2) 3 Year Aging: 0.72.
   f. Thermal Emittance:
      1) Initial: 0.86.
      2) 3 Year Aging: 0.88.
   g. Solar Reflectance Index (SRI):
      1) Initial: 104.
      2) 3 Year Aging: 88.

D. Aluminum Coating: Asphalt / solvent-based coating blended with aluminum pigment.
   1. Solids Content by Volume: 37%.
   2. VOC Content (maximum): 50 g/l.
   3. Weight: 9.1 - 9.5 lbs. per Gal. (1090 – 1140 g/l).
   4. Solar Reflectance:
      a. Initial: 0.51.
      b. 3 Year Aging: 0.50.
   5. Thermal Emittance:
      a. Initial: 0.55.
      b. 3 Year Aging: 0.53.
   6. Solar Reflectance Index (SRI)
      a. Initial: 47.
      b. 3 Year Aging: 44.

2.5 SHEET MATERIALS

A. Self-Adhering Base Sheet: Sanded/ granule surfaced, self-adhering base sheet, meeting or exceeding the requirements of ASTM D 1970.

B. Detailing Membrane: with adhesive backing.
   1. Elongation: 85%.
   2. Thickness: 75 mils.
   3. Weight: 3 oz/ sq. yd.
   4. Roll Width: 6 inch and 12 inch.

2.6 ADHESIVES AND SEALANTS

A. Insulation Adhesive: Two-component, low-rise polyurethane foam adhesive designed to secure insulation to roof decks.

B. Flashing Cement: Trowel grade SBS-modified flashing cement made from heavy-bodied asphalt reinforced with organic fibers.
   1. VOC Content (Maximum): 290 g/l.
   2. Weight per Gallon: 8.25 – 9.25 Lbs (988 – 1107 g/l).

C. Asphalt Primer: Asphalt based surface primer suitable for application on metal, masonry and concrete surfaces. Meets or exceeds the requirements of ASTM D 41.

D. Polyurethane Sealant: Moisture-cured, single-component, polyurethane-based, non-sag elastomeric sealant. Meets ASTM C 920, Type S, Grade NS, Class 35.

2.7 SHEET METAL, FLASHING AND TRIM

A. Metal Flashing Sheet: 24 ga. galvanized sheet metal flashing.

B. Pre-Formed Edge Flashing: 24 ga. galvanized sheet metal flashing with a 1/2 inch (13mm) vertical “gravel stop” lip and. minimum 4 inch (102mm) roof mounting flange.

C. Flashing Collar: Pre-formed 24 Ga. galvanized sheet metal boot and collar for sealing single or multiple pipe penetrations.

D. Plumbing Stacks: 24 Ga. galvanized sheet metal flashing, or 4 lb (1.8kg) sheet lead formed, rolled and soldered.

E. One-Way Breather Vents: Heavy gauge spun aluminum vents which allow moisture and air to escape but not enter the roofing system.

F. Pitch Pans: 24 gauge galvanized sheet or 20oz (567gram) copper.

G. Drain Flashings: 24 gauge galvanized sheet, 20oz (567gram) copper, or 4 lb (1.8kg) sheet lead, formed and rolled,

H. Fabricated Flashings:
   1. Fabricated flashings and trim may be specified in Section 07 62 00.
   2. Fabricated flashings and trim must conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

I. Manufactured Roof Specialties:
   1. Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim may be specified in Section 07 71 00.
   2. Manufactured roof specialties must conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

2.8 WALKWAYS

A. Foot Traffic Walkway Coating:
   1. Acrylic Coating: Fluid applied, single-component, 100% Acrylic, waterproof walking surface with ceramic granules designed to enhance the traffic resistance of the roof surface.
      a. Coating Properties:
         1) Tensile Strength: 350 psi when tested in accordance with ASTM D 412.
         2) Elongation: 174% when tested in accordance with ASTM D 412.
         3) Solids Content: 95% when tested in accordance with ASTM D 2369.
         4) VOC: <50 g/l.
         5) Flash Point: 141 degrees F min. (60.6 degrees C) when tested in accordance with ASTM D 93.
         6) Color: Safety Yellow.
      b. Granule Properties:
         1) Specific Gravity 2.65 when tested in accordance with ASTM C 128,
         2) Bulk Density: 90-100 lbs./Cu. Ft. when tested in accordance with ASTM C 29.
         3) Color: Yellow.

2.9 ACCESSORIES

A. General: Roofing accessories recommended by manufacturer for intended use and compatible with membrane roofing.

B. Fasteners:
   1. Screws and Plates: Factory-coated steel fasteners and metal plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate and acceptable to roofing system manufacturer.
   2. Cap Head Nails: Galvanized steel nails with a ring or deformed shank and a minimum 1 in. cap head for fastening base sheets to wood decks.
   3. Base Sheet Fasteners: Pre-assembled G-90 galvanized fastener with 1 in by 1 1/4 in head and 2.75 in diameter galvalume plate. For use attaching anchoring base sheets directly to lightweight concrete and poured gypsum decks.

C. Cant Strips: 4” angled wood fiber strips meeting the requirements of ASTM C 728.

D. Tapered Edge Strips: Tapered wood fiber strips meeting the requirements of ASTM C 728.

E. Wood Nailers: Comply with requirements in Division 06 Section “Miscellaneous Carpentry."

F. Anti-Skid Granules: Granules specifically designed for anti-skid purposes and compatible with all coatings specified in this section.
   1. Specific Gravity 2.65 when tested in accordance with ASTM C 128,
   2. Bulk Density: 90-100 lbs./Cu. Ft. when tested in accordance with ASTM C 29.
   3. Color: As selected by Owner.

PART 3 EXECUTION

3.1 EXAMINATION

A. Compatibility, verify all materials including existing roof are compatible.
   1. Verify existing roof systems to be recovered are NOT coated with silicone style coatings.
   2. Verify existing roof systems to be recovered are NOT PVC single ply membrane.
   3. Verify the following for installations over lightweight insulating concrete (LWIC):
      a. Decks must be a minimum of 2 inches (51 mm) thick with a compressive strength of no less than 125 psi (0.86 MPa) and a density of 22 pcf (352 kg/sm).
      b. Slopes must not exceed 1 inch per foot (83 mm/m).

c. Membrane and insulation may not be applied directly to lightweight concrete. Mechanically attach an approved specified base sheet prior to application of subsequent insulation or membrane.

B. Examine substrates, work areas and field conditions for compliance with the following requirements and other conditions which may affect the performance of the roofing system. Verify the following conditions:
1. Surfaces are clean, rigid, dry, smooth, and free from cracks, holes, blisters, debris and sharp changes in elevation greater than 1/4 inch (6mm).
2. The deck is free of depressions, waves or projections and properly sloped to drains, valleys, eaves, scuppers, or gutters.
3. Roof openings and penetrations are adequately installed, and that roof drains are securely clamped in place.
4. Cant strips, blocking, curbs and nailers are securely anchored and installed in accordance with manufacturers requirements.
5. Drains and scuppers are free of ruptures and sealed on all four sides on the exterior face of walls.
6. Surface plane flatness and fastening of roof deck complies with manufacturers requirements.
7. Concrete curing compounds and any chemicals that may impair adhesion of roofing components have been removed.
8. Existing roof assemblies are dry, confirmed by conducting infrared thermal scans.
9. Verify that substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method in accordance with ASTM D 4263.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. If substrate preparation is the responsibility of another installer, notify Owner or Architect of unsatisfactory conditions before proceeding.

3.2 PREPARATION

A. Do not begin installation until all substrates have been properly prepared.

B. Prior to application, clean waterproof application surfaces with water. Where wash water must be reclaimed due to contamination concentrations, roof water collection design of the building or local ordinances. Conform to local requirements for disposal of wash water.

C. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation in accordance with the roofing system manufacturer's written instructions.

D. Remove or correct all sharp projections which may interfere with the integrity of the membrane.

E. Provide traffic paths, and erect barriers, fences, guards, rails, enclosures, chutes, and other measures to protect personnel, roofs and structures, vehicles and utilities.

F. Protect roof drains and edges during construction to prevent materials from entering roof drains and conductors or migrating onto surfaces of adjacent construction. Remove roof drain plugs when no work is taking place or when rain is forecast.

G. Protect adjacent materials and lower paving, prior to starting work, in accordance with roofing system Manufacturer’s instructions.

3.3 ROOF DECK PREPARATION

A. Metal Roof Deck:
1. Metal roof decks must be a minimum 22 gauge (0.8 mm) with a G-90 galvanized finish.
2. Prior to installation, remove any surface corrosion, oxidization, or rust. Repair or replace any panels with substantial corrosion. Fasten all loose or poorly secured decking.
3. Ensure that all panels achieve the required fastener pull-out resistance.
4. Comply with local building codes where requirements exceed those listed here.

3.4 INSULATION INSTALLATION

A. General Requirements:
1. Comply with roofing, system and insulation manufacturers’ written instructions and applicable recommendations of NRCA for installing roof insulation.
2. Attach insulation in accordance with the requirements of local codes as necessary to achieve the required uplift pressure resistance within the field, perimeter, and corner zones of each roof section.
3. Install one or more layers of insulation and/or cover board to achieve specified thickness and thermal resistance. Where overall insulation thickness exceeds 2 inches (51mm), install two or more layers, staggering joints of each succeeding layer a minimum of 6 inches (152mm) in each direction.
4. Install insulation with long edges in a continuous straight line, staggering end joints between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6mm) with insulation.
5. Cut and fit insulation within 1/4 inch (6mm) of nailers, projections, and penetrations.

6. Where necessary, install tapered insulation under areas of roofing to conform to slopes indicated.
7. Taper insulation at roof drains so completed surface is flush and does not restrict the flow of water.
8. Where areas of ponding water are present, tapered insulation crickets must be installed to improve drainage.
9. Install and secure preformed 45 degree cant strips at transitions between roofing membrane system and vertical surfaces or angle changes greater than 45 degrees.

B. Attachment – Base Layer Fastened:
1. Secure the base layer of insulation to substrates using the appropriate size and type mechanical fastener for attaching the specified roof insulation to the substrate type.
2. Install fasteners at a density of 1 every 2 square feet.
3. Install subsequent layers with specified insulation adhesive.

C. Attachment - Simultaneously Fastened:
1. Secure all layers of insulation to approved decks using the appropriate size and type mechanical fastener for attaching roof insulation to the deck type.
2. Butt insulation joints together tightly and pin each layer to ensure movement does not occur prior to simultaneous fastening of the top layer of insulation.
3. Install fasteners at a density of 1 every 2 square feet.

D. Attachment - Adhered: apply
1. At areas where structural concrete decks are present, adhere each layer of insulation to the pre-primed substrate with adhesive approved for use by the insulation manufacturer for substrates found on this project.
2. Apply adhesive in ribbons, spaced 6 inches (152mm) apart, in accordance with the adhesive manufacturer’s recommendations. Immediately bond cover board to insulation.

3.5 SUBSTRATE BOARD INSTALLATION

A. Placement: Loosely abut and install cover boards with long joints in continuous and straight lines, with end joints staggered between rows.
1. Install with a nominal 1/4 inch (6mm) gap at vertical surfaces and a 1/8 inch (3mm) gap at board edges.
2. Offset joints 6 inches (152mm) in each direction from joints of insulation below.
3. Apply adhesive in ribbons, spaced 6 inches (152mm) apart, in accordance with the adhesive manufacturer’s recommendations. Immediately bond cover board to insulation.

3.6 BASE SHEET INSTALLATION

A. Self-Adhering Base Sheet:
1. Apply base over specified coverboard, parallel the lower edge of the roof with granule side up. Allow for minimum 3 inch (75mm) head laps and minimum 6 inch (152mm) side laps.
2. Prior to placement, align sheet at the lower edge of the roof and cut sheet to length.
3. Positioned above the sheet on the roof deck, remove top half of release film from the sheet and apply firm even pressure from the center to the outer edges. Remove the release film from the remaining half of the sheet applying firm even pressure.
4. Using a 70 lb. roller, backroll entire membrane surface, end laps and side laps to ensure bonding of adhesive.
5. When applied at lower temperatures, adhesion to deck and at laps will occur as ambient temperature increases and after a return to warmer weather.

3.7 ROOF MEMBRANE INSTALLATION - GENERAL

A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations of ARMA and NRCA.

B. Commence installation of roofing membrane in presence of roofing system manufacturer's technical personnel.

C. Cooperate with testing and inspecting agencies engaged or required to perform services during roofing system installation.

D. Coordinate installation to ensure that materials that will not be permanently exposed are protected from moisture and covered at the end of each workday.
1. Provide tie-offs at the end of each day's work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement with joints and edges sealed.
2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
3. Remove and discard temporary seals before beginning work on adjoining roofing.

E. Substrate Joint Penetrations: Where exceeding 1/4 inch in width (6mm), tape joints with detailing membrane to inhibit roofing materials from penetrating substrate, entering building, or damaging roofing system components or adjacent building construction.

3.8 FLASHING INSTALLATION

A. General:
1. Refer to the manufacturer’s application manual for flashing specific details.
2. All flashings must have a minimum of 536 mil of fiberglass composite upon completion of the installation.
3. Fabricated flashings and trim must conform to the requirements found in the current SMACNA "Architectural Sheet Metal Manual".
4. Manufactured Roof Specialties: Manufactured copings, fascia, control joints, and related flashings and trim must conform to the requirements found in the SMACNA "Architectural Sheet Metal Manual" and/or the National Roofing Contractors Association "Roofing and Waterproofing Manual".

B. Surface Preparation:
1. All wood surfaces must have a base sheet installed prior to flashing application. Fasten base sheet following the same method and pattern as the field application.
2. All metal, concrete and masonry surfaces must be primed with ASTM D 41 primer prior to flashing application.
3. Any joint in the structure intended to allow for movement must be divorced from the seamless reinforcement composite.
   a. Install an 18 inch (457mm) wide slip sheet consisting of inverted (mineral-side down) cap sheet, laid dry over the joint and extending 36 inches (914mm) at each end.
   b. Over the slip sheet, solidly adhere a 36 inch (914mm) polyester ply in 4 gallons per 100 square feet (1.63 L/m2) of emulsion and reinforce with 536 mil of seamless composite.
4. Cant Strips: Minimum 3 inch (76mm) cant strips must be installed at base flashings, walls, and curbs. Miter cants at ends to provide a smooth transition and set in adhesive.

C. Perimeter Conditions
1. Metal Drip Edges:
   a. Inspect nailers for proper attachment and configuration.
   b. Install the specified base sheet, extending and turning 1 inch (51mm) down the edge.
   c. Install continuous cleat and fasten at 6 inches (152 mm) on center.
   d. In recover applications where base sheet is not specified, adhere a continuous strip of self-adhering membrane to the eaves, 1 inch (25mm) down the vertical face and extending 5 inches (126 mm) onto the roof surface.
   e. Attach new metal edge to cleat, with 3/8” head roofing nails located less than 1 inch (25mm) from the interior edge of the flange, spaced every 3 inches (76 mm) on center.
   f. Apply primer to metal edges at a rate of 100 square feet per gallon and allow to dry.
   g. Adhere a continuous strip of self-adhering membrane to the metal flange 2 inches (51mm) from the interior edge, extending 4 inches (102mm) onto the roof surface.
   h. Coordinate placement to ensure membrane laps do not coincide with metal laps.
   i. Reinforce with 500 mil of seamless composite. Extend the field application of composite to the outside edge of the metal flashing.
   j. Apply composite flush with the edge to ensure that water does not pond.
2. Coping Caps:
   a. Attach tapered nailer to top of wall with a minimum slope of 1/4 per foot.
   b. Cover nailer and all exposed wood with detailing membrane, extending 2 inches (50mm) over edges.
   c. Reinforce with 500 mil of seamless composite. Extend field application of composite to the outside edge of wall.
   d. Install continuous cleat and fasten at 6 inches (152 mm) on center to outside wall.
   e. Install new metal coping cap hooked to continuous cleat.
   f. Overlap joints a minimum of 4 inches (101 mm) and install in a 1/4 inch (6 mm) bed of polyurethane sealant.
   g. Install 6 inch (152mm) strips of self-adhering membrane, extending 3 inches (76mm) onto each side of joint. Extend down front and back face of coping.
   h. Fasten interior vertical face of coping cap 24 inches (609 mm) on center with approved fasteners and neoprene washers.
3. Surface Mounted Counterflashings:
   a. Set counterflashing in adhesive and fasten at 8 inches (203 mm) on center with approved fasteners and neoprene washers.
   b. Install sealant at top of counterflashing.
4. Recessed Counterflashings:
   a. Cut a receiver groove into concrete masonry unit wall located at the first horizontal grout joint above base flashing termination.
   b. Secure recessed “Reglet” type counterflashing with expansion fasteners.
   c. Install sealant at top of counterflashing.
5. Skirted Counterflashings:
   a. Skirted counterflashings must be approved by the Manufacturer prior to application.
   b. Where existing counterflashing does not adequately cover finished base flashings, a “skirt flashing” may be installed.
   c. Flashing must extend at least 1 1/2 inches (39mm) behind existing counterflashing and project no greater than 3 inches (76mm) past the bottom edge. Vertical seams must overlap a minimum of 6 inches (152mm).

d. All metal edges which may come in contact the base flashing must be hemmed to protect the installed membrane.
e. Mechanically fasten skirt flashing to existing counterflashing using self-tapping screws with neoprene washers.

D. Penetrations
1. Pipe Penetrations:
a. Embed the prepared and primed galvanized pipe boot in a bed of asphalt roof cement, centering it over the pipe. Fasten at corners where insulation is not present.
b. Adhere a continuous strip of self-adhering membrane to the metal flange 2 inches (51mm) from the edge, extending 4 inches (102mm) onto the roof surface.
c. Reinforce with 500 mil of seamless composite, extending to the top of the pipe boot.
d. Apply sealant at gap between roof membrane and pipe.
e. Install storm collar approximately one inch (25mm) above the top of the flashing and secure with a draw band and approved sealant.
f. Where lead pipe flashings are specified, omit the storm collar and sealant, turning the metal downward and into the top of the pipe by at least 2 inches (51mm). Solder all joints
2. Pitch Pockets:
a. Place the pitch pocket over the penetration and prime all flanges.
b. Apply strips of self-adhering membrane around all sides of pitch pocket, extending 6 inches (152 mm) onto the field of the roof.
c. Fill pitch pocket halfway with non-shrink grout.
d. Encapsulate entire pitch pocket with 500 mil of seamless composite.
e. Apply caulk joint between roof system and pitch pocket with roof cement.
f. Place a water shedding bonnet over the top of the pitch pocket, clamp the top with a drawband, and apply sealant.
3. One-Way Relief Vents:
a. On recover applications or where lightweight concrete roof decks are present, locate one-way aluminum moisture vents every 1000 sq ft.
b. Remove existing roof to expose the uppermost substrate and allow a clean work area at least 6 inches from the edge of the flange.
c. Core a 3 inch (76mm) hole through roof layers and insulation. Do not puncture any vapor barriers which may be present.
d. Prime the flange and embed the vent in a bed of asphalt roof cement, centering it over the opening.
e. Adhere a continuous strip of self-adhering membrane to the metal flange 2 inches (51mm) from the edge, extending 4 inches (102mm) onto the roof surface.
f. Apply 500 mils of seamless composite to aluminum flange extending to the base of the vent, turning upward by at least 2 inches (51mm).
4. Heat Stacks:
a. Apply roof system over the entire surface of the roof, sealing the base of the stack with sealant approved for use with high temperatures.
b. Prime flange of new sleeve. Install properly sized sleeves set in 1/4 inch (6 mm) bed of roof cement.
c. Adhere a continuous strip of self-adhering membrane to the metal flange 2 inches (51mm) from the edge, extending 4 inches (102mm) onto the roof surface.
d. Reinforce with 500 mil of seamless composite.
e. Install new storm collar. Weld or install stainless steel draw brand and caulk.

E. Roof Drainage:
1. Roof Drains:
a. Prior to commencing flashing work, plug drains to prevent debris from entering plumbing.
b. Thoroughly clean all drains to receive roof membrane; prime with ASTM D 41 primer.
c. Taper insulation towards drains to create a sump 24 inches (609 mm) from center of drain.
d. Form 12 inch (305mm) detailing membrane into the drain bowl, extending from 3 inches (76mm) into the bowl, extending outward onto the prepared work surface.
e. Set primed metal flashings (30 inch square minimum) in 1/4 inch bed of roof cement. Extend flashing into drain a minimum of 2 inches (50 mm).
f. Reinforce with 500 mil of seamless composite extending down walls of drain bowl and allow to cure.
g. Install clamping ring, remove drain plug and attach strainer.
2. Scuppers:
a. Inspect nailers for proper attachment and configuration.
b. Apply detailing membrane 1 inch (25mm) over the edge and assure coverage of all wood nailers.
c. Install pre-formed and primed scupper in a 1/4 inch (6mm) bed of roof cement. All seams and corners must be soldered, and scupper must have a minimum 4 inch (101 mm) flange.
d. Fasten scupper flange to nailers every 3 inches (76mm) on center.
e. Adhere a continuous strip of detailing membrane to the metal flange approximately 2 inches (51mm) from the edge and 4 inches (152mm) onto the existing roof surface.

f. Coordinate placement to ensure membrane laps do not coincide with metal laps.
g. Reinforce with 500 mil of seamless composite. Extend the field application of composite to the outside edge of the metal flashing.
h. Apply composite flush with the edge to ensure that water does not pond.
i. scupper edge must be turned downward a minimum of 1 inch (25mm) at outside edge of wall and sealed.

F. Raised Curbs:
1. Mechanical Equipment Curbs:
a. Install base sheet over all wood surfaces and prime all metal, concrete or masonry surfaces.
b. Reinforce with 500 mil of seamless composite. Extend field application of composite to the top of the curb.
c. Install rooftop mechanical unit in accordance with its Manufacturers' recommendations.
d. Where equipment is not self-flashing, install pre-manufactured counterflashing with fasteners and neoprene washers 6 inches (152mm) on center, embedded in a bead of sealant.
2. Skylights, Smoke Vents and Roof Hatches:
a. Install base sheet over all wood surfaces and prime all metal, concrete or masonry surfaces.
b. Reinforce with 500 mil of seamless composite. Extend field application of composite to the top of the curb.
c. Install pre-manufactured unit in accordance with its Manufacturers' recommendations.
d. Where required by local code, install OSHA compliant, compression mounted skylight protection screens per skylight manufacturers' written instructions.

G. Rooftop Equipment and Accessories:
1. Pipe and Equipment Supports: Install supports in accordance with Manufacturers' guidelines. Traffic pads must be installed under pipe supports and fasteners must not penetrate the roofing membrane.
a. All pipes 2 inches (51mm) in diameter or less may be supported with polymer pipe supports spaced no greater than 8 feet (2438mm) on center.
b. All pipes over 2 inches (51mm) in diameter must be supported with movable pipe hangers or other support system approved by the roofing system Manufacturer.

H. Roof Transitions and Area Dividers
1. Steep-Sloped Roof Transitions: Remove roofing material a minimum of 24 inches (610mm) onto adjacent steep-slope roofs which drain onto the roof in this section.
a. Install self-adhering base sheet, extending 12 inches (304mm) onto low slope roof and 24 inches (609mm) onto steep slope roof.
b. Reinforce with 500 mil of seamless composite.
c. Install steep slope roofing material beginning no less than 12 inches (305mm) from the center of the roof join, in accordance with Roofing Manufacturer's recommendations and requirements.
d. Solidly adhere with adhesive approved by the steep slope roofing manufacturer the first two courses of steep slope roofing material, ensuring that fasteners do not penetrate within 18 inches (458mm) of the roof join.
2. Area Dividers:
a. Install base sheet over all wood surfaces and prime all metal, concrete or masonry surfaces.
b. Reinforce with 500 mil of seamless composite. Extend application of composite to the top of area divider curbs.
c. Install fabricated metal cover. Fasten sides at 12 inches (609 mm) on center with fasteners and neoprene washers. Furnish all joint cover laps with sealant between metal covers.
3. Expansion Joints:
a. Install base sheet over all wood surfaces and prime all metal, concrete or masonry surfaces.
b. Reinforce with 500 mil of seamless composite. Extend application of composite to the top of the support curb.
c. Install pre-manufactured expansion joint cover in accordance with Manufacturer's recommendations.
d. Fasten sides as noted by expansion joint manufacturer with fasteners and neoprene washers. Furnish all joint cover laps with sealant between metal covers.
e. Set equipment on neoprene pads and fasten as required by equipment manufacturer.

3.9 FIELD MEMBRANE INSTALLATION

A. Apply one layer of the composite roofing at the following ratio:
1. Asphalt Emulsion (undiluted): 30 gal. per 100 square feet (12.2 l/m2).
2. Fiberglass Reinforcement: 16 lb. per 100 square feet (0.78 Kg/m2).

B. In accordance with the roofing system manufacturer's flashing details, apply seamless composite to the entire roof surface, terminating at the following locations:
1. Tops of base flashings and curbs
2. Outside edges of perimeter metal flashings.
3. Outside edges of walls.
4. Insides of drain bowls.

C. No water or other material may be added to the emulsion to thin or extend pot life.

D. Fiberglass must be disbursed from the applicator in varying intertwined lengths, up to 24 inches (610mm).

E. Thoroughly mix fiberglass and emulsion prior to application on prepared roof substrates.

F. Any loose strands must be brushed by hand, removed or filled-in with emulsion to create a solid surface.

G. Upon completion, no area may be less than 250 mil dry film thickness (DFT).

H. Areas such as base flashings and penetrations, where application exceeds 500 mils wet, must be brushed by hand to prevent surface crazing.

I. Where required due to project phasing or when ambient temperatures exceed 100 degrees F (37C), apply seamless composite membrane in two passes of half the recommended wet mil thickness.

3.10 REFLECTIVE COATING INSTALLATION

A. Prior to reflective coating application, wash the roof surface with water. Do not commence application until the system has thoroughly dried, as registered by a reading of zero with a calibrated moisture meter.

B. Where Title 24 compliant roof coatings are specified, apply both base coat and top coat to the entire roof surface, each at a minimum of 1 1/2 gal. per 100 square feet (0.6 L/m2) to total 3 gallons per 100 square feet. (1.2 L/m2). Allow the base coat to dry before proceeding, and backroll to ensure even coverage throughout.

C. Apply specified aluminum roof coating to the entire roof surface at a minimum of 2 gal. per 100 square feet (0.8 L/m2). Backroll to ensure even coverage throughout.

3.11 WALKWAY APPLICATION

A. Embedded Granule Traffic Surfacing:
   1. Where specified in the Owner or Architect's RFP, granules may be broadcast into the membrane to provide a slip resistant foot traffic surfacing.
   2. Immediately following the application of the field, mineral granules may be broadcast into the wet acrylic membrane in areas where traffic is likely to occur. Backroll granules with a suitable roller immediately.
   3. Apply granules at a rate of 20 Lbs. (9 kg) per 100 square feet.

3.12 FINAL ROOF INSPECTION

A. At completion of roofing installation and associated Work, schedule a conference to include the Architect, Contractor, roof membrane installer, installers of associated work, roofing system Manufacturers' representative and others directly concerned with performance of roofing system.

B. Perform a site walk of roof surface, inspecting perimeter edges and flashings. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.

C. Should roof core testing verify the presence of damp or wet materials, it is the responsibility of the installer to replace the damaged areas at their expense.

D. The repair or replacement of defective work found during inspection is required to produce an installation that is free of damage and deterioration at time of Substantial Completion and is required to execute the Manufacturer's warranty.

E. Notify Architect upon completion of corrections.

F. Upon a successful final inspection and fulfillment of administrative terms, the contractor will provide an executed copy of the Manufacturer's warranty and written acceptance of the installation.

3.13 PROTECTION

A. Prior to allowing any traffic on a newly installed roof membrane, authorization in writing must be obtained from the roof system Manufacturer.

B. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roof for deterioration and damage. Where any defects or damage are identified describe their nature and extent in a written report, with copies to architect and owner.

C. Protect exposed surfaces of finished walls with tarps to prevent damage.

D. Plywood required for material movement and traffic over existing roofs must be a nominal 5/8 inch (16 mm) thick or greater.

3.14 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles, and other debris resulting from these operations.

B. Remove coating markings from finished surfaces.

C. Repair or replace defaced or disfigured finishes caused by Work of this section.

D. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

SECTION 07 54 16 - KETONE ETHYLENE ESTER (KEE) ROOFING

@BUILDING 2A ADMIN/LIBRARY BLDG

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. New curb flashings associated with HVAC installations.

1.2 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D1079 "Standard Terminology Relating to Roofing and Waterproofing" and applicable edition of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" and NRCA's Glossary for definition of terms related to roofing work in this Section.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Roofing Conference: Conduct conference at Project site.

1. Meet with Owner, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.

2. Review drawings and specifications.

3. Review methods and procedures related to roofing installation, including manufacturer's written instructions.

4. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

5. Examine substrate conditions and finishes for compliance with requirements, including flatness and fastening.

6. Review structural loading limitations of roof deck during and after roofing.

7. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.

8. Review temporary protection requirements for roofing system during and after installation.

9. Review roof observation and repair procedures after roofing installation.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, Manufacturer and Roofing Inspector.

1. Include letter from Manufacturer written for this Project indicating approval of Installer.

B. Manufacturer Certificates:

1. Submit evidence of compliance with specified requirements in "Performance Requirements" Article.

2. Product Compatibility: Indicate manufacturer has verified compatibility of roofing system components, including but not limited to: Roofing membrane, flashing sheets, adhesives, and sealants.

C. Warranties: Unexecuted sample copies of special warranties.

D. Inspection Reports: Reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions taken to correct defective work.

1. Submit reports within 48 hours after inspection.

1.5 CLOSEOUT SUBMITTALS

A. Executed copies of warranties.

B. Maintenance Data: To include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.

B. Manufacturer Qualifications: Approved manufacturer with roofing systems comparable to that specified for this Project, with minimum five years' experience in manufacture of thermoplastic roof membrane products in successful use in similar applications.

C. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:

1. An authorized full-time technical employee of the manufacturer.

2. An independent party certified as a Registered Roof Observer by the International Institute of Building Enclosure Consultants (formerly the Roof Consultants Institute) retained by the Contractor or the Manufacturer and approved by the Manufacturer.

D. Manufacturer's Installation Instructions: Obtain and maintain on-site access to manufacturer's written recommendations and instructions for installation of products.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT / FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

B. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

1. Provide tie-offs at end of each day's work to cover exposed roofing and insulation with a course of roofing sheet securely in place with joints and edges sealed.

2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.

3. Remove temporary plugs from roof drains at end of each day.

4. Remove and discard temporary seals before beginning work on adjoining roofing.

1.9 WARRANTY

A. Installer Warranty: Installer's warranty signed by Installer, as follows.

1. Form of Warranty: Form acceptable to Roofing Manufacturer and Owner.

2. Scope of Warranty: Work of this Section.

3. Warranty Period: 2 years from date of completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: The roof system specified in this Section is based upon products of Tremco CPG Inc, Beachwood, OH, (800) 562-2728, www.tremcoroofing.com that are named in other Part 2 articles. Provide specified products.

B. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.

1. Accelerated Weathering: Roofing system shall withstand 10,000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.

2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746/D3746M, ASTM D4272/D4272M, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.

B. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency in accordance with ANSI/FM 4474, UL 580, or UL 1897, and to resist uplift pressures calculated in accordance with ASCE-7 and applicable code.

C. SPRI Wind Design Standard: Manufacture and install copings and roof-edge flashings tested according to ANSI/SPRI ES-1.

D. Flashings and Fastening: Provide base flashings, perimeter flashings, detail flashings and component materials and installation techniques that comply with requirements and recommendations of the following:

1. FM Global 1-49: Loss Prevention Data Sheet for Perimeter Flashings.

2. FM Global 1-29: Loss Prevention Data Sheet for Above Deck Roof Components.

3. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.

4. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.

E. Exterior Fire-Test Exposure: ASTM E108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

F. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E1980, based on testing identical products by a qualified testing agency.

G. Energy Performance: Roofing system shall have an initial solar reflectance index of not less than 0.70 and an emissivity of not less than 0.75 when tested according to CRRC-1.

2.3 MATERIALS, GENERAL

A. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

2.4 THERMOPLASTIC MEMBRANE MATERIALS

A. KEE Roof Membrane:

1. Thermoplastic Ketone Ethylene Ester (KEE) coated polyester fabric-reinforced fleece-backed sheet, ASTM D6754.

a. Basis of design product: Tremco, TremPly KEE FB Single Ply Roof Membrane.

b. Breaking Strength, minimum, ASTM D751: Machine direction, 500 lbf (87 kN/m); Cross machine direction 400 lbf (70 kN/m).

c. Tear Strength, minimum, ASTM D751: Machine direction, 125 lbf (22 kN/m); Cross machine direction (145 lbf (25 kN/m).

d. Elongation at Break, ASTM D751: 20 percent.

e. Dynamic Impact/Puncture Resistance, ASTM D5635: 30 J, minimum.

f. Minimum Membrane Thickness, nominal, less backing, ASTM D751: 60 mils (1.5 mm).

g. Thickness over fiber, optical method: 0.016 inches (0.406 mm).

h. Accelerated Weathering, ASTM G155 and ASTM G154: Not greater than 15,000 hr., no cracking or crazing.

i. Abrasion Resistance, ASTM D3389: Not greater than 2,000 cycles, H-18 wheel, 1,000 g load.

j. Color: White.

k. Solar Reflectance Index (SRI), ASTM E1980: 110 (White, initial), 86 (White, 3-yr aged).

B. Sheet Flashing: Manufacturer's standard, smooth-backed, sheet flashing of same material, type, reinforcement, thickness and color as KEE roof membrane.

2.5 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

a. Plastic Foam Adhesives: 50 g/L.

b. Single-Ply Roof Membrane Sealants: 450 g/L.

c. Nonmembrane Roof Sealants: 300 g/L.

d. Sealant Primers for Nonporous Substrates: 250 g/L.

e. Sealant Primers for Porous Substrates: 775 g/L.

3. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Membrane Bonding Adhesive:

1. Bonding adhesive, waterborne low-VOC, for bonding KEE fleece-backed single ply membranes and flashings to substrates.

a. Basis of design product: Tremco, TremPly KEE FB WBII Bonding Adhesive.

b. VOC, maximum, ASTM D3960: 153 g/L.

C. Flashing Membrane Adhesive:

1. Bonding adhesive, solvent based fast drying, VOC-compliant, for bonding KEE smooth-backed single ply membranes and flashings to substrates.

a. Basis of design product: Tremco, TremPly KEE LV Bonding Adhesive.

b. VOC, maximum, ASTM D 3960: 200 g/L.

D. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 mm by 3 mm) thick; with anchors.

E. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch (25 mm wide by 1.3 mm) thick, prepunched.

F. Joint Sealant: Elastomeric joint sealant compatible with roofing materials, with movement capability appropriate for application.

1. Joint Sealant, Polyurethane: ASTM C920, Type S, Grade NS, Class 50 single-component moisture curing sealant, formulated for compatibility and use in dynamic and static joints; paintable.

a. Basis of design product: Tremco, TremSEAL Pro.

b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 40 g/L.

c. Hardness, Shore A, ASTM C661: 40.

d. Adhesion to Concrete, ASTM C794: 35 pli.

e. Tensile Strength, ASTM D412: 350 psi (2410 kPa).

f. Color: White.

G. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.

H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.6 ROOF INSULATION MATERIALS

A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from insulation manufacturer's standard sizes, suitable for application, and of thicknesses indicated.

1. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where needed for sloping to drain. Fabricate to slopes indicated, not less than two times the roof slope.

B. Roof Insulation: Provide roof insulation product in thicknesses indicated in Part 3 as follows:

1. Board Insulation, Polyisocyanurate: CFC- and HCFC- free, with recycled content glass-fiber mat facer on both major surfaces, ASTM C1289 Type II Class 1.

a. Basis of design product: Tremco, Trisotech Insulation.

b. Compressive Strength, ASTM D1621: Grade 2: 20 psi (138 kPa).

c. Conditioned Thermal Resistance at 75 deg. F (24 deg. C): 14.4 at 2.5 inches (50.8 mm) thick.

2.7 ROOF INSULATION ACCESSORIES

A. Cover Board:

1. Gypsum panel, glass-mat-faced, primed, ASTM C1177/C1177M.

a. Basis of design product: Tremco/GP Gypsum DensDeck Prime.

b. Thickness: 1/4 inch (6 mm).

B. Roof Insulation Adhesive:

1. Urethane adhesive, bead-applied, low-rise two-component solvent-free low odor, formulated to adhere roof insulation to substrate.

a. Basis of design product: Tremco, Low Rise Foam Insulation Adhesive.

b. Flame Spread Index, ASTM E84: 10.

c. Smoke Developed Index, ASTM E84: 30.

d. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 0 g/L.

e. Tensile Strength, minimum, ASTM D412: 250 psi (1720 kPa).

f. Peel Adhesion, minimum, ASTM D903: 17 lbf/in (2.50 kN/m).

g. Flexibility, 70 deg. F (39 deg. C), ASTM D816: Pass.

C. Metal Coating: ASTM D 6083, solar-reflective acrylic elastomer emulsion coating.

D. Metal Primer: Water based acrylic metal primer that provides a tough, flexible film for the protection of steel against corrosion. Must be VOC compliant.

E. Insulation Cant Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.

F. Tapered Edge Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.

G. Substrate Joint Tape: 6- or 8-inch- (150- or 200-mm-) wide, coated, glass fiber.

2.8 WALKWAY MATERIALS

A. Walkway Material:

1. Protection walkway roll, reinforced KEE membrane roll with diamond-tread, slip-resistant surface, fabricated for heat welding to compatible KEE membrane surface.

a. Basis of design product: Tremco, TremPly KEE Protection Walkway Roll.

b. Roll Size: 30 inches by 100 ft (760 mm by 25.4 m).

c. Thickness: 0.060 inch (1.5 mm).

d. Breaking strength: 450 lbs (77 kN/m).

e. Color: Gray.

B. Rubber blocks: 100% rubber blocks with steel channels and reflective strips designed for supporting conduit.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.

2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

3. Verify that substrate is sound and dry.

4. Existing Concrete Roof Deck:

a. Verify that concrete substrate is visibly dry and free of moisture. Test for moisture according to ASTM F2659 or other recognized test method utilizing non-destructive, electronic moisture meter.

b. Verify adhesion of new roofing components to concrete.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSTALLATION, GENERAL

A. Install roofing system in accordance with manufacturer’s written instructions and approved details.

B. NRCA Installation Details: Install roofing system in accordance with applicable NRCA Manual Plates and NRCA recommendations; modify as required to comply with manufacturer's approved details and perimeter fastening requirements of FM references if applicable.

3.4 INSULATION INSTALLATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Tapered Insulation and Crickets: Install insulation under area of roofing to conform to existing heights current if applicable. Install crickets and saddles as needed to slope water to drain as needed.

1. Where crickets are indicated or required to provide positive slope to drain, make slope of crickets minimum of two times the roof slope, not less than 1/4 inch in 12 inches (1:48).

2. Install crickets on the high side of all curbs.

D. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

E. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.

1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

F. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:

1. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

G. Cover Boards: Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together.

1. Secure cover boards Secure cover boards to resist uplift pressure at corners, perimeter, and field of roof.

2. Adhere cover boards by setting in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining cover board in place.

3.5 ADHERED MEMBRANE ROOFING INSTALLATION

A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.

B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.

C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

D. Water-Based Bonding Adhesive: Apply to substrate at rate required by manufacturer. Install membrane immediately into adhesive, avoiding any air entrapment; do not allow adhesive to dry. Roll membrane into wet adhesive. Do not apply adhesive to splice area of membrane.

E. Apply membrane roofing with side laps shingled with slope of roof deck where possible.

F. Welded Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.

2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.

3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

G. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

3.6 FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Raise curbs lower than 6” off the finished roof surface. Wrap solid topped curbs with new KEE membrane and install new 24 gauge sheet metal pans.

F. Install skirt metal counterflashing at units and where counterflashing does not extend at least two inches over the top of the base flashing.

G. Seal all duct, pan, HVAC to pan, and other sheet metal seams with acrylic sealer and polyester reinforcement. Surface all galvanized metal and roof rings and screens with metal coating system. Properly prepare and prime surfaces prior to coating which includes rust inhibitor and other primers as recommended by manufacturer.

H. SURFACING AND COATING INSTALLATION (DUCTING)

1. Acrylic Emulsion Coating:

a. Prime substrate as recommended by manufacturer.

b. Coat roofing membrane surface with cold-applied adhesive surfacing adhesive applied at rate required by roofing manufacturer.

c. Apply acrylic emulsion coating to prepared roofing membrane and base flashings, all metal components including but not limited to duct work, metal pans, roof hatch etc., with number of coats, thickness of application, and application method as recommended in writing by coating manufacturer.

3.7 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

B. Install new rubber blocks to replace all wood blocks. Add additional blocks to insure at least one every 8 feet and support at conduit changes in direction. Install oversized walkpad sections under all blocks. Use pipe support extenders to support high conduit and provide proper slope for condensate. For conduit runs close to the roof surface where the rubber blocks will not fit use new redwood blocks set on KEE walkpad section.

3.8 FIELD QUALITY CONTROL

A. Roofing Inspector: Contractor shall engage a qualified roofing inspector to perform roof tests and inspections and to prepare test reports.

1. Engage a qualified roofing inspector for a minimum of 1 full-time days on site, per 40-hour crew week, to perform roof tests and inspections and to prepare start up, interim, and final reports. Roofing Inspector's quality assurance inspections shall comply with applicable criteria established in NRCA's "Quality Control and Quality-assurance Guidelines for the Application of Membrane Roofing Systems."

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

C. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

D. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to and Owner.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075416

DIVISION 23 – HEATING, VENTILATING & AIR CONDITIONING

SECTION 23 01 30.51 - HVAC EQUIPMENT & DUCT CLEANING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes commissioning process requirements for HVAC&R systems, assemblies, and equipment.

B. Related Sections:
1. Section 01 33 00 Submittal
2. Section 23 30 00 Heating, Ventilation and Air Conditioning

1.03 GENERAL CONDITIONS

A. General Conditions of the construction contract shall be a part of these specifications, and shall govern the HVAC Systems Rehabilitation Contractor. All work shall be done in accordance with requirements of the Owner and the construction contractor.

1. Contractor's License: The Contractor shall be licensed in the State of California. This License shall be a C-61 Specialty License in the D-64 Duct Cleaning Sub-Division.

2. "National Air Duct Cleaners Association (NADCA): The contractor shall be a Certified Member in good standing with NADCA.

3. Contractor shall visit the site prior to bid and make himself thoroughly familiar with the site and existing conditions. By submitting a bid for HVAC equipment and duct cleaning, Contractor declares that he is familiar with existing conditions and is capable of executing work detailed herein at no additional cost(s) to the Owner.

1.04 QUALLITY ASSURANCE

A. Contractor shall have thorough knowledge and experience in the rehabilitation and cleaning of projects of similar type, size, and degree of difficulty completed within the last two years. Contractor agrees:

1. All work shall be supervised by a foreman having thorough knowledge and experience in the cleaning of air conditioning systems. Experienced, qualified personnel shall perform the work.

2. Contractor shall be fully covered by Workmen's Compensation, Public Liability and Property Damage Insurance, and certificates of these coverage's and limits shall be provided to the Owner upon request.

3. Any mechanical problems discovered during the course of cleaning will be reported in writing within 24 hours to the project coordinator

4. Contractor shall leave area of work in same condition as when work started (on a day-to-day basis and from project start to finish).

5. Contractor shall keep work area free of all surplus material and debris. Upon completion of each shift, all tools, equipment, debris, etc. shall be moved to a designated area selected by the Owner.

6. Contractor shall take all necessary measures to minimize the migration of dust and other air borne particles during the cleaning process. ALL outlets and inlets leading to (or from) occupied spaces must be covered with a leak-proof catch basin. At no time shall dust and/or other air borne particles be blown or dispersed into any space within the building.

7. Contractor shall at all times be in compliance with Cal OSHA and EPA regulations.

8. Unless otherwise noted, Contractor shall be responsible for cleaning all existing supply, return, exhaust, and outside air intake duct to remain as indicated on plans. Any deviations from said section must be approved in writing by the Owner.

B. Photo Documentation: Documentation shall include the use of a digital camera and a fiber optic borescope, where required. Contractor shall take photos of conditions before and after cleaning for inclusion in a project report to be presented to the Owner at the conclusion of the work.

1.05 LABOR AND MATERIALS

A. Contractor shall furnish all labor, materials, supplies, tools, equipment, supervision, transportation and any other services or items necessary to accomplish the work.

B. Safety Procedures and Policy: Contractor shall provide adequate and necessary management personnel to ensure that all safety policies and project requirements are met.

1. Maintain safe and healthy employee working conditions and establish safe operating procedures at each job site.

2. Comply with the safety standards of all federal and state regulatory agencies as a minimum requirement for safety performance at each job site.

3. Comply with all of the safety requirements of the job site and safety requirements mandated by the Owner.

4. Contractor shall provide all necessary safety devices and personal protective equipment for employee use, and shall require their use when needed.

5. The work in progress shall be subject to random unannounced inspections by a representative of Owner.

6. Upon total completion of the project, representatives of Owner will do a quality control inspection. Any area that does not meet the standards of this specification shall be redone at no additional cost.

7. Electrical equipment, sensors and control devices shall be masked, or blocked off where required for protection for water or chemicals.

8. Disinfectant, when used, shall be applied in accordance with the manufacturer instructions, and may be used prior to coating application. System shall be dried after application of disinfectant.

9. HVAC coating shall be applied according to manufacturer instructions. Coating shall be sprayed, brushed, or rolled directly into interior ductwork surface. A continuous film of coating must be achieved. (Provide supplemental ventilation as required.)

10. All ducts too small to allow direct entrance shall have access openings installed approximately every 10-15 feet as required, and at each elbow and vertical riser. Each access opening shall be recovered with a panel made of the same gauge metal, and installed in such a manner as to insure an airtight job. All sheet metal ductwork shall be in accordance with SMACNA Standards, unless otherwise noted.

PART 2 - PRODUCTS

2.01 MATERIALS AND PRODUCTS

A. Material Safety Data sheets for all materials and products used by Contractor shall be provided to Owner prior to start-up of cleaning operations.

B. Degreaser: Maintex 7-11 Armex Baking Soda Blasting Crystals or equal as approved by Owner.

C. Sanitizer Oxine BBJ Microblocide or other EPA registered equal as approved by Owner.

D. Re-Surfacing Treatments: Schuller Superseal Edgecoat Fosters 40-20 Vac-Systems Tough Coat Porta Sept by Porter Paints, containing EPA registered anti-microbial Swamp Cooler Repair condensate drain pan sealant or other EPA registered equal as approved by Owner.

E. Paint: Styletone Series 8 19 Machinery Grey Zynolite Spray Paint.

F. Insulating Lining Material: To match existing or Certainteed Tough Gard Certainteed Ultra-Lite Armaflex Astro-Foil or equal as approved by Owner.

G. Adhesives: Armstrong 520 DPIO/20 Super 77 Spray Adhesive or equal as approved by Owner.

H. Duct Sealant: DP 10/10 Top 12000 Silicone Sealant or equal as approved by Owner

PART 3 – EXECUTION

3.01 METHODOLOGY

A. Cleaning of Ductwork

1. All registers and diffusers shall be removed and cleaned with a mild detergent.

2. All ductwork (not accessible to personnel) shall be cleaned by compressed air, light brush agitation, or vibration agitation, or a combination of any of the above. All duct to be opened so the interior is as visible as possible.

3. Large ductwork shall be cleaned by manual brushing, or vibration agitation. All duct to be opened so as to visually observe the cleaning process.

4. All agitation of contaminants shall be accompanied by negative air pressure created by a negative air machine using a HEPA filter.

5. Access needed for proper cleaning shall be cut into rigid metal ducts at elbows and approximately every 15 feet. Holes shall be sized as appropriate to allow cleaning and visual inspection inside duct.

6. All flexible ducts shall be disconnected at joints and registers for cleaning. Flexible duct lengths of over 15 feet shall be cut at intervals not exceeding 15 feet.

7. Contractor shall provide access in existing ceilings and walls as required. Where openings are made for cleaning purposes, Contractor shall repair such ceilings and walls as required to give a uniform surface. Match existing materials, color and texture.

8. All interior dampers and turning vanes shall be cleaned with a stiff bristle brush and then vacuumed.

9. The surface of all unreplaced liner shall be coated. Any small tears in fiberglass will be repaired with lagging materials and then encapsulated.

10. All access holes made in ducts for cleaning purposes shall be sealed with galvanized sheet panels of the same of heavier gauge metal as the duct. Panels shall be installed with duct sealant and screwed into the duct at four-inch maximum on center, all around as required to maintain an airtight seal. Proof will be required.

11. All flexible ducts disconnected for the purpose of cleaning shall be reattached in the same manner as originally installed.

12. Clean all duct serving remodeled areas, including supply duct and transfer duct. Do not clean main return ductwork at the central air conditioning unit.

B. Hazardous Materials

1. When asbestos or other hazardous materials are encountered, Contractor shall document concern and forward to Owner forthwith.
2. Respiratory protection shall be OSAH/NIOSH approved with HEPA cartridges, or cartridges designed for specific contaminants.
3. No material that is not approved by regulatory authorities shall be introduced to the project as means for accomplishing work outlined herein.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING & AIR CONDITIONING

SECTION 23 05 53 - MECHANICAL IDENTIFICATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Provide marking and identification required on all mechanical piping systems, ducts, controls, valves, apparatus, etc., as specified in this Section or any related Sections.

B. Related Sections:

1. Plumbing: Section 22 00 00.

2. Heating, Ventilating, and Air Condition: Section 23 30 00.

1.02 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

B. Submit samples of materials.

1.03 QUALITY ASSURANCE

A. Comply with provisions of Section 01 40 00.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: All piping systems, controls, valves, apparatus, etc., except those that are installed in inaccessible locations in partitions, walls, and floors, and those buried underground, shall be permanently identified.

2.02 VALVES

A. Use existing chart or diagram for each piping system, indicating thereon by identifying letter or number each valve in the system, its location, and function.

B. Existing color chart is Per District.

C. Bind copies of each chart in Operating Instructions Manual.

D. Provide each valve with brass, aluminum or plastic disc, not less than 1-1/4" diameter bearing engraved numbers corresponding to those indicated on chart. Fasten discs to valve with No. 14 brass wire.

E. Provide an additional tag for all safety valves and other valves that could be hazardous to safety and health of occupants. Distinguish these tags from regular valve tags by color (such as yellow with black letters, and marked "Danger") submit sample tag to the District Inspector.

2.03 INSTRUMENTS AND CONTROLS

A. Identify all panel-mounted instruments and controls with engraved bakelite nameplates permanently affixed to Panel boards.

B. Identify all alarm indicating devices and alarm reset devices by nameplates.

C. Identify all damper motors and automatic valves, flow switches, pressure switches, etc., with embossed aluminum or plastic tape affixed to controller, indicating service and setting.

2.04 EQUIPMENT

A. Identify each major piece of equipment with stenciled designation corresponding to its designation on the Contract Drawings.

2.05 PIPELINES IDENTIFICATION

A. Identify all pipes by means of colored labels with directional arrows as indicated in schedule. (Contractor shall use District colors to distinguish equipment and/or piping use.)

B. Materials: Waterproof plastic cloth, all-temperature, self-adhering, or markers similar to Western "Tel-A-Pipe", Type I, or equal by W.H. Bradley Co.

C. Size: For pipes up to 3" diameter, 2-1/4" x 9" minimum, with 1/2" letters; for pipes over 3" diameter, 2-1/4" x 9" minimum, with 1-1/2" letters.

D. Colors:

1. Backgrounds: As indicated in schedule.

2. Letters: White on red background; black on all other backgrounds.

E. Locations:

1. On all accessible piping, whether insulated or not (including mechanical rooms, attic and ceiling spaces); except that labels shall be omitted from piping where use is obvious due to its connection to fixtures (such as faucets, water closets, etc.).

2. Near each valve and branch connection in such accessible piping.

3. At each pipe passage through wall or floor.

4. At not more than 40'-0" spacing on straight pipe run between bands required in 2 and 3 above.

5. At each change in direction.

F. Application: Apply on clean surfaces free of dust, grease, oil or any material that will prevent proper adhesion. Replace all non-adhering or curling labels with new labels, as approved by the District Inspector.

1. Use spray adhesive on insulated pipes in addition to adhesive on marker.

2. Finish all exposed markers with one coat of lacquer.

G. Schedule:

Content of Pipe	Legend	Color	Note
Domestic cold water	Dom. c.w.	G	*
Non-potable cold water	NP c.w.	G (1)	*

Domestic hot-water 140 F	Dom h.w. 140F	Y	*
Indirect drain	Ind drain	G (1)	*
Sump pump discharge	Pump discharge	G	*
Chilled water supply	Chill water supply	G	*
Chilled water return	Chill water return	G	*
Hot water	Hot Water Supply	Y	*
Hot water	Hot Water Return	Y	*
Condensate	CD		*

**Contractor shall verify all colors and verbiage with District prior to labeling.

H. Notes on Schedule:

1. Symbol * indicates flow arrow required.

2. Symbol (1) indicates 2-1/4" x 1" yellow label with 1/2" letters reading UNSAFE WATER at one end of primary label.

3. Hyphen between words indicates 2 separate stock labels are required, although a single special label with all lettering is equally acceptable.

4. Background colors: Symbol Y indicates yellow background color. Symbol G indicates green background color. Symbol R indicates red background color.

2.06 UNDERGROUND PIPE MARKERS

A. Pipe markers shall be furnished to grade at each horizontal change in direction for all non-metallic underground pipes. Markers shall be concrete plaque inscribed with the appropriate word "gas", "water", "sewer", "air", etc. Cleanouts to grade may serve as direction markers for waste lines. An electrically continuous #14 plastic covered copper tracer wire, Type TW, shall be run in trench along pipe. Wire shall be fastened to pipe at not greater than 20'-0" intervals. Wire shall terminate above ground with a 12" lead taped around each riser. Straight line transitions of metallic to non-metallic pipe shall have lead brought to grade under a marker.

B. Tracer wires for non-metallic pipe shall be color-coded as follows:

1. Gas: Yellow

2. Domestic Water: Blue

3. Fire Sprinkler: Red

4. Irrigation: Green

2.07 IDENTIFICATION OF AIR CONDITIONING EQUIPMENT

Identify location of air conditioning equipment above Tee Bar Ceilings. Install 3/4" to 1" diameter colored self adhesive dots to Tee Bar Ceiling grid showing access. Please note that the following identification shall be included on as built control drawings.

A	Fire Damper	Red
B	Manual Volume Dampers	Blue
1.	Supply Air	Full Dot
2.	Return Air	Half Dot.
C	Fan coil unit	Green
D	Filter Location if separate from fan coil	Yellow

PART 3 - EXECUTION

3.01 INSTALLATION

A. Report any conditions detrimental to proper and timely completion of work. Apply markers and identification tags as specified using approved materials and installation procedures recommended by manufacturer.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING & AIR CONDITIONING

SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Balancing Air Systems:

a. Constant-volume air systems.
b. Multizone systems.

2. Duct leakage tests.

1.3 DEFINITIONS

A. AABC: Associated Air Balance Council.

B. BAS: Building automation systems.

C. TAB: Testing, adjusting, and balancing.

D. TAB Specialist: An independent entity meeting qualifications to perform TAB work.

E. TDH: Total dynamic head.

1.4 PREINSTALLATION MEETINGS

A. TAB Conference: If requested by the Owner, conduct a TAB conference at Project site. Insert after approval of the TAB strategies and procedures plan to develop a mutual understanding of the details. Provide a minimum of 14 days' advance notice of scheduled meeting time and location.

1. Minimum Agenda Items:

a. The Contract Documents examination report.
b. The TAB plan.
c. Needs for coordination and cooperation of trades and subcontractors.
d. Proposed procedures for documentation and communication flow.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: Within 30 days of Contractor's Notice to Proceed, submit documentation that the TAB specialist and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.

B. Contract Documents Examination Report: Within 30 days of Contractor's Notice to Proceed, submit the Contract Documents review report as specified in Part 3.

C. Strategies and Procedures Plan: Within 30 days of Contractor's Notice to Proceed, submit TAB strategies and step-by-step procedures as specified in "Preparation" Article.

D. System Readiness Checklists: Within 30 days of Contractor's Notice to Proceed, submit system readiness checklists as specified in "Preparation" Article.

E. Examination Report: Submit a summary report of the examination review required in "Examination" Article.

F. Certified TAB reports.

G. Sample report forms.

H. Instrument calibration reports, to include the following:

1. Instrument type and make.
2. Serial number.
3. Application.
4. Dates of use.
5. Dates of calibration.

1.6 QUALITY ASSURANCE

A. TAB Specialists Qualifications: Certified by AABC.

1. TAB Field Supervisor: Employee of the TAB specialist and certified by AABC.
2. TAB Technician: Employee of the TAB specialist and certified by AABC as a TAB technician.

B. Instrumentation Type, Quantity, Accuracy, and Calibration: Comply with requirements in ASHRAE 111, Section 4, "Instrumentation."

C. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 7.2.2 - "Air Balancing."

D. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1, Section 6.7.2.3 - "System Balancing."

1.7 FIELD CONDITIONS

A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

B. Partial Owner Occupancy: Owner may occupy completed areas of building before Substantial Completion. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems designs that may preclude proper TAB of systems and equipment.

B. Examine installed systems for balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are applicable for intended purpose and are accessible.

C. Examine the approved submittals for HVAC systems and equipment.

D. Examine design data including HVAC system descriptions, statements of design assumptions for environmental conditions and systems output, and statements of philosophies and assumptions about HVAC system and equipment controls.

E. Examine ceiling plenums and underfloor air plenums used for supply, return, or relief air to verify that they are properly separated from adjacent areas. Verify that penetrations in plenum walls are sealed and fire-stopped if required.

F. Examine equipment performance data including fan and pump curves.

1. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.
2. Calculate system-effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from the conditions used to rate equipment performance. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," or in SMACNA's "HVAC Systems - Duct Design." Compare results with the design data and installed conditions.

G. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.

H. Examine test reports specified in individual system and equipment Sections.

I. Examine HVAC equipment and verify that bearings are greased, belts are aligned and tight, filters are clean, and equipment with functioning controls is ready for operation.

J. Examine terminal units, such as variable-air-volume boxes, and verify that they are accessible and their controls are connected and functioning.

K. Examine heat-transfer coils for correct piping connections and for clean and straight fins.

L. Examine operating safety interlocks and controls on HVAC equipment.

M. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.2 PREPARATION

A. Prepare a TAB plan that includes the following:

1. Equipment and systems to be tested.
2. Strategies and step-by-step procedures for balancing the systems.
3. Instrumentation to be used.
4. Sample forms with specific identification for all equipment.

B. Perform system-readiness checks of HVAC systems and equipment to verify system readiness for TAB work. Include, at a minimum, the following:

1. Airside:

a. Verify that leakage and pressure tests on air distribution systems have been satisfactorily completed.
b. Duct systems are complete with terminals installed.
c. Volume, smoke, and fire dampers are open and functional.
d. Clean filters are installed.
e. Fans are operating, free of vibration, and rotating in correct direction.
f. Variable-frequency controllers' startup is complete and safeties are verified.
g. Automatic temperature-control systems are operational.
h. Ceilings are installed.
i. Windows and doors are installed.
j. Suitable access to balancing devices and equipment is provided.

3.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Total System Balance" and in this Section.

B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.

1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.
2. After testing and balancing, install test ports and duct access doors that comply with requirements in Section 23 30 00.
3. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish according to Section 23 30 00 "Duct Insulation."

C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.

D. Take and report testing and balancing measurements in inch-pound (IP**)** units.

3.4 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Cross-check the summation of required outlet volumes with required fan volumes.

B. Prepare schematic diagrams of systems' "as-built" duct layouts.

C. For variable-air-volume systems, develop a plan to simulate diversity.

D. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.

E. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.

F. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.

G. Verify that motor starters are equipped with properly sized thermal protection.

H. Check dampers for proper position to achieve desired airflow path.

I. Check for airflow blockages.

J. Check condensate drains for proper connections and functioning.

K. Check for proper sealing of air-handling-unit components.

L. Verify that air duct system is sealed as specified in Section 23 30 00 – 2.4 Ductwork and Accessories.

3.5 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.

1. Measure total airflow.

   a. Set outside-air, return-air, and relief-air dampers for proper position that simulates minimum outdoor-air conditions.
   b. Where duct conditions allow, measure airflow by Pitot-tube traverse. If necessary, perform multiple Pitot-tube traverses to obtain total airflow.
   c. Where duct conditions are not suitable for Pitot-tube traverse measurements, a coil traverse may be acceptable.
   d. If a reliable Pitot-tube traverse or coil traverse is not possible, measure airflow at terminals and calculate the total airflow.

2. Measure fan static pressures as follows:

   a. Measure static pressure directly at the fan outlet or through the flexible connection.
   b. Measure static pressure directly at the fan inlet or through the flexible connection.
   c. Measure static pressure across each component that makes up the air-handling system.
   d. Report artificial loading of filters at the time static pressures are measured.

3. Review Record Documents to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.
4. Obtain approval from Architect/Engineer of Record for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in HVAC Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air-handling-unit performance.
5. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload occurs. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.

B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows.

1. Measure airflow of submain and branch ducts.

2. Adjust submain and branch duct volume dampers for specified airflow.
3. Re-measure each submain and branch duct after all have been adjusted.

C. Adjust air inlets and outlets for each space to indicated airflows.

1. Set airflow patterns of adjustable outlets for proper distribution without drafts.
2. Measure inlets and outlets airflow.
3. Adjust each inlet and outlet for specified airflow.
4. Re-measure each inlet and outlet after they have been adjusted.

D. Verify final system conditions.

1. Re-measure and confirm that minimum outdoor, return, and relief airflows are within design. Readjust to design if necessary.
2. Re-measure and confirm that total airflow is within design.
3. Re-measure all final fan operating data, rpms, volts, amps, and static profile.
4. Mark all final settings.
5. Test system in economizer mode. Verify proper operation and adjust if necessary.
6. Measure and record all operating data.
7. Record final fan-performance data.

3.6 DUCT LEAKAGE TESTS

A. Witness the duct pressure testing performed by Installer.

B. Verify that proper test methods are used and that leakage rates are within specified tolerances.

C. Report deficiencies observed.

3.7 CONTROLS VERIFICATION

A. In conjunction with system balancing, perform the following:

1. Verify temperature control system is operating within the design limitations.
2. Confirm that the sequences of operation are in compliance with Contract Documents.
3. Verify that controllers are calibrated and function as intended.
4. Verify that controller set points are as indicated.
5. Verify the operation of lockout or interlock systems.
6. Verify the operation of valve and damper actuators.
7. Verify that controlled devices are properly installed and connected to correct controller.
8. Verify that controlled devices travel freely and are in position indicated by controller: open, closed, or modulating.
9. Verify location and installation of sensors to ensure that they sense only intended temperature, humidity, or pressure.

B. Reporting: Include a summary of verifications performed, remaining deficiencies, and variations from indicated conditions.

3.8 TOLERANCES

A. Set HVAC system's airflow rates and water flow rates within the following tolerances:

1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10.
2. Air Outlets and Inlets: Plus or minus 10 percent.

3. Contractor to provide the necessary sheaves, pulleys and other accessories needed to meet the tolerance requirements.

B. Maintaining pressure relationships as designed shall have priority over the tolerances specified above.

3.9 PROGRESS REPORTING

A. Initial Construction-Phase Report: Based on examination of the Contract Documents as specified in "Examination" Article, prepare a report on the adequacy of design for systems balancing devices. Recommend changes and additions to systems balancing devices to facilitate proper performance measuring and balancing. Recommend changes and additions to HVAC systems and general construction to allow access for performance measuring and balancing devices.

B. Status Reports: Prepare monthly progress reports to describe completed procedures, procedures in progress, and scheduled procedures. Include a list of deficiencies and problems found in systems being tested and balanced. Prepare a separate report for each system and each building floor for systems serving multiple floors.

3.10 FINAL REPORT

A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.

1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
2. Include a list of instruments used for procedures, along with proof of calibration.
3. Certify validity and accuracy of field data.

B. Final Report Contents: In addition to certified field-report data, include the following:

1. Fan curves.
2. Manufacturers' test data.
3. Field test reports prepared by system and equipment installers.
4. Other information relative to equipment performance; do not include Shop Drawings and Product Data.

C. General Report Data: In addition to form titles and entries, include the following data:

1. Title page.
2. Name and address of the TAB specialist.
3. Project name.
4. Project location.
5. Architect's name and address.
6. Engineer's name and address.
7. Contractor's name and address.
8. Report date.
9. Signature of TAB supervisor who certifies the report.
10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
11. Summary of contents including the following:

    a. Indicated versus final performance.
    b. Notable characteristics of systems.
    c. Description of system operation sequence if it varies from the Contract Documents.

12. Nomenclature sheets for each item of equipment.
13. Data for terminal units, including manufacturer's name, type, size, and fittings.
14. Notes to explain why certain final data in the body of reports vary from indicated values.
15. Test conditions for fans performance forms including the following:

    a. Settings for outdoor-, return-, and exhaust-air dampers.
    b. Conditions of filters.
    c. Cooling coil, wet- and dry-bulb conditions.
    d. Face and bypass damper settings at coils.
    e. Fan drive settings including settings and percentage of maximum pitch diameter.
    f. Inlet vane settings for variable-air-volume systems.
    g. Settings for supply-air, static-pressure controller.
    h. Other system operating conditions that affect performance.

D. System Diagrams: Include schematic layouts of air distribution systems. Present each system with single-line diagram and include the following:

1. Quantities of outdoor, supply, return, and exhaust airflows.
2. Duct, outlet, and inlet sizes.
3. Terminal units.
4. Position of balancing devices.

E. Air-Handling-Unit Test Reports: For air-handling units with coils, include the following:

1. Unit Data:

    a. Unit identification.
    b. Location.
    c. Make and type.
    d. Model number and unit size.
    e. Manufacturer's serial number.
    f. Unit arrangement and class.
    g. Discharge arrangement.
    h. Sheave make, size in inches (mm), and bore.
    i. Center-to-center dimensions of sheave and amount of adjustments in inches (mm).
    j. Number, make, and size of belts.
    k. Number, type, and size of filters.

2. Motor Data:

    a. Motor make, and frame type and size.
    b. Horsepower and rpm.
    c. Volts, phase, and hertz.
    d. Full-load amperage and service factor.
    e. Sheave make, size in inches (mm), and bore.
    f. Center-to-center dimensions of sheave and amount of adjustments in inches (mm).

3. Test Data (Indicated and Actual Values):

    a. Total airflow rate in cfm (L/s).
    b. Total system static pressure in inches wg (Pa).
    c. Fan rpm.
    d. Discharge static pressure in inches wg (Pa).
    e. Filter static-pressure differential in inches wg (Pa).
    f. Preheat-coil static-pressure differential in inches wg (Pa).
    g. Cooling-coil static-pressure differential in inches wg (Pa).
    h. Heating-coil static-pressure differential in inches wg (Pa).
    i. Outdoor airflow in cfm (L/s).

j. Return airflow in cfm (L/s).
k. Outdoor-air damper position.
l. Return-air damper position.
m. Vortex damper position.

F. Apparatus-Coil Test Reports:

1. Coil Data:

a. System identification.
b. Location.
c. Coil type.
d. Number of rows.
e. Fin spacing in fins per inch (mm) o.c.
f. Make and model number.
g. Face area in sq. ft. (sq. m).
h. Tube size in NPS (DN).
i. Tube and fin materials.
j. Circuiting arrangement.

2. Test Data (Indicated and Actual Values):

a. Airflow rate in cfm (L/s).
b. Average face velocity in fpm (m/s).
c. Air pressure drop in inches wg (Pa).
d. Outdoor-air, wet- and dry-bulb temperatures in deg F (deg C).
e. Return-air, wet- and dry-bulb temperatures in deg F (deg C).
f. Entering-air, wet- and dry-bulb temperatures in deg F (deg C).
g. Leaving-air, wet- and dry-bulb temperatures in deg F (deg C).
h. Water flow rate in gpm (L/s).
i. Water pressure differential in feet of head or psig (kPa).
j. Entering-water temperature in deg F (deg C).
k. Leaving-water temperature in deg F (deg C).
l. Refrigerant expansion valve and refrigerant types.
m. Refrigerant suction pressure in psig (kPa).
n. Refrigerant suction temperature in deg F (deg C).
o. Inlet steam pressure in psig (kPa).

G. Gas- and Oil-Fired Heat Apparatus Test Reports: In addition to manufacturer's factory startup equipment reports, include the following:

1. Unit Data:

a. System identification.
b. Location.
c. Make and type.
d. Model number and unit size.
e. Manufacturer's serial number.
f. Fuel type in input data.
g. Output capacity in Btu/h (kW).
h. Ignition type.
i. Burner-control types.
j. Motor horsepower and rpm.
k. Motor volts, phase, and hertz.
l. Motor full-load amperage and service factor.
m. Sheave make, size in inches (mm), and bore.
n. Center-to-center dimensions of sheave and amount of adjustments in inches (mm).

2. Test Data (Indicated and Actual Values):

    a. Total airflow rate in cfm (L/s).
    b. Entering-air temperature in deg F (deg C).
    c. Leaving-air temperature in deg F (deg C).
    d. Air temperature differential in deg F (deg C).
    e. Entering-air static pressure in inches wg (Pa).
    f. Leaving-air static pressure in inches wg (Pa).
    g. Air static-pressure differential in inches wg (Pa).
    h. Low-fire fuel input in Btu/h (kW).
    i. High-fire fuel input in Btu/h (kW).
    j. Manifold pressure in psig (kPa).
    k. High-temperature-limit setting in deg F (deg C).
    l. Operating set point in Btu/h (kW).
    m. Motor voltage at each connection.
    n. Motor amperage for each phase.
    o. Heating value of fuel in Btu/h (kW).

H. Fan Test Reports: For supply, return, and exhaust fans, include the following:

1. Fan Data:

    a. System identification.
    b. Location.
    c. Make and type.
    d. Model number and size.
    e. Manufacturer's serial number.
    f. Arrangement and class.
    g. Sheave make, size in inches (mm), and bore.
    h. Center-to-center dimensions of sheave and amount of adjustments in inches (mm).

2. Motor Data:

    a. Motor make, and frame type and size.
    b. Horsepower and rpm.
    c. Volts, phase, and hertz.
    d. Full-load amperage and service factor.
    e. Sheave make, size in inches (mm), and bore.
    f. Center-to-center dimensions of sheave, and amount of adjustments in inches (mm).
    g. Number, make, and size of belts.

3. Test Data (Indicated and Actual Values):

    a. Total airflow rate in cfm (L/s).
    b. Total system static pressure in inches wg (Pa).
    c. Fan rpm.
    d. Discharge static pressure in inches wg (Pa).
    e. Suction static pressure in inches wg (Pa).

I. Round, Flat-Oval, and Rectangular Duct Traverse Reports: Include a diagram with a grid representing the duct cross-section and record the following:

1. Report Data:

    a. System and air-handling-unit number.
    b. Location and zone.
    c. Traverse air temperature in deg F (deg C).
    d. Duct static pressure in inches wg (Pa).

e. Duct size in inches (mm).
f. Duct area in sq. ft. (sq. m).
g. Indicated airflow rate in cfm (L/s).
h. Indicated velocity in fpm (m/s).
i. Actual airflow rate in cfm (L/s).
j. Actual average velocity in fpm (m/s).
k. Barometric pressure in psig (Pa).

J. Air-Terminal-Device Reports:

1. Unit Data:

a. System and air-handling unit identification.
b. Location and zone.
c. Apparatus used for test.
d. Area served.
e. Make.
f. Number from system diagram.
g. Type and model number.
h. Size.
i. Effective area in sq. ft. (sq. m).

2. Test Data (Indicated and Actual Values):

a. Airflow rate in cfm (L/s).
b. Air velocity in fpm (m/s).
c. Preliminary airflow rate as needed in cfm (L/s).
d. Preliminary velocity as needed in fpm (m/s).
e. Final airflow rate in cfm (L/s).
f. Final velocity in fpm (m/s).
g. Space temperature in deg F (deg C).

K. System-Coil Reports: For reheat coils and water coils of terminal units, include the following:

1. Unit Data:

a. System and air-handling-unit identification.
b. Location and zone.
c. Room or riser served.
d. Coil make and size.
e. Flowmeter type.

2. Test Data (Indicated and Actual Values):

a. Airflow rate in cfm (L/s).
b. Entering-water temperature in deg F (deg C).
c. Leaving-water temperature in deg F (deg C).
d. Water pressure drop in feet of head or psig (kPa).
e. Entering-air temperature in deg F (deg C).
f. Leaving-air temperature in deg F (deg C).

L. Instrument Calibration Reports:

1. Report Data:

a. Instrument type and make.
b. Serial number.
c. Application.

d. Dates of use.
e. Dates of calibration.

3.11 VERIFICATION OF TAB REPORT

A. The TAB specialist's test and balance engineer shall conduct the inspection in the presence of Architect.

B. Architect shall randomly select measurements, documented in the final report, to be rechecked. Rechecking shall be limited to either 10 percent of the total measurements recorded or the extent of measurements that can be accomplished in a normal 8-hour business day.

C. If rechecks yield measurements that differ from the measurements documented in the final report by more than the tolerances allowed, the measurements shall be noted as "FAILED."

D. If the number of "FAILED" measurements is greater than 10 percent of the total measurements checked during the final inspection, the testing and balancing shall be considered incomplete and shall be rejected.

E. If TAB work fails, proceed as follows:

1. TAB specialists shall recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes; resubmit the final report and request a second final inspection.
2. If the second final inspection also fails, Owner may contract the services of another TAB specialist to complete TAB work according to the Contract Documents and deduct the cost of the services from the original TAB specialist's final payment.
3. If the second verification also fails, Owner may contact AABC Headquarters regarding the AABC National Performance Guaranty.

F. Prepare test and inspection reports.

3.12 ADDITIONAL TESTS

A. Within 90 days of completing TAB, perform additional TAB to verify that balanced conditions are being maintained throughout and to correct unusual conditions.

B. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional TAB during near-peak summer and winter conditions.

END OF SECTION 23 05 93

DIVISION 23 – HEATING, VENTILATING & AIR CONDITIONING

SECTION 23 09 24 – WIRELESS HVAC CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Section Includes

1. System description.
2. Operator interface.
3. Controllers.
4. Controller software.
5. HVAC control programs.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 23 30 00 – Heating, Ventilating, and Air Conditioning

1.3 REFERENCES

A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

B. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

1.4 SUBMITTALS AND SHOP DRAWINGS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for each system component and software module.

C. Shop Drawings:
1. Show system configuration with peripheral devices, batteries, power supplies, diagrams, modems, and interconnections.
2. Indicate description and sequence of operation of operating, user, and application software.

D. Manufacturer's Instructions: Indicate manufacturer's installation instructions for all manufactured components.

E. Project Record Documents: Record actual locations of control components, including control units, thermostats, and sensors.
   1. Revise shop drawings to reflect actual installation and operating sequences.

F. Operation and Maintenance Data:
   1. Include interconnection wiring diagrams complete field installed systems with identified and numbered, system components and devices.
   2. Include keyboard illustrations and step-by-step procedures indexed for each operator function.
   3. Include inspection period, cleaning methods, cleaning materials recommended, and calibration tolerances.

1.5 QUALITY ASSURANCE

A. Perform work in accordance with NFPA 70

B. The Climate Management System (CMS) Contractor shall be a dealer that is regularly engaged in the engineering, programming, installation and service of similar systems.

C. See Part 3, Installation Requirements, for additional installer requirements

1.6 TRAINING

A. Provide a competent instructor who is factory trained and has comprehensive knowledge of system components and operations to provide full instructions to designated personnel in the system operation, maintenance, and programming. Training shall be specifically oriented to installed equipment and systems.

B. Provide (8) hours of onsite owner familiarization and training for the installed system. Training shall include system overview, time schedules, emergency operation, and programming and report generation.

C. Owner employees attending this training session shall be provided with the following documentation:
   1. System layout point to point connection diagram.
   2. System components cut sheets.
   3. Operations and maintenance data.

1.7 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. DDC Equipment Carrier ClimaVision controls. No substitutions will be accepted.

B. The local manufacturer representative will operate a free 40-hour-a-week, toll-free customer support hotline for additional user support service that are required.

2.2 SYSTEM DESCRIPTION

A. System architecture shall be a hybrid consisting of a cloud computing Web Service connected to a set of central controllers, wireless terminal equipment controllers and wireless auxiliary devices. The Web Services shall provide machine learning capability with weather forecast for optimal daily performance while the on-site devices provide automation of mechanical systems with on-board computation and non-volatile memory capabilities. The on-site devices shall be capable of stand-alone operation in case of a failure to communicate with the Web Service.

B. Web Services shall provide a digital twin of all equips in the system and adhere to Project Haystack tagging standards and Haystack Domain Modeler, a Project Haystack-based data modeling tool for creating mapped logical, physical, or conceptual data models of various equipment in the CMS. It is meant to be the comprehensive repository for Project Haystack equips and a modeling tool for creating models specific for each physical equipment type needed.

C. Basis of Design: Carrier ClimaVision.

2.3 ACRCHITECTURE/COMMUNICATION

A. Wireless equipment controllers and auxiliary control devices shall conform to:
1. IEEE 802.15.4 radios to minimize risk of interference and maximize reliability, and range.
2. Communication between equipment controllers shall be a wireless mesh network operating in the 900 MHz frequency band.
3. Operating range shall be a minimum of 100 feet between two hops; open range shall be 500 ft. (152 m) with less than 2% packet error rate to ensure reliable operation.
4. To maintain robust communication, mesh networking and two-way communications shall be used to optimize the wireless network health.
5. Wireless communication shall be capable of many-to-one sensors per controller to support averaging, monitoring, and multiple zone applications.

B. The Climate Management System Supervisory Controllers shall be the Central Control Unit (CCU). All terminal mechanical equipment and auxiliary devices shall be wirelessly tied into the CCU. CCUs will connect to the suppliers Web Service via customer Internet connection and must support Wi-Fi and Wired Ethernet network.

2.4 OPERATOR INTERFACE

A. Web interface
1. The solution shall provide an online web portal that is accessible via the Internet.

B. Mobile Apps
1. The solution shall provide access to the facility manager remote access via native apps on iOS and Android.

C. Local User Operation
1. User app – The Climate Management System shall provide a mobile app that allows the occupants to control their own space. In order to support energy conservation measures, the app shall allow use of geofencing detect proximity to their office and set the occupied temperature. The app shall also allow the user to set vacations for their own zones.
2. Wall Space Interface – The Climate Management System shall provide a local space sensor and interface that allows the occupant to adjust the desired temperature from within the space. To support use by the physically impaired, the wireless space sensor shall be a minimum font size of 12 points, and the LCD model shall be readable in low light conditions.

D. Wireless Space Sensors
1. To check for proper operation, wireless space temperature sensors shall include a signal strength on the Central Control Unit (CCU).
2. To allow local troubleshooting without specialized tools, error codes shall be displayed on the digital display.
3. Relative humidity sensors shall provide RH readings at all temperature locations for humidity control applications.

E. SERVICE TOOLS
1. To support network setup and troubleshooting, service tools shall display link quality for each wireless device.
2. Service tool access via a mobile app native to both iOS and Android shall be provided to minimize installation and troubleshooting labor.

2.5 APPLICATIONS AND CONTROL SOFTWARE

A. Online Operator Interface
1. The Web browser client shall be set up to support, at a minimum, the following functions:
   a. User log-on identification and password shall be required. If an unauthorized user attempts access, notice of access failure shall be displayed. Security using authentication and a minimum of 128 bit SSL encryption techniques to prevent unauthorized access shall be implemented.
   b. Real-time values displayed on a web page shall have the ability to update automatically without requiring a manual “refresh” of the web page.
   c. Users shall have administrator-defined access privileges. Depending on the access privileges assigned, the user shall be able to perform the following at either a single site or multiple sites:
      1) Modify schedules and setpoints in a graphical manner.
      2) View logs and charts.
      3) View alarms.
      4) Modify parameters that tune algorithm execution such as Deadbands and hold-down timers

B. Alarms
1. Alarm feature shall allow user configuration of criteria to create, route, and manage alarms and events. It shall be possible for specific alarms to be routed to specific alarm recipients via email, text message or notification via mobile app. The alarm management portion of the user interface shall, at the minimum, provide the following functions:
   a. Generate alarm records that contain a minimum of a timestamp, the values generating the alert, acknowledged state, alarm class and priority.
   b. Allow a user, with the appropriate security level, to manage alarms - including sorting and acknowledging.

C. Reports and Summaries
1. Reports and Summaries shall be generated and directed to the user interface displays. As a minimum, the system shall provide the following reports:
   a. All points relevant to a specific profile(equipment) in the CMS such as current/desired temperatures, airflow temperatures, equipment operation etc.
   b. All CMS schedules

D. Schedules
1. A graphical display for time-of-day scheduling and override scheduling of building operations shall be provided. At a minimum, the following functions shall be provided:

a. Zone level schedules that allow occupant preferences for temperature to be captured via local interface and made permanent.
b. Building level schedules that allow occupant preferences for temperature to be captured via local interface and temporarily followed till the end of the current scheduled time.
c. Vacation Schedules with multiple named entries for the future.

2. Weekly schedules shall be provided for each group of equipment (zone) with a specific time use schedule.
3. There shall exist a mechanism to allow assigning of a single schedule to an arbitrary named group of zones across multiple sites. This grouping of zones can be edited and reused on an ongoing basis.

E. Password
1. Multiple-level password access protection shall be provided to allow the system manager to assign user interface control, display, setup and configuration capabilities on the building supervisory controller as deemed appropriate for each user based on an assigned password.
2. For remote access, each user shall have the following: a user name, a password, and access levels.
3. The system shall provide the capability to require a password of minimum length and require a combination of characters and numerical or special characters.
4. When entering or editing passwords, the system shall not echo the actual characters for display on the monitor.
5. Operators shall be able to perform only those commands available for their respective passwords. Display of menu selections shall be limited to only those items defined for the access level of the password used to log-on.

F. Dynamic Floorplan Graphics
1. The graphics application program shall be supplied as an integral part of the User Interface
2. The graphics applications shall include a create/edit function and a runtime function for editing of the floor plan.
3. The floor graphics shall by default display a color-coded plan representing how close the temperatures are being maintained to the desired values.
4. The floor graphics shall show pertinent trend data from the equipment upon hovering over a specific zone. Clicking on a zone shall allow for greater detailed trend data and the ability the edit the relevant setpoints directly from the modal popup.
5. The floor plan graphics shall include the ability to add custom widgets that are able to display color coded real-time data that is acquired, derived, or entered on each zone on the floor plan.
6. Floor plan graphics runtime functions -Each graphic application including the widgets shall be capable of the following functions:
a. The graphics shall support a maintained aspect ratio.
b. Unique background shall be assignable on a per floor basis.
7. Operation from graphics - It shall be possible to change values (setpoints) and states in systems controlled equipment within the Web browser interface.
8. A floor plan graphic editing tool shall be provided that allows for the mapping of zones w.r.t. a plan view of the building floor via a web based WYSIWYG click and drag interface. No coding or other special tools shall be required.

G. Historical Data Collection
1. All numeric, binary or data points in the system database shall allow their values to be logged over time (trend log). Each historical record shall include the point's name, a time and the point's value.
2. The data shall be stored on a provided cloud service that is backed up automatically.
3. The historical data collection shall allow for recording data every minute.
4. A historical data viewing utility shall be provided with access to all history records. This utility shall allow historical data to be viewed in a chart format.
5. The historical data chart view shall allow different point histories to be displayed simultaneously, and provide panning and zooming capabilities.

H. Audit Log

1. For each log entry, provide the following data;
   a. Time and date
   b. User ID
   c. Change or activity: i.e., Change setpoint, add or delete objects, commands, etc.

I. Database Backup and Storage
1. The Supervisory Controller configuration databases shall automatically get backed up to a cloud storage service that is included in the offering every night. In addition, the user shall have the ability to back up the databases manually.

J. Cloud Services Tiers
1. Cloud Services tiers shall be available as a subscription model and shall include the features as described in the subsequent sections.
2. Basic Tier (Standard):
   a. Include the features listed in sections 2.05A thru 2.05I
   b. One Week Historical Data Retention
   c. Be free of charge for the life of the system
3. Plus Tier:
   a. Include all the features in the Basic Tier
   b. Equipment Visualization
   c. Notifications via Email and desktop Web UI
   d. Summary Tables
   e. Custom Filters, Analytics, Point Summaries, Custom Alerts
   f. Up to 6 Dashboards
   g. Audit Trails and Reporting
   h. Remote Session to CCU
   i. Inbuilt Online Support with Chat Assistant
   j. Two Years of Historical Data Retention
   k. Shall be included for the first twelve months after system installation
4. Pro Tier:
   a. Include all the features in the Basic and Plus Tiers
   b. Notifications via Text
   c. AI-Powered Interface with Chatbot, Alert Insights, Dashboards, Auto Commissioning Tool
   d. Available Open APIs for Integrations Add-On
   e. Unlimited Dashboards
   f. Site Manager and Sequencer for advanced mapping, monitoring, and control
   g. Commissioning Diagnostics and Reports
   h. Lifetime Historical Data Retention
   i. Shall be included for the first three months after system installation

2.6 SYSTEMS CONTROLLERS

A. Central Control Unit
1. The Central Control Unit (CCU) shall be a wall mounted gateway for the wireless terminal equipment modules in the building.
2. The CCU shall use an Android or equivalent operating system and a control node with inputs and outputs for controlling a range of HVAC and lighting equipment.
3. To minimize the power wiring, the CCU shall be capable of being powered from standard HVAC supplied 24VAC
4. The CCU shall not consume more than 15VA of power to not require dedicated power installations.

2.7 SENSORS

A. Space sensors for use in Heating, Ventilating, and Air Conditioning (HVAC) systems

1. Temperature and Humidity Range
   a. The ambient operating temperature range for the wireless space sensor shall be 32 to 122°F (0 to 50°C).
   b. The ambient storage temperature range for the space sensor shall be -40 to 185°F (-40 to 85°C).
   c. The ambient operating and storage humidity range for the wireless space sensor shall be 5 to 95%, non-condensing.
2. Components
   a. Space sensors shall be available as:
      1) Wall mount version with temperature and with integrated 2% humidity. The surface of this sensor shall be paintable to blend in with the décor.
      2) Ceiling mount version with temperature and integrated 2% humidity. The mounting mechanism shall allow the drop of the sensor to be adjusted from the ceiling between 3-10". This will allow for better temperature sensing in case of stratification near the top of the ceiling.
      3) An optional specifiable model with digital display and local user interface. The sensor shall be wall mount with temperature and with integrated 2% humidity and. The digital display model shall allow local interface control without a field service tool. Configuration options include: set point and override capacitive touch controls.
   b. Installation and replacement of failed sensors shall be accomplished automatically after power up.
   c. The space sensor shall not expose any screws or obvious attachment mechanism to protect against theft.
   d. Wireless space sensor component certifications shall include:
      1) TFP-13651127 - Canada Compliance
      2) UL 60730 - Automatic Electrical Controls
3. Accuracy
   a. To ensure proper system performance, the space sensors shall automatically determine the space temperature even if it is rapidly changing. The space temperature shall be transmitted at least once each second to the equipment controller. Space temperature sensing accuracy shall be +/- 0.5F (+/- 0.28C).
4. Power Requirements
   a. To conserve labor, no separate power cables should need to be run. The space sensor is powered via a single communications and power cable to the HVAC equipment controller.

2.8 SMART NODE.

A. General
   1. The Smart Node equipment controller shall allow flexibility in software-defined configurations which can control a range of equipment, from zone dampers to reheat coils to economizer controls.
   2. Unit to operate off a 24V power source and shall be designed for use with a "daisy chain" power supply that allows powering of several smart nodes off one power source.
   3. The Smart Node shall have multiple input and outputs, plus be capable of 900 MHz mesh communication and 2.4 GHz Bluetooth wireless communication to control a range of control sensors and control equipment.
   4. The equipment controller shall not require a wired connection back to the central supervisory controller. This will result in significant labor savings and troubleshooting.
   5. Software shall allow improvements to the control sequences to be included with every software update.
   6. The wireless controller addresses shall be held in non-volatile memory to ensure operation through system voltage disturbances.
   7. The 'pairing' or association of the controller address to a zone shall follow a wireless process and include a token exchange and confirmation of a unique identification number that shall be generated dynamically to minimize the risk of incorrect association. Two position DIP switches are not acceptable.

8. During the association the name of the zone should be transferred to the equipment controller and displayed on the main screen to validate correct pairing.

B. General purpose programmable controllers: Smart Node (SN)
1. The Smart Node (SN) shall be a fully user-programmable, digital controller that communicates via wireless mesh network.
2. The SN shall employ a finite state control engine to eliminate unnecessary conflicts between control functions at crossover points in their operational sequences.
3. The SN shall be assembled in a plenum-rated plastic housing with flammability rated to UL94-5VB.
4. The SN shall include an OLED or LCD display screen.
5. To assist in troubleshooting the controller shall display the following conditions:
   a. A main screen showing information pertinent to the controllers configured equipment operation including the name of the zone and wireless signal strength.
   b. An inputs screen showing the status and current voltage/resistance of all inputs and attached sensors via the sensor bus.
   c. An outputs screen allowing for temporary overrides of all outputs. The overrides should revert to normal operation after 15 minutes if left unattended.
   d. A screen showing the version of the software running on the controller.
6. The SN shall accommodate the direct wiring of analog and binary I/O field points.
7. The SN shall support the following types of inputs and outputs:
   a. Binary Inputs - shall be configured to monitor either of the following:
      1) Dry Contact Maintained Mode
   b. Analog Outputs - shall be configured to output either of the following.
      1) Analog Output, Voltage Mode
      2) Analog Output, current Mode
   c. Binary Outputs - shall output the following:
      1) Normally Open (N/O) relay contacts capable of at least 1A current at 24V AC/DC or 120VAC.
   d. Thermistor Inputs
      1) Analog Input, Resistive Mode with profile for 10K, type 2 resistor built in.
8. The SN shall have the ability to reside on the mesh network.
   a. The wireless mesh network shall support communications between the SNs and the CCU.
9. The SN shall have the ability to monitor and control sensors and actuators.
10. The SN shall have dedicated damper outputs to directly drive servo motor based balancing dampers. For such dampers, the SN shall have an automatic calibration sequence to detect speed and motor drive current. Parameters discovered during such calibration shall be displayed on the screen.
11. The SN shall have the capability to execute complex control sequences involving direct wired I/O points as well as input and output devices.

2.9 FUNCTIONAL PROGRAMMING

A. The SN shall support, but not be limited to, backup functional programming sequences for operations on the equipment using local sensors/controls in case communication to the central supervisory controller is lost.

2.10 INPUT DEVICE CHARACTERISTICS

A. General Requirements
1. Installation, testing, and calibration of all sensors, transmitters, and other input devices shall be provided to meet the system requirements.

B. Temperature and Humidity Sensors
1. General Requirements:

a. Sensors and transmitters shall be provided, as outlined in the input/output summary and sequence of operations.

2. Room Temperature Sensors with local input
   a. Room sensors shall be constructed for either surface or wall box mounting.
   b. Room sensors shall have the following options when specified:
      1) Setpoint adjustment providing a +3 degree (adjustable) range
      2) Dial adjustment for setpoint value or warmer or cooler requests. The dial shall also initiate temporary occupancy during unoccupied times.
      3) A momentary override request for activation of after-hours operation
      4) Backlit LCD or OLED temperature display shall display temperature and setpoint with units.

3. Outside Air Sensors
   a. The airflow temperature sensor shall be of the resistance type 2 RTD with nominal resistance of 10K at 77 °F.
   b. temperature sensing accuracy shall be +/- 0.5F (+/- 0.28C).
   c. Outside air sensors shall be designed to withstand the environmental conditions to which they will be exposed. They shall also be provided with a solar shield.
   d. Temperature transmitters shall be of NEMA 3R construction and rated for ambient temperatures.
   e. The sensors shall be provided with plenum rated wiring harness.
4. Duct Mount Sensors
   a. The airflow temperature sensor shall be of the resistance type 2 RTD with nominal resistance of 10K at 77 °F or digital solid-state semiconductor with I2C bus interface.
   b. temperature sensing accuracy shall be +/- 0.5F (+/- 0.28C).
   c. Duct mount sensors shall mount in a hole in the duct, and be easily accessible from outside the duct for repair or replacement.
   d. Duct sensors shall be insertion type and constructed as a complete assembly, including lock nut and mounting plate.
   e. For outdoor air duct applications, a weatherproof mounting box with weatherproof cover and gasket shall be used.
5. Humidity Sensors
   a. The sensor shall be a solid-state type, relative humidity sensor with digital I2C bus interface. The sensor element shall resist service contamination.
   b. The humidity transmitter shall meet the following overall accuracy, including lead loss and Analog to Digital conversion. 3% between 5% and 95% RH @ 77 °F unless specified elsewhere.
   c. Outside air relative humidity sensors shall be installed with a rain proof, perforated cover. The transmitter shall be installed in a NEMA 3R enclosure with sealtite fittings and stainless steel bushings.
   d. The sensor be shipped factory pre-calibrated and require no field calibration.

C. Differential Pressure Transmitters
1. General Air and Water Pressure Transmitter Requirements:
   a. Pressure transmitters shall be constructed to withstand 100% pressure over-range without damage, and to hold calibrated accuracy when subject to a momentary 40% over-range input.
   b. Pressure transmitters shall transmit a 0 to 10 VDC, or 4 to 20 mA output signal or digital sensor compatible with industry standard 1-wire bus protocol.
   c. Differential pressure transmitters used for flow measurement shall be sized to the flow sensing device.
   d. A minimum of a NEMA 1 housing shall be provided for the transmitter. Transmitters shall be located in accessible local control panels wherever possible.
2. Building Differential Air Pressure Applications (-1” to +1” w.c.)

a. The differential pressure transmitter shall be of industrial quality and transmit a linear, 4 to 20 mA, 0-10V output or digital sensor compatible with industry standard 1-wire bus protocol in response to variation of differential pressure or air pressure sensing points.
b. The differential pressure transmitter shall have non-interactive zero and span adjustments that are adjustable from the outside cover and meet the following performance specifications:
   1) -1.00 to +1.00 w.c. input differential pressure ranges. (Select range appropriate for system application)
   2) 4-20 mA or 0-10V output
   3) Maintain accuracy up to 20 to 1 ratio turndown.
   4) Reference Accuracy: +0.2% of full span.

D. Current Transformers
1. The current transformers shall be self-powered with solid-state circuitry and a 0-10V output with adjustable measuring range. The range shall be adjustable from 10A, 20A, 50A full scale output. A conductor of the load shall be passed through the window of the device. It shall accept over-current up to twice its max range.

E. Status and Safety Switches
1. General Requirements
   a. Switches shall be provided to monitor equipment status, safety conditions, and generate alarms at the CMS when a failure or abnormal condition occurs.
   b. Current Sensing Switches
      1) The current sensing switch shall be self-powered with solid-state circuitry and a dry contact output. It shall consist of a current transformer, a solid state current sensing circuit, adjustable trip point, solid state switch, SPDT relay, and an LED indicating the on or off status. A conductor of the load shall be passed through the window of the device. It shall accept over-current up to twice its trip point range.
      2) Current sensing switches shall be used for run status for fans, pumps, and other miscellaneous motor loads.
      3) Current sensing switches shall be calibrated to show a positive run status only when the motor is operating under load. A motor running with a broken belt or coupling shall indicate a negative run status.

2.11 OUTPUT DEVICE CHARACTERISTICS

A. Actuators
1. General Requirements
   a. Damper and valve actuators shall be electronic and/or pneumatic, as specified in the System Description section.
2. Electronic Damper Actuators
   a. Electronic damper actuators shall be direct shaft mount.
   b. Modulating and two-position actuators shall be provided as required by the sequence of operations. Damper sections shall be sized based on actuator manufacturer's recommendations for face velocity, differential pressure and damper type. The actuator mounting arrangement and spring return feature shall permit normally open or normally closed positions of the dampers as required. All actuators (except terminal units) shall be furnished with mechanical spring return unless otherwise specified in the sequences of operations.
   c. All actuators shall have external adjustable stops to limit the travel in either direction and a gear release to allow manual positioning.
   d. Modulating actuators shall accept 24 VAC or VDC power supply, consume no more than 15 VA and be UL listed. The control signal shall be 2-10 VDC or 4-20 mA. If specified per sequence of operations the actuator shall provide a clamp position feedback signal of 2-10 VDC. The feedback signal shall be independent of the input signal and may be used to parallel other actuators and provide true position indication. The feedback signal of one

damper actuator for each separately controlled damper shall be wired back to a terminal strip in the control panel for troubleshooting purposes.

e. Two-position or open/closed actuators shall accept 24 or 120 VAC power supply and be UL listed. Isolation, smoke, exhaust fan, and other dampers, as specified in the sequence of operations, shall be furnished with adjustable end switches to indicate open/closed position or be hard wired to start/stop associated fan. Two-position actuators, as specified in sequences of operations as “quick acting,” shall move full stroke within 20 seconds. All smoke damper actuators shall be quick acting.

f. Acceptable manufacturers: Johnson Controls, Schneider Electric, Belimo, and Mamac.

3. Electronic Valve Actuators

a. Electronic valve actuators shall be manufactured by the valve manufacturer.

b. Each actuator shall have current limiting circuitry incorporated in its design to prevent damage to the actuator.

c. Modulating and two-position actuators shall be provided as required by the sequence of operations. Actuators shall provide the minimum torque required for proper valve close-off against the system pressure for the required application. The valve actuator shall be sized based on valve manufacturer’s recommendations for flow and pressure differential.

d. All actuators shall fail in the last position unless specified with mechanical spring return in the sequence of operations. The spring return feature shall permit normally open or normally closed positions of the valves as required. All direct shaft mount rotational actuators shall have external adjustable stops to limit the travel in either direction.

e. Modulating actuators shall accept 24 VAC or VDC and 120 VAC power supply and be UL listed. The control signal shall be 2-10 VDC or 4-20 mA and the actuator shall provide a clamp position feedback signal of 2-10 VDC. The feedback signal shall be independent of the input signal, and may be used to parallel other actuators and provide true position indication. The feedback signal of each valve actuator (except terminal valves) shall be wired back to a terminal strip in the control panel for troubleshooting purposes.

f. Two-position or open/closed actuators shall accept 24 or 120 VAC power supply and be UL listed. Butterfly isolation and other valves, as specified in the sequence of operations, shall be furnished with adjustable end switches to indicate open/closed position or be hard wired to start/stop the associated pump or chiller.

2.12 SYSTEM TOOLS

A. Wireless Space Sensor Installation and Configuration Tools

1. To enable installation and servicing when specialized tools are required, site survey and installation tools as well as software shall be provided to the contractor use for system installation and commissioning for the duration of the warranty period.

2. To enable installation and servicing when specialized tools are required, site survey and installation tools as well as software shall be provided to the owner for permanent possession for ongoing system maintenance and trouble shooting.

2.13 OPERATED EQUIPMENT

A. Bypass Dampers

1. General:

a. Bypass dampers are communicating dampers and include an integrated fully modulating 24 VAC electric actuator.

b. Dampers are nominally rated up to 1800-2400 fpm at 1.75" of static pressure.

c. Round damper shall have a heavy gage galvanized steel cylinder with a rolled bead for high structural integrity and positive shut off. Damper blade shall be of the butterfly type with an elastomeric seal to provide quite operation and tight shutoff for low leakage.

d. Rectangular dampers shall be formed from heavy gage galvanized steel frame, mechanically joined with linkage concealed in the side channel. Damper blades shall be of the opposed blade design and shall be constructed of 18 gage galvanized steel.

e. Dampers shall be either round or rectangular configuration as noted on the plans

B. Zone Dampers
1. General:
a. Zone dampers are fully-modulating, pressure dependent VAV devices.
b. Dampers control zone temperature by varying the volume of air flowing into a space.
c. Each zone damper to have a smart node and actuator enclosed.
2. Damper Construction
a. Round damper shall have a heavy gage galvanized steel cylinder with a rolled bead for high structural integrity and positive shut off. Damper blade shall be of the butterfly type with an elastomeric seal to provide quiet operation and tight shutoff for low leakage.
b. Rectangular dampers shall be formed from heavy gage galvanized steel frame, mechanically joined with linkage concealed in the side channel. Damper blades shall be single ply, heavy gage G60 galvanized steel blades with a glass fiber filled nylon crank bearings connected by a metal drive link.
c. Dampers shall be either round or rectangular configuration as noted on the plans
3. Smart Dampers
a. Smart Dampers shall include the damper and associated drive mechanism in one unit
b. Smart dampers motor drive shall be a direct shaft mount servo motor type
c. The dampers shall include a blade type damper that folds radially so that static pressure does not affect its operation.
d. The damper shall retain is position once positioned and power is removed to the servo motor.
e. The damper system shall include a 10K type 2 RTD sensor as part of the assembly

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

3.2 INSTALLATION

A. Install control units and other hardware in position on permanent walls where not subject to excessive vibration.
B. Install software in control units. Implement all features of programs to specified requirements and appropriate to sequence of operation. Refer to Section 23 0993.
C. Provide conduit and electrical wiring in accordance with Section 26 2717. Electrical material and installation shall be in accordance with appropriate requirements of Division 26.
D. Coordinate with Owners IT Department to obtain gateway out of Owners internet access point in such a manner that the security of the Owners network is not at risk of being breached due to the control system gateway.
E.

3.3 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate complete and operating system to Owner.

- END OF SECTION -

DIVISION 23 – HEATING, VENTILATING & AIR CONDITIONING

SECTION 23 30 00 - HEATING, VENTILATING AND AIR CONDITIONING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work under this section includes all labor, equipment, material, services, transportation, etc. required for and reasonably incidental to the complete and satisfactory installation of all of the HVAC Systems as indicated on the Drawings or specified herein.

1.2 WORK INCLUDED IN THIS SECTION

A. Package Roof Top Heat Pump Units

B. Ductwork and Accessories

C. Grilles, Registers and Diffusers

D. Duct Cleaning

E. Test and Balance

F. Submittals and Shop Drawings

G. Record Drawings

H. Operation and Maintenance Manuals

I. Guarantee

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Electrical supply to units. See Electrical Drawings.

B. Cutting and Patching. See Division 1 and 7, and Mechanical Drawings.

C. Equipment Pads and Support. See Structural Drawings.

1.4 GENERAL REQUIREMENTS

A. This section of the specification shall be considered as a part of the entire specification and all applicable portions of General Conditions, Special Conditions, and Division 1 shall apply.

B. Before commencement of work this contractor shall determine the exact location, size, elevation, and availability of all utilities relevant to the mechanical work and immediately notify the District with written notification of any discrepancies. In addition, this Contractor shall contact all involved utility companies, make all necessary arrangements for service, and pay all fees incurred due to connection of services.

C. Erection: The Contractor shall furnish the services of an experienced superintendent, who shall be constantly in charge of the erection of the work, together with all necessary journeymen, helpers, and laborers required to properly unload, erect, connect, adjust, start of operate and test the work involved.

1.5 REFERENCES

A. AABC - National Standards for Field Measurement and Instrumentation, Total System Balance.

B. AMCA 210 - Laboratory Methods of Testing Fans for Rating Purposes.

C. AMCA 300 - Test code for sound rating air-moving devices.

D. ANSI/NFPA 90A - Installation of Air Conditioning and Ventilation System.

E. ARI 270 - Sound rating of Outdoor Unitary Equipment.

F. ASHRAE 52.2-2017 - Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency By Particle Size

G. ASTM A90 - Weight of Coating on Zinc - Coated (Galvanized) Iron or Steel Articles

H. ASTM A120 - Black and Galvanized Steel Pipe

I. ASTM B88 - Seamless Copper Water Tube

J. ASTM C518 - Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

K. ASTM C553 - Mineral Fiber Blanket and Felt Insulation

L. ASTM C612 - Mineral Fiber Block and Board Thermal Insulation

M. ASTM E84 - Surface Burning Characteristics of Building Materials

N. ASTM E96 - Water vapor Transmission of Materials

O. NFPA 90B - Installation of Warm Air Heating and Air Conditioning Systems

P. NFPA 255 - Surface Burning Characteristics of Building Materials

Q. SMACNA - Low Pressure Duct Construction Standards

R. UL 181 - Factory Made Air Ducts and Connectors

S. UL 723 - Surface Burning Characteristics of Building Materials

T. California Mechanical Code - 2025 Edition

U. California Building Code - 2025 Edition

V. CEC Title-24 – 2025 Edition

1.6 SUBMITTALS AND SHOP DRAWINGS

A. Contractor agrees that shop drawings submittals processed by the District do not become Contract Documents and are not Change Orders; that the purpose of the shop drawing review is to establish a reporting procedure and is intended for the Contractor's convenience in organizing his work and to permit the District to monitor the Contractor's progress and understanding of the design. The process of review of the Contractor's submittals is not of testing the District's perception. If deviations, discrepancies or conflicts between shop drawings submittals and the Contract Documents are discovered either prior to or after the shop drawing submittals are processed by the District, the Contractor agrees that the Contract Documents shall control and shall be followed.

B. Prepare and furnish fully coordinated shop drawings showing ductwork and piping on separate drawings.
1. The drawings shall be minimum 1/4" = 1'-0" scale and shall show dimensioning of piping and ductwork from gridlines, bottom of elevation marks for ductwork and piping and fittings, valves, dampers, devices, etc. with labels.
2. In addition, coordinate with related work and reference on the same drawings major plumbing piping, structural steel, fire protection piping, conduit runs and cable trays.
3. Review and sign these drawings to verify coordination of related equipment.
4. Conflicts, which occur, shall be brought to the attention of the District Representative prior to issuance of the drawings.

C. Materials and Equipment:
1. As soon as possible and within 14 days after award of the contract, and before their purchase, the Contractor shall submit to the District electronic format submittals for approval containing a complete list of materials, specialties and equipment he is to furnish for the installation.
2. Literature shall be standard manufacturer's catalog cuts and items to be installed shall be clearly indicated.
3. All submittals shall be made at one time.

D. Each item shall be identified by manufacturer, brand and trade name, number, size, rating and whatever other data is necessary to properly identify and check the materials and equipment. The words: "as specified" will not be considered sufficient identification.

E. Accessories, controls, finish, etc., not submitted or identified with the submitted equipment shall be furnished and installed as specified.

F. 1 Sets of complete electronic format shop drawings shall be submitted for approval indicating all piping, equipment and ductwork. These drawings shall indicate sizes, locations and elevations of ductwork, equipment and equipment pads, piping and controls including transitions, valves etc.

G. Shop drawings shall be approved only to extent of information indicated. Approval of an item of equipment shall not be construed to mean approval for components for that item for which Contractor has provided no information.

H. Approval of shop drawings shall not relieve Contractor of responsibility for providing all controls, wiring, components, etc. which are shown or specified, or all additional controls, wiring, components, etc. required to provide complete and correctly operating mechanical systems.

I. Submit product data for the following manufactured products, assemblies, personnel and testing agencies required for this project.

1. Power Exhaust
2. VVT dampers
3. Duct Cleaning Guidelines
4. Diffusers, registers and grilles

5. Ductwork and Accessories
6. Insulation Materials
7. Filters
8. Controls

1.7 SUBSTITUTIONS

A. Should the Contractor desire to substitute any material, equipment or other items for those specified, he shall submit a complete list, including detailed equipment layouts and performance characteristics within 14 calendar days after the scheduled Start of Construction. Said data shall be submitted in 1 electronic format set, assembled in individual brochures.

B. The entire cost of all changes of any type due to substitution for materials specified shall be born by the Contractor at no extra cost to the District.

C. Unsolicited and voluntary deducts, on the part of the Contractor for substituting unapproved systems and/or equipment, shall not be considered for the purpose of awarding the Contract.

D. The contractor shall submit the amount of cost credit to the Contract in the event the proposed substitution is accepted.

E. In all cases where substitutions are proposed after bids are received, the Contractor shall bear the cost of evaluation on the basis of 2-1/2 times technical salaries of engineering personnel involved.

1.8 AVAILABILITY OF SPECIFIED EQUIPMENT

A. Verify prior to bidding that all specified equipment is available and can be obtained in time for installation during orderly and timely progress of the work.

B. In the event that specified items will not be so available, notify the District prior to receipt of bids.

C. Costs of delays because of non-availability of specified items, when such delays could have been avoided by proper investigation on the part of the Contractor, will be back-charged as necessary and shall not be born by the District.

1.9 RECORD DRAWINGS

A. The contractor shall arrange and pay for one set of white prints of the HVAC drawings, which he shall alter in red to show all changes made to the original layout. These drawings shall be kept current.

B. The contractor shall deliver these completed to the District when the job is finished and accepted prior to final payment, and provide copies of approved shop drawings in ACAD format to MEOR.

C. Contractor shall provide 1 complete set of electronic format drawings per District standard on BOX.

1.10 OPERATION AND MAINTENANCE DATA

A. Submit one (1) electronic format set prior to final inspection including cover sheet and table of contents. Prepare submittal with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", and title of

project. Internally subdivide the section contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

B. Contents: Prepare a Table of Contents with each Product or system description identified.
   1. Part 1:
      a. Directory listing names, addresses, and telephone numbers of District, Contractor, Subcontractors, and major equipment suppliers.
   2. Part 2:
      a. Operation and maintenance instructions, arranged by system.
      b. Identify the following:
         1) Significant design criteria
         2) List of equipment
         3) Parts list for each component
         4) Operating instructions
         5) Maintenance instructions for equipment and systems
         6) Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.

C. Submit one copy of completed volumes in final form 15 days prior to final inspection. This copy will be returned after final inspection, with District comments. Revise content of documents as required prior to final submittal.

D. Submit final volumes (revised) within ten days after final inspection.

1.11 GUARANTEES

A. The Contractor, in accepting this contract, binds himself to replace or repair at his own expense any defect in workmanship or material which may appear within a period of one year from the date of the final acceptance of the building, and to pay for all resulting damage which shall appear within the said period; provided always that the Contractor shall not be liable for anything attributable to acts of the agents of the District, or for ordinary wear. Also, given date of work performed by the Contractor be accepted as complete, he shall agree to correct any deficiencies or omissions in respect to the plans or specifications which may appear in the afore-mentioned twenty-four month period.

B. The Contractor guarantees that all piping as provided in this specification will be free from all obstructions, and that all piping will be tight and drip free.

C. All refrigerant compressors shall carry a seven-year manufacturer's warranty with additional extended three -year manufacturer's warranty by providing required documents to manufacturer within 90 days from installation date.

1.12 LOCAL CONDITIONS

A. The Contractor and trade submitting tenders on this work shall visit and will be deemed to have visited the site to ensure that they are familiar with all conditions relating to the work. Failure to visit the site will in no way relieve the successful Contractor of the necessity of furnishing any material or performing any work that may be required to complete the work in accordance with the drawings and specifications without additional cost to the District.

1.13 RULES, REGULATIONS AND CODES

A. All work and materials shall be in full accordance with the latest California Mechanical Code, California Plumbing Code, California Building Code State regulations, State Fire Marshal regulations, the safety orders of the Division of Industrial Safety; the California Electric Code; the standards of the National Fire Protection Association; American Gas Association; Occupation and Safety Act; American National Standards Institute; American Society of Mechanical Engineers; American Society for Testing and Materials; Installation Standards published by the International Association of Plumbing And Mechanical officials (IAPMO) and other applicable laws, codes, or regulations. Nothing in these specifications shall be construed to permit work not conforming to these codes.

B. Electrical Work: Motors, electrical apparatus and wiring specified in this section shall conform to the National Electrical Manufacturer's Standards and the California Electric Code and bear the Underwriter's label of approval.

C. The Contractor shall furnish, without extra charge, any additional material and labor when and where required to comply with these rules and regulations, though the work be not mentioned in these Specifications or shown on the Drawings. When these Specifications or Drawings call for or describe materials or construction of a better quality or larger sizes than required by the above mentioned rules and regulations, the provisions of these specifications and accompanying drawings shall take precedence.

1.14 FEES AND PERMITS

A. The Contractor must obtain and pay all fees for permits, licenses, inspections, etc., which are required by any legally constituted authority. Coordinate exact requirements with the District prior to bid.

1.15 COORDINATION

A. Following the general arrangement indicated on the Drawings as closely as possible, the Contractor shall coordinate with the architectural, structural, plumbing, electrical and all other trades prior to installation of the materials and equipment to verify adequate space available for installation of the work shown. The District shall be immediately notified if an area of conflict occurs between trades.

B. The Contractor shall bear all costs incurred for work that must be relocated due to conflicts between trades.

C. The Mechanical Contractor shall coordinate all requirements for all points of connection with the General Contractor and other trades prior to bid.

1.16 DRAWINGS

A. The work shall be installed as indicated on Drawings, however, changes to accommodate installation of this work with other work, or in order to meet Architectural or structural conditions, shall be made without additional cost to the District.

B. For the purpose of clarity and legibility, the Drawings are essentially diagrammatic to the extent that many offsets, bonds, unions, special fittings and exact locations are not indicated. The Contractor shall make use of all data in all of the Contract Documents, and shall verify this information at the site.

1.17 INSPECTION

A. The Contractor shall not allow or cause any of his work to be covered up or closed in until it has been inspected, tested, approved by all authorities have jurisdiction, and until Project Record drawings have been properly annotated.

B. Should any of his work be covered up or closed in before such inspection, he shall, at his own expense, uncover the work to the satisfaction of the inspection party. All related repair work cost shall be borne by the Contractor.

1.18 DELIVERY, STORAGE AND PROTECTION OF PROPERTY

A. Place orders for all equipment in time to prevent any delay in construction schedule or completion of project. If any materials or equipment are not ordered in time, additional charges made by equipment manufacturers to complete their equipment in time to meet construction schedule, together with any special handling charges, shall be borne by the contractor.

B. Materials shall be delivered in ample quantities from time to time as may be necessary for the uninterrupted progress of the work. They shall be stored as to cause the least obstruction to the premises and distributed so as to prevent overloading to any portion of the structure.

C. The Contractor shall provide temporary storage and shop areas that are required at the site for the safe and proper storage of materials, tools, and other items used in the performance of this work. These areas shall be constructed only in approved locations and shall not interfere with the work of any other Contractor.

D. All work, equipment and materials shall be protected at all times. The Contractor shall make good all damage caused either directly or indirectly by his own workmen. The Contractor shall also protect his own work from damage. He shall close all pipe and duct openings with caps or plugs during installation. He shall protect all of his equipment and materials against dirt, water, chemical, and mechanical injury. Upon completion, all work shall be thoroughly cleaned and delivered in a new condition.

1.19 DAMAGE BY LEAKS, ETC.

A. The Contractor shall be responsible for all damage to any part of the premises or work of other Contractors, caused by leaks or breaks in the piping or equipment furnished and/or installed under this section, during the construction and guarantee period.

1.20 ACCESS TO EQUIPMENT FOR MAINTENANCE

A. Install all equipment, piping, etc. to permit access for normal maintenance. Maintain easy access to filters, motors, etc. Install all such equipment and accessories to facilitate maintenance. Perform any relocation of pipes, etc. required to permit access at request of District at no additional cost to District.

B. Furnish and install access doors or panels in walls, floors, and ceilings to permit access to equipment, dampers, and all other items requiring service. Coordinate location of access doors with other trades as required.

C. Size access panels to allow inspection and removal of all items served.

D. Use Milcor style as required for material in which door is installed. Where door is installed in fire rated construction, provide door bearing UL label required for condition.

1.21 QUALITY ASSURANCE

A. Abbreviations:

1. AABC - Associate Air Balance Council
2. ADC - Air Diffusion Council - Test Code
3. AGA - American Gas Association
4. AMCA - Air Moving and Conditioning Association
5. ANSI - American National Standards Institute
6. ARI - Air Conditioning and Refrigeration Institute
7. ASA - American Standards Association
8. ASC - Adhesive and Sealant Council
9. ASHRAE - American Society of Heating, Refrigerating and Air Conditioning Engineers
10. ASME - American Society of Mechanical Engineers
11. ASTN - American Society for Nondestructive Testing
12. ASSE - American Society of Sanitary Engineering
13. ASTM - American Society for Testing and Materials
14. AWS - American Welding Society
15. AWWA - American Water Works Association
16. CAC - California Administration Code
17. 2025 CBC - California Building Code
18. 2025 CEC - California Electrical Code
19. 2025 CMC - California Mechanical Code
20. California Fire Code with California Amendments.
21. MSS - Manufacturers' Standardization Society
22. NBS - National Bureau of Standards
23. NCWB - National Certified Piping Welding Bureau
24. NEMA - National Electrical Manufacturer's Association
25. NFPA - National Fire Protection Association
26. PDI - Plumbing and Drainage Institute
27. SMACNA - Sheet Metal and Air Conditioning Contractor's National Association, Inc.
28. UL - Underwriters Laboratories, Inc.

B. Rulings and interpretations of authorities shall be considered a part of the regulations.

C. Nothing in this document is to be construed to permit Work not conforming to these codes and regulations.

D. Should there be any direct conflict between the above rules, the most stringent shall govern.

E. The Contractor shall recognize that the design is based upon the equipment and material specified by name or construction and accept full responsibility for assuring that the quality, utility and performance of a substitution equals or exceeds that of the specified item.

F. Testing: Provide the services of a qualified testing laboratory/agency to perform the specified field tests. Notify the District Representative 48 hours in advance of performance of Work requiring testing. Provide all materials required for testing.

G. Factory and Field Testing:
1. See each Section for the required testing and their procedures.
2. Test reports shall include description of equipment tested, description of test procedures, test results, and names and signatures of witnesses of tests.

PART 2 - PRODUCTS

2.1 GENERAL

A. All materials and equipment shall be new and of the best of their respective grades, free from all defects and of the make, brand or quality herein specified or as accepted by the District.

B. All materials and equipment shall be identified by manufacturer's name or nameplate data. Unidentified material or equipment shall be removed from the site.

C. Equipment specified by manufacturer's number shall include all accessories, controls, etc., listed in the catalog as standard with the equipment. Optional or additional accessories shall be furnished as specified.

D. Where no specific make of material or equipment is mentioned, any first class product of a reputable manufacturer may be used, provided it conforms to the requirements of the system and meets with the approval of the District.

E. Equipment and materials damaged during transportation, installation and operation shall be considered as "totally damaged" and shall be replaced with new. Any variance from this clause shall be made only with written approval of the District.

2.2 MANUFACTURER

A. Air Distribution
1. Titus
2. Krueger
3. Price

2.3 DUCTWORK AND ACCESSORIES

A. General:
1. Non-combustible or conforming to requirements for Class 1 air duct materials, or UL 181.

B. Steel Ducts:
1. ASTM A653 galvanized steel sheet, lock-forming quality, having zinc coating of 1.25 oz per sq ft for each side in conformance with ASTM A90.
2. Round duct shall be spiral seam construction.

C. Flexible Ducts:
1. Interlocking spiral of galvanized steel or aluminum construction; rated to (2 inches WG positive and 1.5 inches WG negative for low pressure ducts) (and 15 inches WG positive or negative for medium high pressure ducts.)

D. Insulated Flexible Ducts:
1. Flexible duct wrapped with flexible glass fiber insulation, enclosed by Pressure Ductwork: seamless aluminum pigmented plastic vapor barrier jacket; maximum 0.23 K value at 75 degrees F w/metal connectors.

E. Fasteners:
1. Rivets, bolts, or sheet metal screws.

F. Sealant:

1. Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid used alone or with tape, or heavy mastic.

G. Hanger Rod:
1. Steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

H. Low Pressure Ducts:
1. Fabricate and support in accordance with 2025 CMC, SMACNA Low Pressure Duct Construction Standards and ASHRAE handbooks, except as indicated. Gages for galvanized steel ducts for low pressure systems where velocities do not exceed 2000 FPM shall be as follows and per 2025 CMC (most stringent shall apply):
a.

RECTANGULAR DUCT		ROUND DUCT	
Dimension of Largest Side (L) in Inches	Gage	Diameter (D) in Inches	Ga.
$L \leq 12$	26	$D < 9$	26
$12 \leq L \leq 30$	24	$9 \leq D < 14$	24
$30 < L \leq 54$	22	$14 \leq D < 23$	22
$54 < L \leq 84$	20	$23 \leq D < 37$	20
$84 < L$	18	$37 \leq D < 51$	18
		$51 \leq D < 61$	16
		$61 \leq D < 84$	14

b. All joints and seams as indicated in the 2025 CMC are acceptable.
2. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts. No variation of duct configuration or sizes permitted except by written permission.
3. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows are used, provide turning vanes.
4. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible. Divergence upstream of equipment shall not exceed 30 degrees; convergence downstream shall not exceed 45 degrees.
5. Use double nuts and lock washers on threaded rod supports.

I. I. Volume Control Dampers:
1. Fabricate in accordance with SMACNA Low Pressure Duct Construction Standards, and as indicated.
2. Opposed blade dampers shall have factory-fabricated blades, with factory assembled linkages, mounted in frames.
a. Blades shall have interlocking edges and ends.
b. Rectangular dampers 6" or more wide shall be the multi-blade type.
c. Blades on multi-blade type dampers must not be over 6" wide.
d. Dampers shall be of the opposed blade type.
e. Dampers shall have bar or channel frames and corner bracing.
f. All blade and linkage bearings shall be self-lubricating plastic.
g. Damper assembly leakage not to exceed 1% with 4.0 W.C. static pressure.
3. Provide locking, indicating quadrant regulators on single and multi-blade dampers.
4. On insulated ducts mount quadrant regulators on stand-off mounting brackets, bases, or adapters.

J. Duct Test Holes:

1. Cut or drill temporary test holes in ducts as required. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.

K. Ceiling Diffusers & Supply Registers and, Return Registers:
1. Fabricate of steel with steel or aluminum frame and baked enamel off-white finish.
2. Provide opposed blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face as indicated on the drawings.
3. Ceiling Diffusers (CD): Titus 300R and Titus MCD or equal, or approved equal.
4. Return grilles shall be Titus 350 RL series or equal perforated.

2.4 INSULATION

A. General:
1. All insulation shall have composite (insulation, jacket or facing, and adhesive used to adhere the facing or jacket to the insulation) fire smoke hazard ratings as tested by procedure ASTM E84, NFPA 255 and UL 723 not exceeding:
   a. Flame Spread: 25
   b. Smoke Developed: 50
2. All products or their shipping cartons shall bear a label indicating that flame and smoke ratings do not exceed above requirements. Any treatment of jackets or facings to impart flame and smoke safety shall meet the above requirements.
3. The Contractor shall certify that all products used have met the above criteria.
4. The insulation values shown are a minimum. If the requirements of Title 24 exceed these values, the amount of and/or type must be increased to meet the Title 24 requirements.

B. Duct Insulation:
1. Fiberglass Duct Wrap:
   a. Insulation: ASTM C553; flexible, noncombustible blanket.
      1) 'K' value: ASTM C518, 0.48 at 75 degrees F.
      2) Maximum service temperature: 250 degrees F.
      3) Density: 0.75 lb/ ft3.
   b. Vapor Barrier Jacket:
      1) Kraft paper reinforced with glass fiber yarn and bonded to aluminized film vinyl.
      2) Moisture vapor transmission: ASTM E96; 0.5 perm.
      3) Secure with pressure sensitive tape.
   c. Vapor Barrier Tape: Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.
   d. Tile Wire: Annealed steel, 16 gage.
2. Glass Fiber Duct Liner, Flexible:
   a. Insulation: ASTM C553; flexible, noncombustible blanket.
      1) 'K' value: ASTM C518, 0.24 at 75 degrees F.
      2) Maximum service temperature: 250 degrees F.
      3) Density: 1.5 to 3.0 lb/ft3.
      4) Maximum Velocity on Coated Air Side: 4,000 ft/min.
   b. Adhesive: Waterproof (fire-retardant) type.
   c. Liner Fasteners: Galvanized steel, self-adhesive pad.
3. Glass Fiber Duct Liner, Rigid:
   a. Insulation: ASTM C612; semi-rigid, noncombustible.
      1) 'K' value: ASTM C518, 0.24 at 75 degrees F.
      2) Maximum service temperature: 250 degrees F.
      3) Density: 1.5 to 3.0 lb/cu ft.
      4) Maximum Velocity on Coated Air Side: 4,000.
4. Adhesive: Waterproof (fire-retardant) type.

C. Pipe Insulation:

1. See specification 23 07 19 for more details. Should there be any direct conflict between the above rules, the most stringent shall govern.
2. Insulation and covering on pipe and tubing shall have flame spread rating not to exceed 25 and a smoke density not to exceed 50 when tested in accordance with UL 723 and ASTM E84.
   a. Aluminum Jacket:
      1) All outdoor exposed insulation piping and insulated piping exposed indoors in occupied areas and equipment rooms to be protected by covering with .016 inch thick aluminum weather-proof jacket with vapor barrier liner of laminated asphalt covered kraft paper.
      2) Lap jacket at all joints and seams two inches (2"), cinched with staples and straps and finished with two (2) coats of asphalt base aluminum paint in strict accordance with manufacturer's recommendations.

2.5 Package Rooftop Heat Pump Units.

A. INSTALLATION
1. Install in strict accordance with manufacturer’s requirements, shop drawings, and Contract Documents.

B. START-UP
1. Factory Start-Up Services: Start-up is to be supervised by the unit manufacturer or a manufacturer-certified service organization. Physical connections and start-up are provided by the installing contractor. Provide for as long a period of time as is necessary to ensure proper operation of the unit but in no case for less than 2 full working days. The start-up engineer shall conduct such operating tests as required to ensure that the unit is operating in accordance with design. Complete testing of all safety and emergency control devices shall be made. The start-up engineer shall submit a written report to the owner and manufacturer containing all test data recorded as required above and a letter certifying that the unit is operating properly.
2. Operation and Maintenance Manuals: Provide complete with descriptive literature, model, and serial number of all equipment, performance data, manufacturer’s instructions for operating and maintenance, lubrication recommendation and schedule, and winter shutdown procedure.

C.

2.6 CONTROLS

A. The Mechanical Contractor shall be responsible for the proper coordination of all control work and electrical work in connection therewith. He shall also be responsible for the proper operation of the entire system.

B. The Electrical Contractor shall furnish and install all line voltage control wiring, and in conduit. Wire sizing and length of run shall be coordinated with the manufacturer and Electrical Engineer. All Energy Management Controls, wiring, and conduit shall be by Controls Contractor.

C. Electrical Work: All electric relays, hand off automatic switches and all electrical wiring and all conduits will be provided under the Electrical Section, except as otherwise specified. Furnish and install additional conduit, wiring, relays, hand off automatic switches made necessary by the use of approved substituted equipment under this Section with no additional cost to the Owner.

D. Refer to drawings for control diagrams and additional requirements.

E. Calibration of Controls: The Controls Contractor shall carefully calibrate and adjust all controls as required to maintain comfort conditions and maximum energy conservation.

F. Thermostats and temperature sensors shall be by Venstar and Mitsubishi or approved equal.

G. Where stand-alone controls are indicated, mechanical contractor shall be responsible for low voltage controls conduit, wiring, and thermostat.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Equipment Installation:
   1. All equipment provided under this section of the specifications shall be installed in strict accordance with the manufacturer's recommendations.
   2. Should the drawings or specifications indicate the equipment is to be installed in a manner not in accordance with the manufacturer's recommendations; the Contractor shall obtain direction from the Engineer prior to proceeding with the installation. If the Contractor proceeds with the installation without obtaining direction from the Engineer, the Contractor shall be required to make all required corrections to the installation at no additional cost to the contract.
   3. Space Consideration:
      a. Certain equipment and ductwork will have to be installed within the limited space available as indicated on the drawings.
      b. Exact field measurements of existing conditions will be the responsibility of this Contractor to assure that the equipment and ductwork to be installed under this Section of the specifications can be installed as indicated.
      c. Contractor shall submit shop drawings for approval prior to installation.
      d. These field verified dimensions shall be made prior to purchase of equipment or fabrication of ductwork.
   4. Line all duct as indicated on mechanical sheets. Line ductwork as per General Notes, including but not limited to all ductwork at Bypass Damper connection locations.

B. The Mechanical Contractor shall level all unit sections in accordance with the unit manufacturer's instructions. The Mechanical Contractor shall provide and install all necessary permanent shim material to ensure individual sections and entire assembled units are level.

C. Roof and Wall Flashings:
   1. Ducts penetrating roof shall have twenty-two (22) gauge sheet metal flashing with a minimum of ten inches (10") of the base extended on to the roof, or roof curb, as indicated on the drawings.
   2. Ducts through walls shall be sealed with galvanized angle iron on all sides.
   3. Where required or indicated, a weather hood constructed of galvanized sheet metal with galvanized birdscreen shall be provided.
   4. Refrigerant piping penetrating roof shall be provided with 4 pound lead flashing and counter flashing.

D. Openings through Walls and Roof:
   1. Framed openings in walls and roof for ductwork to be coordinated in advance of the work. Installer shall furnish shop drawings showing the correct dimensions and locations of the required openings.
   2. The Contractor shall provide and install "line-seals" where pipes pass through masonry walls or floors.
   3. All pipes passing through walls, floors, ceilings, and partitions in finished portions of the buildings shall be provided with chromium plated, cast brass, set screw plates.
   4. Where sleeves and plates are installed around insulated pipes, they shall be of sufficient size to allow the insulation to go through them, presenting a neat finish.

E. Sleeves and Seals: (Provide for pipes passing through walls or floor slabs).

1. Sheet-Metal Sleeves (above grade): 10 gauge, galvanized sheet metal, round tube closed with welded longitudinal joint.
2. Steel Sleeves (below grade): 10 gauge, galvanized sheet metal, round tube closed with welded longitudinal joint.
3. Polyethylene Sleeves (above grade): Manufacturer's standard product.
4. Mechanical Sleeve Seals (install where indicated on drawings): Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve, connected with bolts and pressure plates which cause rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.
5. Isolate pipes through ground floor sleeves with Kraft paper, plastic tape or similar materials.
6. Pack space between pipe and sleeve with ceramic fiber and Dow Fire Stop No. UL827U sealant so as to absolutely fireproof and watertight.

F. Ductwork and Accessories:
1. Provide openings in ductwork where required to accommodate thermometers and controllers. Provide pilot tube openings where required for testing of systems, complete with metal can with spring device or screw to ensure against air leakage. Where openings are provided in insulated ductwork, install insulation material inside a metal ring.
2. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
3. Install accessories in accordance with manufacturer's instructions and per seismic note on mechanical sheet M-0.1.
4. Provide balancing dampers at points on low-pressure supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated.
5. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment.
6. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, and elsewhere as indicated. Provide minimum 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, and as indicated.
7. Provide duct test holes where indicated and required for testing and balancing purposes.
8. Check location of outlets and inlets and make necessary adjustments in position to conform to Architectural features, symmetry, and lighting arrangement.
9. Install diffusers to ductwork with airtight connection.
10. Provide balancing dampers on duct take-off to diffusers and registers, regardless of whether dampers are specified as part of the diffuser, or register assembly.
11. Paint ductwork visible behind air outlets and inlets matte black.
12. Hanger straps to turn under bottom of rectangular ducts and shall attach with sheet metal screws at this point as well as minimum two (2) additional screws into sides of duct for sizes eighteen inches (18") and under three (3) screws for sizes above eighteen inches (18). (Typical for each strap). Ducts in sizes above forty-eight inches (48") shall run continuous under bottom of duct. Straps for round duct shall run completely around underside of duct and shall be secured in place with minimum of two (2) sheet metal screws each side.
    a. Strap Installation: In general, provide in accordance with SMACNA duct installation standards. Contractor may request approval of alternate support methods to type specified. Shop drawings will be required.
    b. Concrete: Secure supports to concrete with concrete inserts. Branch ductwork in sizes eighteen inch (18") and smaller may be secured by power actuated fasteners. Contractor shall submit sizes and maximum loading data.
    c. Bracing all ductwork laterally to structural framing to prevent swaying or lateral movement per bracing details on plans per seismic note on mechanical sheet M-01.
13. Turning Vanes: All elbows having a centerline radius less than the width of the duct shall be square elbows with turning vanes, or proper radius and spacing. These turning vanes shall be multi-vane type and shall be carefully installed in accordance with the manufacturer's instructions. Provide turning vanes for duct widths of 18 inches or greater. Provide single thickness vanes for ducts of less than 18 inches. Contractor may submit for approval shop fabricated vanes conforming to SMACNA Duct Manual Standard. Where required or indicated on drawings, provide

acoustic turning vanes constructed of air foil shaped aluminum extrusion with perforated faces and fiberglass fill.

14. Flexible Duct Connections: Shall be provided where indicated as required and shall be "Vent-glass", "Ventbestos", or Duro-Dyne Durolan super metal-fab.
15. Duct Tape and Sealer:
    a. All longitudinal snap lock joints shall be made airtight with high pressure duct sealant TREMCO J.S. 773, GREY A.F., and transverse joints sealed with Hardcast AFG No. 1402 foil grip instant tape sealant for rectangular ducts and round ducts, all U.L. classified. At contractor's option, all round duct transverse joints may be made with MIRACLE D-619 water based, duct sealant U.L. classified 309U as manufactured by MIRACLE ADHESIVES CORP.
    b. Exposed outdoor ductwork shall be sealed as described herein and, in addition, all transverse joints shall be covered with Glenkote "Seal-Flex".

G. Thermostats and over-ride switches:
1. Install at 48" above finished floor unless otherwise stated.
2. Coordinate with other trades.
3. All thermostats and over-ride switches shall be by Siemens.
4. Controls Contractor shall be responsible for verifying, furnishing all controls and wiring for tie-in of thermostats to new building energy management system and shall co-ordinate all requirements with other trades including notifying electrical contractor of necessary conduit and power requirements.
5. All costs for scope of work shall be submitted for final bid.
6. All control conduits shall be by Controls Contractor.

H. Insulation:
1. Duct Insulation:
    a. Unless specifically indicated on the drawings the Contractor may line or wrap ductwork to meet insulation requirements.
    b. Fiberglass duct wrap:
        1) Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.
        2) Secure insulation without vapor barrier with staples, tape, or wires.
        3) Install without sag on underside of ductwork. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift ductwork off trapeze hangers and insert spacers.
        4) Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.
        5) Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.
    c. Duct (and Plenum) liner Application:
        1) Install as indicated (sound lining) on the drawings.
        2) Adhere insulation with adhesive for 100 percent coverage. Secure insulation with mechanical liner fasteners. Refer to SMACNA Standards for spacing. Seal and smooth joints. Seal liner surface penetrations with adhesive.
        3) Duct dimensions indicated are outside dimensions required for airflow.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:
1. Comply with ASME B31.5, Chapter VI.
2. Test refrigerant piping, specialties, and receivers. Isolate compressor, condenser, evaporator, and safety devices from test pressure if they are not rated above the test pressure.
3. Test high- and low-pressure side piping of each system separately at not less than the pressures indicated in "Performance Requirements" Article.
    a. Fill system with nitrogen to the required test pressure.
    b. System shall maintain test pressure at the manifold gage throughout duration of test.

c. Test joints and fittings with electronic leak detector or by brushing a small amount of soap and glycerin solution over joints.
d. Remake leaking joints using new materials and retest until satisfactory results are achieved.

4. Comply with bracing details on plans per seismic note on mechanical sheet M-01.

B. Prepare test and inspection reports.

3.3 SOUND AND VIBRATION ISOLATION

A. All vibrating equipment shall be sound isolated from the structure.
B. The Contractor shall submit all necessary data for each vibration isolator, including static deflection and weight loading, for equipment in operation.
C. Vibration isolators shall have a valid OSHPD approval number.

3.4 JOB COMPLETION

A. Equipment Identification:
1. All equipment furnished under this section shall be provided with the manufacturer's metal identification labels securely attached and showing all pertinent data, including performance characteristics, size, model, and serial number. Labels shall not be obscured in any manner.
2. Identification name plates shall be provided on all equipment and control components, including room thermostat numbers coded to their respective automatic zone damper, valve, or air conditioning unit. Name plates shall be constructed of black bakelite with white center engraved letters three-sixteenth inch (3/16") high and shall be cemented to equipment with an epoxy resin. The Contractor shall submit to the Architect, a complete list of name plate titles for approval prior to installation.
3. Each valve shall be identified by a number brass tag with hole and brass chain mounted on valve stem or handle. Tag shall be a minimum of one and one-half inch (1-1/2") in diameter and numbers shall be at least one-fourth inch (1/4") high stamped into the tag.

B. Identification:
1. See Specification Section 23 05 53 for requirements.

C. Final Operation: Upon completion of the installation of the equipment and after all systems have been tested, cleaned, the Contractor shall place a competent person in charge who shall operate the equipment for a period of three eight-hour days. During this period of operation, all safety and operating controls shall be actuated to demonstrate proper operation. During this operating period, the Owner's representative shall be instructed in all details of operation and maintenance. All required instructions from the equipment manufacturer's representative shall be given during the period.

D. The Automatic Temperature Control (Building Direct Digital Control) Contractor shall be scheduled to be at the job site at the time of the equipment start up

E. Operation Instructions:
1. Prepare a diagram of the entire control system with a full description of the heating, ventilating and air conditioning systems.
2. After approval by the Engineer, the control diagram and complete operating instructions shall be mounted under glass and installed where directed.
3. Prepare two (2) maintenance manuals which shall include all the necessary or pertinent data, such as:
a. Names, addresses and emergency phone numbers of all suppliers and manufacturers.
b. Part numbers of all replaceable items.
c. Oiling and lubrication instructions.
d. Air balance report.
e. Control diagram and operation sequence, together with labeling of controls and instruments to match the diagram.

f. A maintenance schedule which shall list all required maintenance on all equipment furnished under this section of the specifications and the intervals of which the items are to be performed.

4. An identification chart indicating valve operating in the piping system shall be installed as located by the Owner. Identification charts shall be mounted behind glass in a frame.

F. Clean-Up:

1. After all heating, ventilating and air conditioning work has been tested and approved, the Contractor shall thoroughly clean all parts of the equipment installation. Exposed parts which are to be painted are to be thoroughly cleaned of cement plaster and other materials and all greases and oil spots removed with solvent. Exposed rough metal work to be carefully brushed down with steel brushes to remove rust and other spots and left in proper condition to receive painter's finish.
2. Remove all debris from the job site, all cartons, boxes, packing crates, excess materials not used occasioned by the work and to the satisfaction of the Owner.
3. If the above requirements of clean-up are not to the satisfaction of the Owner, the Owner reserves the right to order the work done and the cost of which shall be borne by the Contractor.
4. The Contractor shall remove on a daily basis all debris from the job site, to the satisfaction of the Owner.
5. If the above requirements of clean-up are not to the satisfaction of the Owner, the Owner reserves the right to order the work done by a third party and the cost of which shall be borne by the Contractor.

- END OF SECTION -

DIVISION 26 – ELECTRICAL

SECTION 26 00 00 - GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE

A. Work of this section includes everything necessary for or incidental to completing the electrical work, to provide a complete and operable electrical system, except as herein specifically excluded.

1.2 GENERAL REQUIREMENTS

A. Electrical System Characteristics: 480/277V. 3PH, 4W., 208/120V. 3PH, 4W.

B. Guarantee: Furnish a written guarantee for a period of one-year from date of acceptance.

C. Codes and Regulations: Work done under this Section shall comply with the latest adopted edition of the following: California Electrical Code, State of California Title 24, State Building Standards, Occupational Safety and Health Administration (CAL / OSHA) requirements, State of California Title 17 and to all local codes having jurisdiction. In the case where the codes have different levels of requirements, the most stringent rule shall apply.

D. Wherever a discrepancy in quantity or size of conduit, wire, equipment, devices, circuit breakers, etc., (all materials), arises on the Drawing and/or Specifications, the Contractor shall be responsible for providing and installing all material and services required by the strictest condition noted on Drawings and/or in Specifications to insure complete and operable systems as required by the Owner and Engineer.

E. The General and Supplementary Conditions, as well as Special Conditions apply in addition to items in the Electrical Section. Special attention is directed to the following sections:

1. Drawings and Specifications at the site.

2. Shop drawings and samples.

3. Record drawings.

4. Cutting and Patching.

5. Cleaning up.

6. Guarantee.

7. Tests.

F. Additional Work: Refer to Mechanical and Plumbing drawings and specifications for additional Electrical requirements.

G. Testing:

1. Scan:
   a. Infrascan test for new distribution and branch circuit panels shall be required.
   b. Infrascan test of existing switchboards, distribution and branch circuit panels modified as part of the scope of work shall be required.
   c. Infrascan certified reports shall be submitted on completion to the Owner and Engineer.
   d. Scans shall be performed by an independent testing laboratory with total connected loads in operation.

2. Megger:
   a. New branch circuit - phase, neutral and ground conductors.
   b. New circuits from existing panels.
   c. New insulated bonding conductors.

3. All circuits shall be tested for continuity and circuit integrity. Adjustments shall be made for circuits not complying with testing criteria.

4. Grounding System: Shall be tested by an independent testing laboratory to meet resistance specified in Part 3.1, D.3 of these Specifications. It shall be this Contractor's responsibility to make adjustments, as required, to upgrade non-complying systems to proper and safe operation.

5. All certified testing reports shall be submitted to the Owner at completion of project.

H. All Core Cutting, Drilling, and Patching:

1. For the installation of work under this Section, the aforementioned shall be performed under this Section of the Specifications and the Concrete section of the Specifications.

2. No holes will be allowed in any structural members without the written approval of D.S.A. or the Structural Engineer.

3. For penetrations of concrete slabs or concrete footings, the work will be as directed in the Concrete Section of Specifications.

4. The contractor shall be responsible for patching and repairing surfaces where he is required to penetrate for work under this contract.

5. Penetrations shall be sealed to meet the rated integrity of the surface required to be patched and repaired. The patched surface shall be painted or finished to match the existing surface.

I. Verifying Drawings and Job Conditions:

1. This Contractor shall examine all Drawings and Specifications in a manner to be fully cognizant of all work required under this Section.

2. This Contractor shall visit the site and verify existing conditions. Where existing conditions differ from Drawings, adjustment shall be made and allowances included for all necessary equipment to complete all parts of the Drawings and Specifications.

J. Shop Drawings:

1. Drawings shall be submitted in six (6) bound sets accompanied by Letter of Transmittal, which shall give a list of the number and dates of the drawings submitted. Drawings shall be complete in every respect and bound in sets.

2. The Drawings submitted shall be marked with the name of the project, numbered consecutively and bear the approval of the Contractor as evidence that the Drawings have been checked by the Contractor. Any Drawings submitted without this approval will be returned to the Contractor for resubmission.

3. If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, the Contractor shall make specific mention of such variations in his letter of transmittal. If the substitution is accepted, the Contractor shall be responsible for proper adjustment which may be caused by the substitution. Samples shall be submitted when requested.

4. Shop drawings shall be submitted on the following but not limited to:

    a. Branch Circuit panels.

    b. Circuit breakers. Submit mounting hardware for new circuit breakers installed in existing panels.

    c. Safety/Disconnect switches.

    d. Receptacles.

    e. Fuses.

    f. Pull boxes, junction boxes, outlet boxes, covers and wall plates.

    g. Wire/Cable.

    h. Conduit and fittings.

    i. Conduit supports.

K. Drawings of Record: The Contractor shall provide and keep up-to-date, a complete record set of blueprints. These shall be corrected daily and show every change from the original Drawings. This set of prints shall be kept on the job site and shall be used only as a record set. This shall not be construed as authorization for the Contractor to make changes in the layout without definite instruction in each case. Upon completion of the work, a set of reproducible Contract Drawings shall be obtained from the General Contractor and all changes as noted on the record set of prints shall be incorporated thereon with black ink in a neat, legible, understandable and professional manner. Refer to the Supplementary General Conditions for complete requirements.

1.3 WORK IN COOPERATION WITH OTHER TRADES

A. Examine the Drawings and Specifications and determine the work to be performed by the electrical, mechanical, plumbing, building contractor and other trades. Provide the type and amount of electrical materials and equipment necessary to place this work in proper operation, completely wired, tested and ready for use. This shall include all conduit, wire, disconnects, relays, and other devices for the required operation sequence of all electrical, mechanical and other systems or equipment.

B. Provide power and control circuits, conduit and wire as indicated on the Mechanical and Plumbing drawings as required for complete and operable systems.

1.4 TESTING AND ADJUSTMENT

A. Upon completion of all electrical work, this Contractor shall test all circuits, switches, motors, breakers, motor starter(s) and their auxiliary circuits and any other electrical items to insure perfect operation of all electrical equipment.

B. Equipment and parts in need of correction and discovered during such testing shall be immediately repaired or replaced with all new equipment and that part of the system shall then be retested. All such replacement or repair shall be done at no additional cost to the Owner.

C. All circuit shall be tested for continuity and circuit integrity. Adjustments hall be made for circuits not complying with testing criteria.

D. All certified testing reports shall be submitted to the Engineer at completion of project.

1.5 IDENTIFICATION

A. Identification nameplates shall be Micarta 1/8" thick and of approved size, with bevelled edges and engraved white letters 1/4" high minimum on black background. Nameplates shall be provided for all circuits in the distribution switchboards, and selector switches. Inscriptions on equipment shall be identical to those indicated in panels and/or motor control centers and other similar devices. Each nameplate shall be provided with drillings and suitable mounting screws corresponding to finish of the nameplate. The inscriptions in each nameplate shall be as indicated on the Drawings.

B. Identification of Air Conditioning Equipment: Equipment to be so identified shall include, but shall not be limited to: Pressure and temperature controllers; switches; equipment motors and boxes or cans housing other control items. Mechanical equipment nameplates shall have letters a minimum of 3/8" high.

1.6 MAINTENANCE, SERVICING, INSTRUCTION MANUALS AND WIRINGDIAGRAMS

A. Prior to final acceptance of the job, the Electrical Contractor shall furnish to the Owner at least four (4) copies of operating and maintenance and servicing instructions, as well as four (4) complete wiring diagrams for the following item(s) or equipment:

1. Panels.
2. Disconnect switches.
3. Circuit breakers.
4. Receptacles.

B. All wiring diagrams shall specifically cover the system supplied. Typical drawings will not be accepted. Two (2) copies shall be presented to the Electrical Engineer and four (4) copies to the Owner.

1.7 ELECTRICAL CONTRACTOR'S RESPONSIBILITY

A. It shall be the Electrical Contractor's responsibility to obtain a complete set of Drawings and Specifications. He shall check the Drawings of the other trades and shall carefully read the entire Specifications and determine his responsibilities.

B. The contractor shall be responsible for reviewing the plans and specifications to ensure each room, where electrical line or low voltage equipment is to be installed, has sufficient space to accommodate the system cabinets, equipment and terminations while maintaining code mandated clearances about said equipment. The contractor shall identify problem areas prior to bid, include all costs required for corrective measures in his bid and submit alternate equipment and materials suitable for the installation to the Architect/Engineer for acceptance as part of the product submittal process.

1.8 FINAL INSPECTION AND ACCEPTANCE

A. After all requirements of the Specifications and/or the Drawings have been fully completed, representatives of the Owner will inspect the work. Contractor shall provide competent personnel to demonstrate the operation of any item or system to the full satisfaction of each representative.

B. Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance from each representative.

1.9 RECORD DRAWINGS

A. Contractor shall furnish one set of reproducible record drawings before final payment of retention.

1.10SUBSTITUTIONS

A. Substitution to specified equipment shall be submitted and received by the Engineer fifteen (15) days after the bid date for review and approval. Obtain D.S.A. approval for all substitutions.
B. To receive consideration, requests for substitutions must be accompanied by documentary proof of its

equality with the specified material. Documentary proof shall be in letter form and identify the specified values/materials alongside proposed equal values/materials. In addition, catalog brochures and samples must be included in the submittal.

C. In the event that authorization is given for a substitute equal to bid, after award of contract the Contractor shall submit to the Engineer certified quotations from suppliers of both the specified and proposed equal material for price comparison and delivery dates.

D. In the event of cost reduction, the Owner will be credited with 100 percent of the reduction, arranged by Change Order.

E. The Contractor warrants that substitutions proposed for specified items will fully perform the functions required.

F. Substitutions or requests for substitution shall not be accepted and rejected for failure to comply with items A-E above.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials and Equipment: All electrical materials and equipment shall be new and shall be listed by Underwriter's Laboratories and bear their label, or listed and certified by a nationally recognized testing authority where UL does not have an approval. Custom made equipment must have complete test data submitted by the manufacturer attesting to its safety. In addition, the materials and equipment shall comply with the requirements of the following:

1. American Society of Testing Materials (ASTM).

2. Insulated Cable Engineers Association (ICEA).

3. National Electrical Manufacturer's Association (NEMA).

4. National Fire Protection Association (NFPA).

5. American National Standard Institute (ANSI).

B. Panelboards – Branch Circuit:

1. Branch circuit panelboards shall be of the dead front safety type equipped with thermal-magnetic bolt-on type 40 deg C. circuit breakers. Enclosure shall be minimum 20" wide and 5-3/4" deep unless otherwise noted on plan. Refer to panel schedule for ratings and quantity of circuits to be provided. Panels shall be provided with copper busses. Branch circuit panelboards shall be Eaton or approved equal Siemens, Square D or General Electric. Equipment manufactured by third party OEM is not acceptable.

2. Circuit breakers shall be fully AIC rated. Circuit breakers shall be the number of poles and current capacity as indicated on the panel schedule with terminals/lugs UL listed for 75˚C. Circuit breakers shall be fully coordinated to ensure a local fault does not trip any upstream circuit breaker.

3. Trims shall have doors equipped with flush type combination lock and catch, two milled type keys supplied with each panel. All locks shall be keyed alike and each door shall have a plastic covered directory frame with a typed identification card of all circuit and panel numbers for branch circuit panelboards and engraved lamacoid nameplates for power distribution panelboards.

4. Provide nameplate for all panelboards, 1/8" thick, Micarta or Lamacoid plate of approved size, with bevelled edges and engraved white letters on black background. Install nameplates on exterior trim of panel, above the panel door. Provide Arc-Fault warning labels on panel fronts.

5. All wiring shall be neatly arranged and laced together.

6. All circuit breakers shall be provided with a device for locking circuit breaker in "OFF" position.

7. Refer to Painting Section of these Specifications for all panel finish. Panel shall be primered for painting.

8. Neutral and Ground bus bars shall be full size, rectangular in cross section constructed of copper and interconnections.

9. Refer to Section 26 05 73 for additional requirements. Panelboards and the overcurrent protective device coordination study must be submitted concurrently. A Panelboard submittal that does not include the overcurrent protective device coordination study will be considered incomplete and returned as “rejected”.

C. Conduit:

1. Rigid conduit shall be full weight threaded type aluminum or steel, except where specifically required to be steel. Steel conduit shall be protected by overall zinc coating to inside and outside surfaces, applied by the hot dip, metallizing or sherardizing process.

2. Galvanized Rigid Conduit (GRC), shall be full weight threaded type aluminum or steel, except where specifically required to be steel. Steel conduit shall be protected by overall zinc coating to inside and outside surfaces, applied by the hot dip, metallizing, or sherardizing process.

3. Intermediate Metal Conduit (IMC), shall be hot-dipped galvanized in accordance with UL 1242 and meeting Federal Specification WWC-581 (latest revision).

4. Electrical Metallic Tubing (EMT), shall be zinc-coated steel with baked enamel or plastic finish on inside surfaces.

5. Flexible metal conduit shall be constructed of aluminum or hot-dipped galvanized steel strips wound spirally with interlocking edges to provide greatest flexibility with maximum strength. Interior surfaces shall be smooth and offer minimum drag to pulling in conductors. Used only as directed by the Engineer.

6. Liquid-tight conduit (Seal-Tite) shall be galvanized steel flexible conduit as above except with moisture and oil-proof jacket, pre-cut lengths and factory installed fittings. For outdoor installations and motor connection.

D. Fittings:

1. Condulet type fittings shall be smooth inside and out, taper threaded with integral insulating bushing and of the shapes, sizes and types required to facilitate installation or removal of wires and cables from the conduit and tubing system. These fitting shall be of metal, smooth inside and out, thoroughly galvanized, and sherardized cadmium plated.

2. Metallic condulet covers shall have the same finish as the fitting and shall be provided for the opening of each fitting where conductor do not pass through the cover.

3. Connector, coupling, locknut, bushings and caps used with rigid conduit shall be steel, threaded and thoroughly galvanized. Bushings shall be insulated.

4. EMT fittings, connectors and couplings, shall be steel, zinc or cadmium plated, raintight, threadless, compression or tap-on multiple point, steel locking ring type with insulated throat.

5. Flexible steel conduit connectors shall be or malleable iron clamp or squeeze type or steel twist-in type with insulated throat. The finish shall be zinc or cadmium plating.

6. Die cast, set screw or indenter type fittings are not acceptable.

7. Conduit unions shall be "Erickson" couplings, or approved equal. The use of running threads will not be permitted.

E. 600 Volt Conductors - Wire and Cable:

1. All conductors shall be copper. Simpull or equal.

2. Type THHN/THWN thermoplastic, 600 volt, UL approved, dry and wet locations, for conductor sizes up to and including #4 AWG.

3. Type XHHW cross-linked synthetic polymer, 600 volt, UL approved, for dry and wet locations, for conductor sizes #2 AWG. and above.

4. Cross-linked synthetic polymer, XHHW, 600 volts, UL approved, for installation underground, in concrete or masonry.

5. Wire and cable shall be new, manufactured not more than six (6) months prior to installation, shall have size, type of insulation, voltage rating and manufacturer's name permanently marked on outer covering at regular intervals.

6. Wire and cable shall be factory color coded by integral pigmentation with a separate color for each phase and neutral. Each system shall be color coded and it shall be maintained throughout.

7. Systems Conductor Color Coding:

   a. Power 480/277V, 3PH, 4W:
      (1) Phase A = Brown
      (2) Phase B = Orange
      (3) Phase C = Yellow
      (4) Neutral = White

   b. Power 208/120V, 3PH, 4W:
      (1) Phase A = Black
      (2) Phase B = Red
      (3) Phase C = Blue
      (4) Neutral = White

   c. Ground Conductors:
      (1) Green

8. All color coding for #8 conductor and above shall be as identified above, utilizing phase tape at each termination.

9. No conductors carrying 120 volt or more shall be smaller than #12 AWG.

F. Junction and Pullboxes:

1. For outside, damp or interior/exterior surface mounted locations, boxes shall be heavy cast aluminum or cast iron with removable, gasketed, non-ferrous machine screw secured covers.

2. All boxes shall be sized for the number and sizes of conductors and conduits entering the box and equipped with plaster rings where required. Each conductor shall be terminated at an insulated, barriered terminal connector and completely identified with an engraved fiber identification marker, Electrovert or Underwriter's Safety Device Company.

G. Outlet Boxes:

1. For surface mounting, wet or damp locations, outlet boxes shall be heavy cast aluminum or cast iron with threaded hubs, covers shall be watertight with gaskets and non-ferrous screws.

2. For locations where standard boxes are not suitable due to number and size of conduit to be terminated, special boxes shall be designed to fit space or meet other requirements and submitted for approval.

H. Switches:

1. Switches controlling or disconnecting single phase motor loads in excess of 1/3HP shall be horsepower rated and approved or motor control service. Switches shall be complete with overload device of proper motor nameplate rating, where required.

2. Disconnect (safety) switches shall be fused, heavy duty type meeting NEMA Specifications. Switches shall be provided with rejection type fuse blocks. Provide switches with the number of poles, the voltage, current and horsepower ratings as required. Provide externally operable, quickmake, quick-break type mechanism with cover interlock and padlockable in either the open or closed position. Unless indicated otherwise, provide switches indoors in NEMA Type 1 enclosure and in NEMA Type 3R rain-tight enclosure where indicated to be outdoors or weatherproof. Provide nameplate indicating equipment served. Provide unit as manufactured by Challenger or approved equal Siemens or Westinghouse.

3. Disconnect switches located outdoors/aboveground shall be Nema 4X stainless steel.

I. Receptacles:

1. Receptacles shall consist of duplex convenience receptacle mounted in a surface/cast box on the wall, and shall be complete with plate/cover.

2. Receptacles for convenience outlets, unless otherwise indicated, shall be industrial heavy duty type, duplex 3W grounding type, 20A, 125V, Hubbell-Bryant #5362-*. (*) color as selected by Architect.

3. Indoor receptacle located in damp/wet locations shall be industrial heavy duty type, ground fault interrupter, 20 ampere, three wire grounding type, 120 volt, Hubbell-Bryant # GF-5362-I.

4. Receptacles located outdoors shall be industrial heavy duty type, ground fault interrupter, 20 ampere, three wire grounding type, 120 volt, Hubbell-Bryant # GF-5362-I mounted in PVC coated box with lockable lift cover U.L. listed for “wet” locations when in operation.

5. Specialty receptacles, identified on plans, for use with Owner furnished equipment shall be provided complete with outlet box, wall plate and receptacle to match the configuration of the plug being provided with the subject equipment.

J. Painting:

1. Junction boxes, pull boxes, etc., and conduit installed exposed/surface mounted indoors and in public view shall be painted with colors selected by the Owner to match the subject surface. Refer to painting section of the specifications for additional requirements.

K. Seismic Design and Anchoring of Electrical Equipment:

1. Seismic anchorage of electrical equipment shall conform to C.C.R. Title 24, 2022 CBC. Anchorage details for roof/floor mounted equipment shall be as shown on plans.

PART 3 - EXECUTION

3.1 PREPARATION AND INSTALLATION

A. Installation of Conduit and Outlet Boxes:

1. All interior conduit run exposed shall be galvanized rigid steel conduit (GRC), or intermediate metal conduit (IMC). Exterior exposed conduit shall be PVC coated steel.

2. Rigid conduit may be installed under floor slabs, under concrete sidewalls an as noted on the Drawings. Rigid conduit installed under slabs shall be 1" trade size minimum and shall be wrapped with 20 mil. polyvinyl chloride plastic tape.

3. All conduit except as hereinafter specified, installed in concrete/masonry, damp locations, hazardous locations, surface mounted up to 8’-0” above finished floor or subject to mechanical injury shall be heavy wall, threaded, galvanized rigid steel conduit (GRC), or intermediate metal conduit (IMC).

4. Flexible steel conduit shall only be permitted to be used at light fixture outlets and connections to vibrating electrical equipment. All flexible steel conduit runs shall be less than 6'-0". All outdoor installation shall be made using liquid-tight flex with approved fittings. Use of flexible conduit shall be as approved by the Engineer.

5. Intermediate metal conduit (IMC), is approved for use in all locations as approved for GRC or EMT and in accordance with Article 345 of CEC and UL Information card #DYBY.

6. All conduit installed in the dry walls or ceilings of the building shall be steel tube (EMT), Galvanized Rigid Steel (GRC), or Intermediate Metal Conduit (IMC).

7. Conduit shall be run so as not to interfere with other piping fixtures or equipment.

8. The ends of all conduit shall be cut square, carefully reamed out to full size and shall be shouldered in fitting.

9. No running threads will be permitted in locations exposed to the weather, in concrete or underground. Special union fittings shall be used in these locations.

10. PVC conduit shall not be run in walls or above grade.

11. Where conductors enter a raceway in a cabinet, pull box, junction box, or auxiliary gutter, the conductors shall be protected by a plastic bushing type fitting providing a smoothly rounded insulating surface.

12. Where conduit extends through roof to equipment on roof area, this Contractor shall provide 24 gauge galvanized sheet metal flashing cones with 4" flanges on roof surface. This flashing shall be delivered to the roofing contractor for installation. The actual location of all such roof penetrations and outlet shall be verified by the Contractor.

13. All conduit shall be supported at intervals not less than 10'-0" and within 12" from any outlet and at each side of bends and elbows. Conduit supports shall be galvanized, heavy stamped, two hole conduit clamp properly secured to structure.

14. Where conduit racks are used the rack shall consist of two piece conduit clamps attached to galvanized steel slotted channels, properly secured via threaded rods attached directly to the building structure.

15. Nail-in conduit supports will not be allowed. One piece set-screw type conduit clamps or perforated iron for supporting conduit will not be permitted.

16. Seismic Conduit Support:

    a. All conduit shall be supported in such a manner that it is securely attached to the structure of the building. Attachment is to be capable of supporting the tributary weight of conduit and contents in any direction. Maximum spacing of support and braces are to be as follows:

CONDUIT SIZE	MAXIMUM SPACING
EMT, IMC	10'-0"
GRC (3/4" thru 1 ½")	10'-0"
GRC (2" thru 2½")	16'-0"
GRC (3" and larger)	20'-0"

17. All conduit runs shall be installed parallel or perpendicular to walls, structural members, or intersection of vertical planes and ceilings. Field made bends and offset shall be avoided where possible. Crushed or deformed raceway shall not be installed.

18. Open knockouts in outlet boxes only where required for inserting conduit.

19. All boxes shall be covered with outlet box protector, Appleton SB-CK. Keep dirt from entering box or panels. If dirt does get in, it shall be removed prior to pulling wires.

20. Exterior conduits installed on building walls shall be provided with a painted sheet metal cover to conceal the conduit from public view. Sheet metal cover shall be rectangular, 4" deep maximum, width required to conceal the conduits and the conduit supports, full height of wall, secured to the building with ½" anchors and painted with weatherproof paint to match building finish/color.

21. All conduit entries to outdoor mounted panels, cabinets, boxes, etc., shall be made using Myers "SCRU-TITE" hubs Series ST.

22. All conduit shall have a 200 lb test poly-propylene pull line left in place for future use in all runs tagged with a plastic tag at terminating end indicating the location of the opposite end of the conduit.

23. All rotating electrical equipment shall be supplied with flexible, liquid-tight conduit with appropriate slack and shall not exceed thirty-six (36) inches.

24. All multiple conduit runs within suspended ceilings shall be suspended from building structure by means of unistrut hangers/rack, see note 14. Refer to note 13 for support of single conduit runs within suspended ceilings. Conduit shall not be allowed to lay on ceiling or be supported from ceiling suspension wires or other suspension system.

25. Provide conduit only for routing of HVAC control wiring. Refer to Mechanical drawings for conduit requirements.

B. Installation of 600 Volt Conductors:

1. All line voltage wire, including control circuits, shall be installed in conduit.

2. All circuits and feeder wires for all systems shall be continuous from the service point to terminal or farthest outlet. No joints shall be made except in pull, junction or outlet boxes, or in panel or switchboard gutters.

3. Thoroughly clean all conduit and wire-ways and see that all parts are perfectly dry before pulling any wires. No joint shall be made except in pull, junction or outlet boxes, or in panel or switchboard gutters.

4. Install UL approved, fixture wire from all lighting fixture lamp sockets into fixture outlet or junction box.

C. Joints in 600 Volt Conductors:

1. Joints in 600 volt conductors smaller than No. 4 AWG shall be made with Scotchlok spring type connectors. Wires No 4 AWG and larger shall be joined together with approved type of pressure connector and taped with #33 3M tape, three (3) layers minimum to provide insulation not less than that of conductor. Connections to switch or busbar shall be made with one-piece copper lugs. Splicing of all 600 volt or less in-line connections #2 AWG through 350 MCM shall be made with 3M brand PST connector.

2. Joints/splices shall be done in junction or pull boxes.

D. Grounding:

1. Provide grounding for entire electric installation as shown on plans and as required by applicable codes. Included as requiring grounding are:

   a. Conduit.
   b. Neutral or identified conductors of interior wiring system.
   c. Non-current carrying metal parts of fixed equipment.
   d. Branch circuit panelboards.

2. Grounding and bonding conductors shall be sized per the latest edition of the California Code of Regulations, Title 24, State of California and CEC.

3. Provide and install an equipment grounding conductor in all feeder and branch circuit conduits.

4. Grounding resistance to ground shall not exceed 25 ohm.

E. Prefabricated Equipment: Installation of all prefabricated items and equipment shall conform to the requirements of the manufacturer's specifications and installation instruction pamphlets. Where code requirements affect installation of materials and equipment, the more stringent requirements, code or manufacturer's instructions and/or specifications, shall govern the work.

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 26 05 73 – OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes arc flash study and short circuit and protective device coordination study encompassing portions of electrical distribution system from normal power source or sources up to and including breakers in service entrance switchboard, main breaker in sub-distribution panels, main breaker in each panelboard. The study shall be limited to the portion of the electrical power distribution system affected by the scope of work indicated on the plans, up to and including, the main service switchboard.

B. Adjustable circuit breaker settings and non-adjustable circuit breaker selections shall be based on the results of the coordination study to ensure a local fault does not trip any upstream circuit breaker. Refer to 26 05 73 Item 1.7 for additional requirements.

C. Device Coordination study and Arc Flash study shall be performed by a third party professional Engineer licensed in the State of California. The engineer performing the study shall be responsible for contacting the serving utility company and obtaining the available short circuit at the service entrance equipment. The available short circuit current provided by the serving utility company shall serve as the basis for the study.

D. The engineer performing the study shall be responsible for field verifying the manufacturer, type, rating and characteristics of existing electrical equipment.

1.2 REFERENCES

A. Institute of Electrical and Electronics Engineers:
   1. IEEE 242 - Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems (Buff Book).

B. National Fire Protection Association:
   1. NFPA 70 - California Electrical Code.

1.3 DESIGN REQUIREMENTS

A. Complete Short Circuit and Protective Device Coordination Study to meet requirements of NFPA 70.

B. Report Preparation:
   1. Prepare study prior to ordering distribution equipment to verify equipment ratings required.
   2. Perform study with aid of computer software program.
   3. Obtain actual settings for packaged motor characteristics for equipment incorporated into Work.
   4. Calculate short circuit interrupting and, when applicable, momentary duties for assumed 3-phase bolted fault short circuit current and phase to ground fault short circuit current at each of the following:
      a. Utility supply bus.
      b. Automatic transfer switch.
      c. Engine generator.
      d. Low-voltage switchgear.
      e. Switchboards.

f. Distribution panelboards.
g. Branch circuit panelboards.
h. Each other significant equipment location throughout system.

C. Report Contents:
1. Include the following:
a. Calculation methods and assumptions.
b. Base per unit value selected.
c. One-line diagram.
d. Source impedance data including power company system available power and characteristics.
e. Typical calculations.
1) Fault impedance.
2) X to R ratios.
3) Asymmetry factors.
4) Motor fault contribution.
5) Short circuit kVA.
6) Symmetrical and asymmetrical phase-to-phase and phase-to-ground fault currents.
7) Tabulations of calculation quantities and results.
f. One-line diagram revised by adding actual instantaneous short circuits available.
g. State conclusions and recommendations.
2. Prepare time-current device coordination curves graphically indicating coordination proposed for system, centered on conventional, full-size, log-log forms.
3. Prepare with each time-curve sheet complete title and one-line diagram with legend identifying specific portion of system covered by that particular curve sheet.
4. Prepare detailed description of each protective device identifying its type, function, manufacturer, and time-current characteristics. Tabulate recommended device tap, time dial, pickup, instantaneous, and time delay settings.
5. Plot device characteristic curves at point reflecting maximum symmetrical fault current to which device is exposed. Include on curve sheets the following:
a. Power company relay characteristics.
b. Power company fuse characteristics.
c. Low voltage equipment circuit breaker trip device characteristics.
d. Low voltage equipment fuse characteristics.
e. Cable damage point characteristics.
f. Pertinent transformer characteristics including:
1) Transformer full load current.
2) Transformer magnetizing inrush.
3) ANSI transformer withstand parameters.
4) Significant symmetrical fault current.
g. Pertinent motor characteristics.
h. Other system load protective device characteristics.

1.4 SUBMITTALS

A. Qualifications Data: Submit the following for review prior to starting study.
1. Submit qualifications and background of firm.
2. Submit qualifications of Professional Engineer performing study.

B. Software: Submit for review information on software proposed to be used in performing study.

C. Product Data: Submit the following:
1. Report: Summarize results of study in report format including the following:
a. Descriptions, purpose, basis, and scope of study.
b. Tabulations of circuit breaker, fuse and other protective device ratings versus calculated short-circuit duties, and commentary regarding same.

c. Protective device time versus current coordination curves, tabulations of relay and circuit breaker trip settings, fuse selection, and commentary regarding same.
d. Fault current calculations including definition of terms and guide for interpretation of computer printout.

D. Submit copies of final report signed by professional engineer. Make additions or changes required by review comments.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with CEC requirements.

B. Maintain one copy of each document on site.

C. Use commercially available software, designed specifically for short circuit and protective device coordination studies with minimum of five years documented availability.

D. Perform study in accordance with IEEE 242.

1.6 QUALIFICATIONS

A. Study Preparer: Company specializing in performing work of this section with minimum five years documented experience and having completed five projects of similar size and complexity within the past two years.

B. Perform study under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of California with minimum of five years experience in power system analysis.

C. Demonstrate company performing study has capability and experience to provide assistance during system start up.

1.7 SEQUENCING

A. Submit short circuit and protective device coordination study to Architect/Engineer prior to receiving final approval of distribution equipment shop drawings and prior to releasing equipment for manufacturing.

B. When formal completion of study will cause delay in equipment manufacturing, obtain approval from Architect/Engineer for preliminary submittal of study data sufficient in scope to ensure selection of device ratings and characteristics will be satisfactory.

1.8 SCHEDULING

A. Schedule work to expedite collection of data to ensure completion of study for final approval of distribution equipment shop drawings prior to release of equipment for manufacturing.

1.9 COORDINATION

A. Coordinate work with local power company.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

A. Provide assistance to electrical distribution system equipment manufacturer during start up of electrical system and equipment.

3.2 ADJUSTING

A. Perform field adjustments of protective devices and modifications to equipment to place equipment in final operating condition. Adjust settings in accordance with approved short circuit and protective device coordination study.

END OF SECTION

Carrier
turn to the experts

Sigler

COMMERCIAL HVAC DIVISION

S U B M I T T A L

Contractor: **Lynwood Unified School District** **Job Name:** Lynwood USD Firebaugh HS
Date: 10/18/2024

Mark For	Qty	Model Number	Description
All Units Include Sigler Pass Services			
Admin/Library			
AC-72-73	2	48FCDM28AJM6-3U0A0	Nominal 25 Ton Cooling GE RTU, 460-3-60 ♦ *Low Gas heat* ♦ *Two-Stage Cooling single circuit* ♦ *"ULTRA LOW LEAK EconoMi$er X, temperature economizer, barometric relief and W7220 economizer controller . Vertical & Horizontal Air, Flow"* ♦ *High Static, Horiz Supply* ♦ *"Round Tube Plate Fin (RTPF) Al/Cu Condenser Coil, Al/Cu Evaporator Coil with Louvered Hail Guard"* ♦ *SystemVu Controller*
	2	♦ *PCC-MRT69CA-D-4L6*	♦ *Modulating Power Exhaust, 6HP, 460-3-60 *Field Installed*
AC-74	1	48FCDM20AJM6-3U0A0	Nominal 17.5 Ton Cooling GE RTU, 460-3-60 ♦ *Low Gas heat* ♦ *Two-Stage Cooling single circuit* ♦ *"ULTRA LOW LEAK EconoMi$er X, temperature economizer, barometric relief and W7220 economizer controller . Vertical & Horizontal Air, Flow"* ♦ *High Static, Horiz Supply* ♦ *"Round Tube Plate Fin (RTPF) Al/Cu Condenser Coil, Al/Cu Evaporator Coil with Louvered Hail Guard"* ♦ *SystemVu Controller*
	1	♦ *PCC-MRT69CA-D-4L4*	♦ *Modulating Power Exhaust, 4HP, 460-3-60 *Field Installed*
GYM			
AC 58 and 59	2	48K4AG50-5-6A0B0A0	Nominal 50 Ton Cooling GE RTU, 460-3-60 ♦ *Standard Efficiency, Low Sound, Digital Compressor* ♦ *R454B* ♦ *Low Gas Heat, 2-Stage* ♦ *SAV, Horizontal Supply, Horizontal Return* ♦ *Single Wall* ♦ *Standard [Standard SCCR, Terminal Block]* ♦ *30 HP ODP Motor, Variable Frequencey Drive (VFD)* ♦ *Standard [Hinged Doors, DX Pressure Sensors]* ♦ *Ultra Low Leak Economizer* ♦ *Standard [SmartVu, OAT, RAT, DX LAT Sensors]* ♦ *Galvanized DP, Al/Cu Evap, MCHX Cond* ♦ *2" Pre-Filter Rack with 2 Throwaway Filter*
	2	♦ *1090-3104-LA910*	♦ *Modulating Power Exhaust, 12HP, 460-3-60 *Field Installed*
AC-60	1	48FCDM12A3M6-3A0A0	Nominal 10 Ton Cooling GE RTU, 460-3-60 ♦ *Low gas heat* ♦ *Single circuit, two stage cooling* ♦ *Direct drive, EcoBlue, high static fan* ♦ *Al/Cu cond. Coil – Al/Cu evap coil hail guard*

			♦ *SystemVu Controller*
	1	♦ *PECH-SRT34CB-D0DB-4L2-4*	♦ *Horizontal Discharge Economizer, No Controls, Belimo Actuator, w/ Modulating Power Exhaust, 2HP, 460-3-60 *Field Installed*

CONTENTS OF SUBMITTAL:

- PRODUCT DESCRIPTION, PERFORMANCE DATA, DIMENSIONAL DATA, AND ACCESSORY DATA.

REGARDING UNITS WITH POWER EXHAUST

SOME OF THE UNITS SUBMITTED FOR THIS PROJECT HAVE NON-FACTORY POWER EXHAUST MODULES. WHILE THE PACKAGE UNIT AND POWER EXHAUST ARE INDIVIDUALY APPROVED BY ETL OR UL, THE COMBINATION OF THE TWO IS NOT. LOCAL CODES PERMITTING, POWER EXHAUST WIRING CAN BE ROUTED TO THE PACKAGE UNIT'S TERMINAL STRIP. SEPARATE POWER SOURCE FOR POWER EXHAUST MAY BE REQUIRED DEPENDING ON LOCAL CODES.

NOTES:

- ONE APPROVED COPY OF SUBMITTAL MUST BE RETURNED MARKED "APPROVED" OR "APPROVED AS NOTED" FOR EQUIPMENT TO BE RELEASED FOR FABRICATION TO THE FACTORY.
- **THE INFORMATION CONTAINED HEREIN IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY FOR THE DESIGNER OF RECORD'S EVALUATION. IT DOES NOT CONSTITUTE OR IMPLY ANY OPINION, REPRESENTATION, OR WARRANTY WHATSOEVER, INCLUDING BUT NOT LIMITED TO THE SYSTEM DESIGN'S FITNESS FOR ITS INTENDED PURPOSE.**

SUBMITTALS RETURNED REQUIRING ADDITIONAL, OR MODIFIED, DATA WILL BE RE-SUBMITTED BY SIGLER. RELEASE FOR FABRICATION WILL COMMENCE WHEN AN "APPROVED" SUBMITTAL IS RETURNED TO OUR OFFICES.

REVISION: ORIGINAL

SUBMITTED BY: Travon Chadwick

PREPARED BY: Alex Chang

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SECTION I. ROOFTOP UNITS

SECTION II. ROOFTOP ACCESSORIES

Sigler

COMMERCIAL HVAC DIVISION
205 S. Puente Street
Brea, CA. 92821

SECTION I. ROOFTOP UNITS

Sigler

COMMERCIAL HVAC DIVISION
205 S. Puente Street
Brea, CA. 92821

AC-72-73

Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report

Unit Report For AC-72-73

Project: Lynwood USD Firebaugh HS
Prepared By:

10/17/2024
06:30PM

Unit Parameters

Unit Model: **48FCDM28AJM6-3U0A0**
Unit Size: **28 (25 Tons)**
Volts-Phase-Hertz: **460-3-60**
Heating Type: **Gas**
Heat Control: **Low Heat**
Duct Cfg: **Horizontal Supply / Horizontal Return**
DX Options: **Two Stage Cooling/Single Circuit**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **11' 9.5"**
Unit Width: **7' 2.375"**
Unit Height: **3' 11.75"**
Total Operating Weight: **2394** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size: **3/4**
Condensate Drain Line Size: **3/4**
Return Air Filter Type: **Throwaway**
Return Air Filter Quantity: **9**
Return Air Filter Size: **20 x 25 x 2**

Selection includes construction throwaway filter into the base fan curve.

Unit Configuration

High Static Option - Horizontal Models
Al/Cu - Al/Cu - Louvered Hail Guard
SystemVu Controller
Temperature Ultra Low Leak Economizer w/Baro Relief, Vertical and Horizontal Airflow
Standard Packaging

Warranty Information

1-Year parts(std.)
5-Year compressor parts(std.)
10-Year heat exchanger - Aluminized(std.)
3-Year SystemVu Controller

No optional warranties were selected.

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

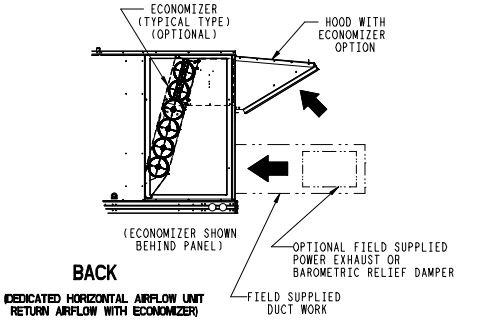
Ordering Information

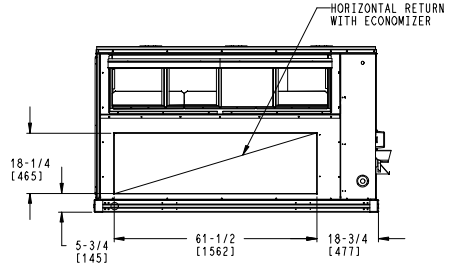
Part Number	Description	Quantity
48FCDM28AJM6-3U0A0	Rooftop Unit	2
	Base Unit	
	Al/Cu - Al/Cu - Louvered Hail Guard	
	SystemVu controller, ULTRA LOW LEAK EconoMi$er2 temperature economizer with barometric relief. Syst	

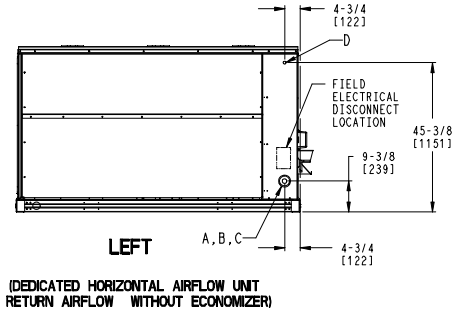
Carrier

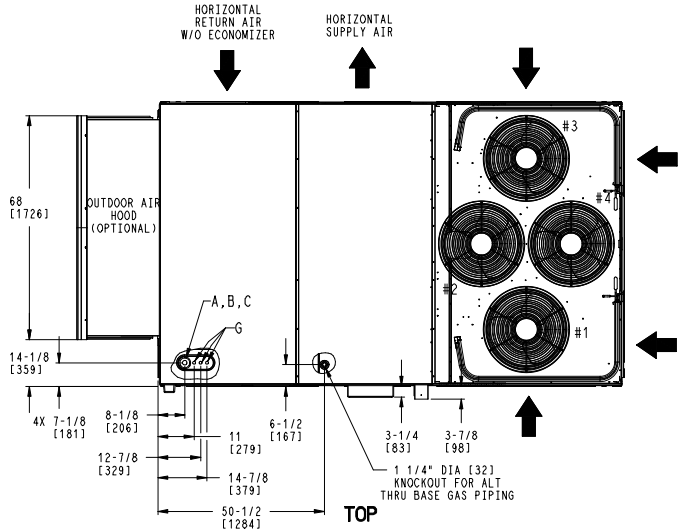
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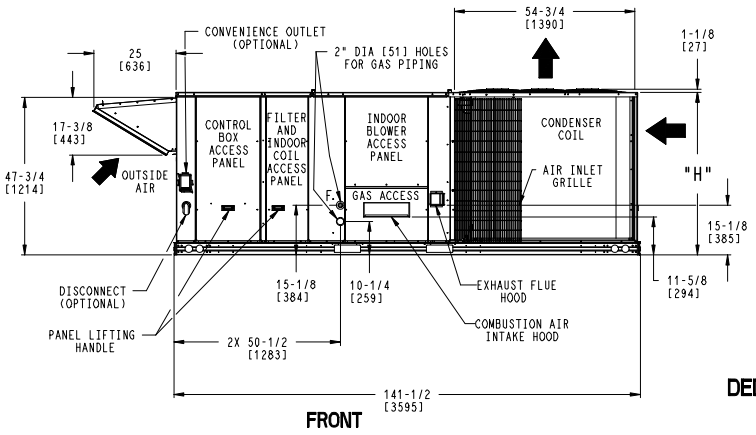


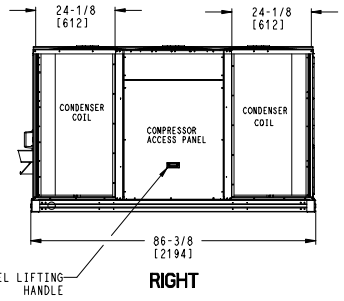
	CONNECTION SIZES
A	1 3/8" DIA [35] FIELD POWER SUPPLY KNOCKOUT
B	3" DIA [76] FIELD POWER SUPPLY KNOCKOUT
C	3 5/8" DIA [92] FIELD POWER SUPPLY KNOCKOUT
D	7/8" DIA [22] FIELD CONTROL WIRING HOLE
F	3/4"-14 NPT GAS CONNECTION (NOT SHOWN)
G	7/8" DIA [22] FIELD CONTROL WIRING KNOCKOUT

UNIT	H
24 SIZE	49-3/8 [1253]
28 SIZE	57-3/8 [1456]

NOTES:

1. DIMENSIONS ARE IN INCHES. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE





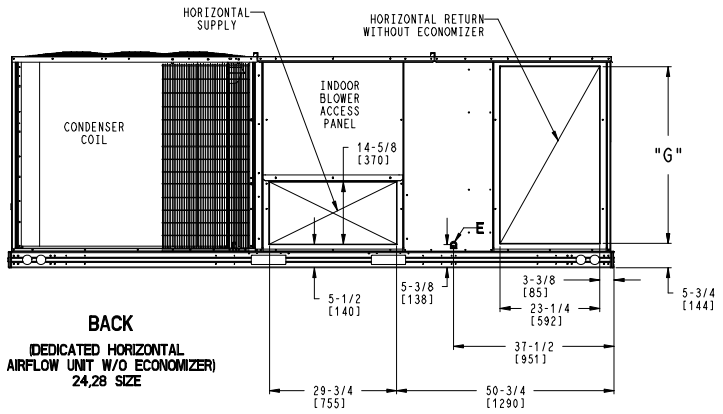
DEDICATED HORIZONTAL AIRFLOW UNIT 24,28 SIZE

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 24,28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT		REV
U.S. ECCN:NSR	2 OF 5	02/10/22	-		50HE003872	-

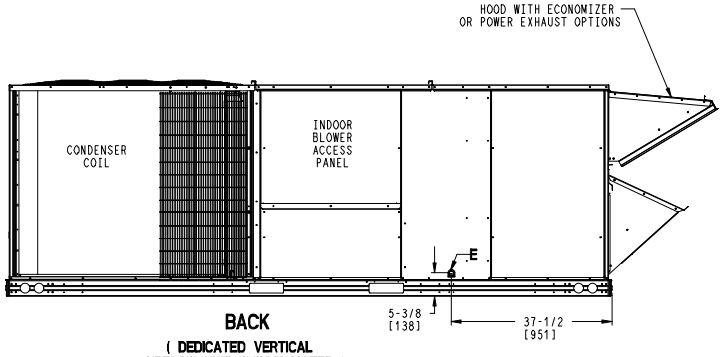
	CONNECTION SIZES
E	3/4"-14 NPT CONDENSATE DRAIN

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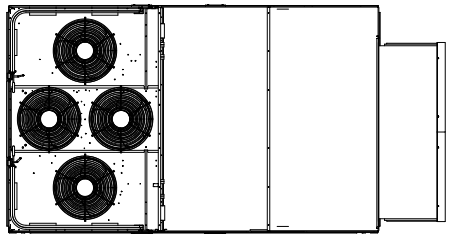
UNIT	G
24 SIZE	41-3/8 [1049]
28 SIZE	49-1/4 [1251]



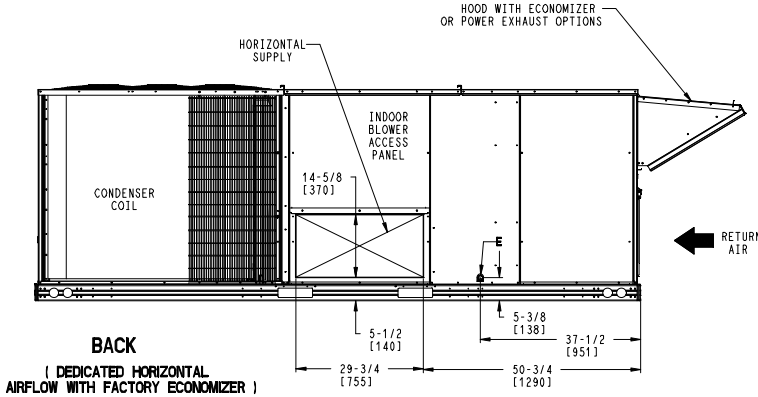
BACK
(DEDICATED HORIZONTAL AIRFLOW UNIT W/O ECONOMIZER) 24,28 SIZE



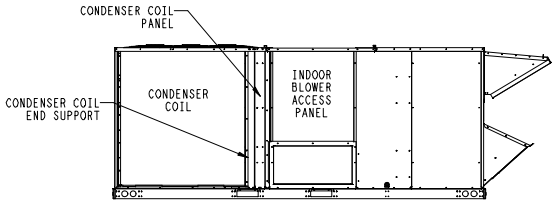
BACK
(DEDICATED VERTICAL AIRFLOW UNIT W/ECONOMIZER) 24,28 SIZE



28 SIZE CONDENSER COIL TOP VIEW



BACK
(DEDICATED HORIZONTAL AIRFLOW WITH FACTORY ECONOMIZER) 24,28 SIZE



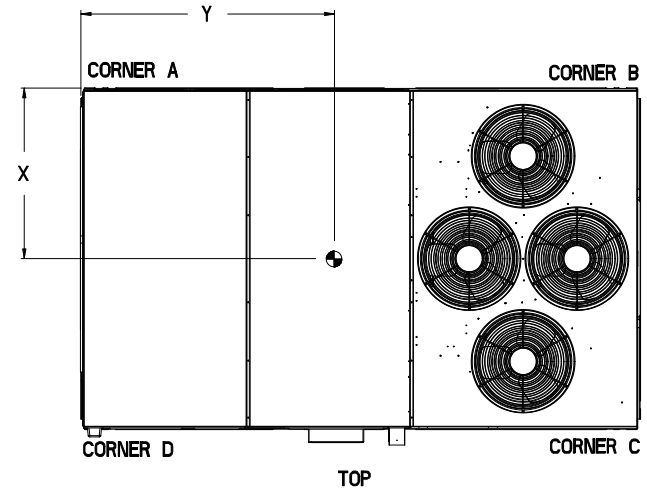
28 SIZE CONDENSER COIL END BRACKET SUPPORT

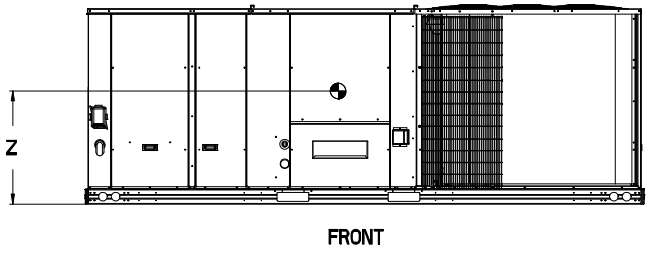
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	3 OF 5	02/10/22	-	48FC 24,28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE003872	-

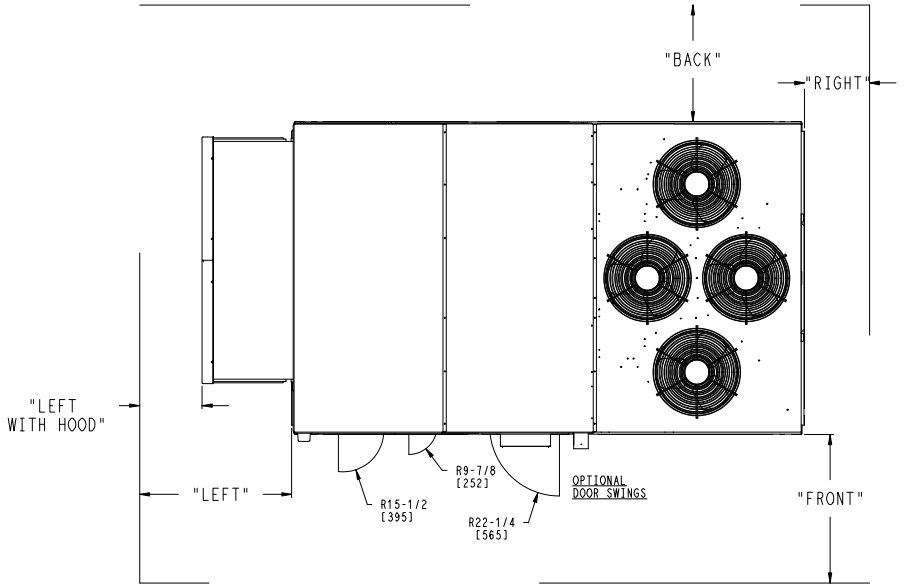
UNIT	STD UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48FC24	2000	907	429	195	505	229	576	261	489	222	76 1/2 [1943]	46 [1168]	16 1/2 [419]
48FC28	2174	986	458	208	583	264	634	288	498	226	79 1/4 [2013]	45 [1143]	19 [483]

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* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.







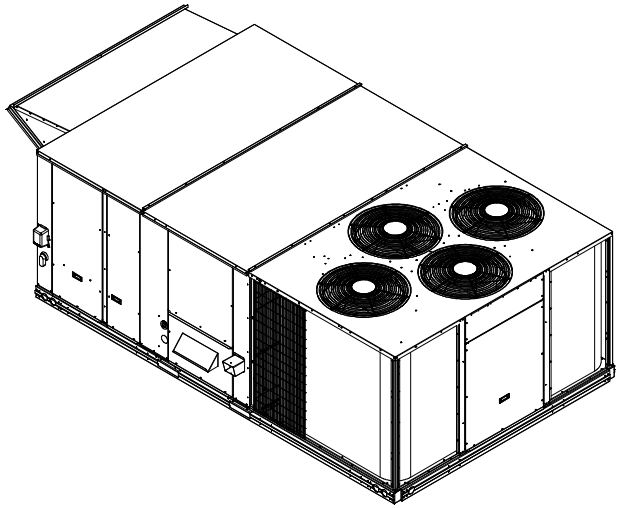
NOTES:

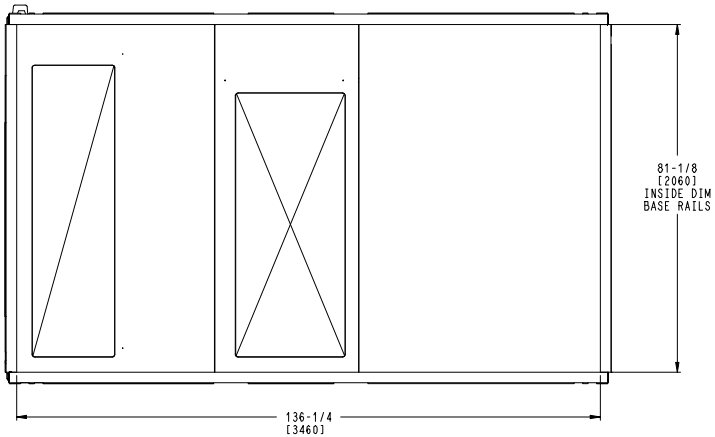
1. CLEARANCE ABOVE THE UNIT TO BE 72"
2. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

CLEARANCE			
	SERVICE WITH:	SERVICE WITH:	OPERATING
SURFACE	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK	42 [1067mm]	36 [914mm]	18 [457mm]
LEFT WITH HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	4 OF 5	02/10/22	-	48FC 24,28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE003872	-

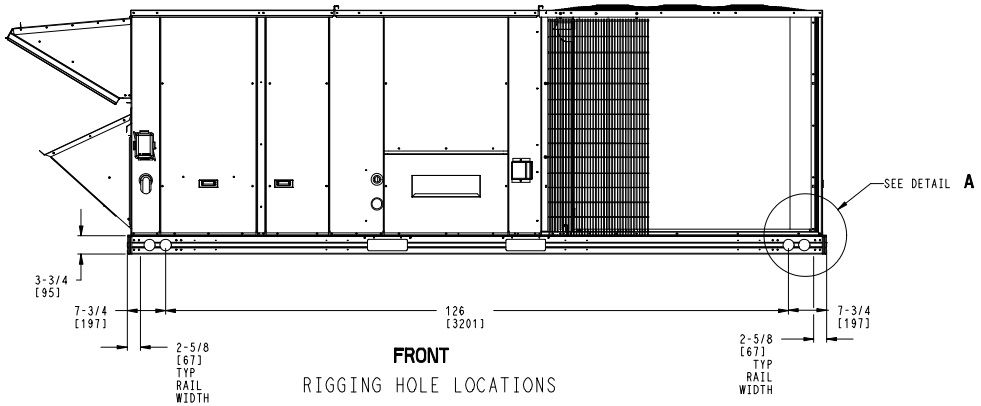
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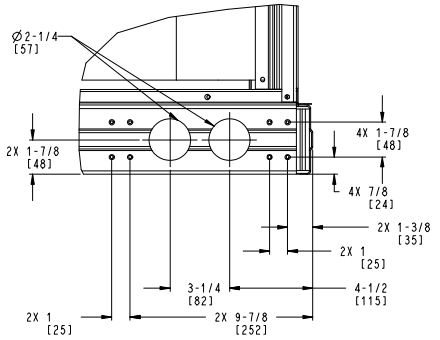
BOTTOM

INSIDE BASERAIL DIMENSIONS



FRONT

RIGGING HOLE LOCATIONS



DETAIL **A**
TYP 4 PLCS

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 24,28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE003872	REV
U.S. ECCN:NSR	5 OF 5	02/10/22	-			-

Part Number:48FCDM28AJM6-3U0A0

ARI EER:	**9.80**	
IEER:	**14.0**	

Base Unit Dimensions

Unit Length:	**141.5**	in
Unit Width:	**86.4**	in
Unit Height:	**47.8**	in

Operating Weight

Base Unit Weight:	**2047**	lb
Al/Cu - Al/Cu - Louvered Hail Guard:	**100**	lb
SystemVu Controller:	**2**	lb
Temperature Ultra Low Leak Economizer w/Baro Relief, Vertical and Horizontal Airflow:	**245**	lb
Total Operating Weight:	**2394**	lb

Unit

Unit Voltage-Phase-Hertz:	**460-3-60**	
Air Discharge:	**Horizontal**	
Fan Drive Type:	**Vane Axial**	
Actual Airflow:	**10000**	CFM
Site Altitude:	**0**	ft

Cooling Performance

Condenser Entering Air DB:	**95.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**59.6**	F
Evaporator Leaving Air WB:	**57.7**	F
Evaporator Leaving Air Enthalpy:	**24.86**	BTU/lb
Gross Cooling Capacity:	**295.97**	MBH
Gross Sensible Capacity:	**220.47**	MBH
Compressor Power Input:	**23.89**	kW
Coil Bypass Factor:	**0.174**	

Heating Performance

Heating Airflow:	**10000**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**86.5**	F
Gas Heating Input Capacity:	**176.0 / 220.0**	MBH
Gas Heating Output Capacity:	**142.0 / 178.0**	MBH
Temperature Rise:	**16.5**	F
Thermal Efficiency (%):	**81.0**	

Supply Fan

External Static Pressure:	**0.50**	in wg
Options / Accessories Static Pressure		
Economizer:	**0.10**	in wg
Application External Static (ESP + Unit Opts/Acc.):	**0.60**	in wg
Fan RPM:	**2030**	
Fan Power:	**6.27**	BHP
NOTE:	**Selected IFM RPM Range: 250 - 2170**	

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Voltage Range:	**414 - 506**	
Compressor #1 RLA:	**18.6**	

Compressor #1 LRA:	**125**
Compressor #2 RLA:	**18.6**
Compressor #2 LRA:	**125**
Indoor Fan Motor Type:	**HIGH-HORZ**
Indoor Fan Motor FLA (Total):	**5.6**
Combustion Fan Motor FLA (ea):	**0.3**
Power Supply MCA:	**56.7**
Power Supply MOCP (Fuse or HACR):	**70**
Disconnect Size FLA:	**60**
Disconnect Size LRA:	**274**
Electrical Convenience Outlet:	**None**
Outdoor Fan [Qty / FLA (ea)]:	**4 / 0.9**

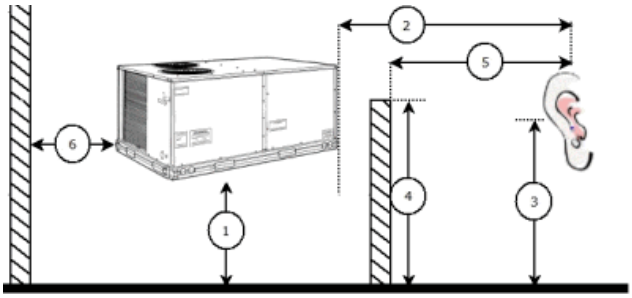
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	84.9	83.8	97.1
125 Hz	86.2	82.9	88.3
250 Hz	87.8	77.0	84.4
500 Hz	82.7	74.7	83.3
1000 Hz	82.7	74.0	80.7
2000 Hz	81.4	69.2	77.4
4000 Hz	76.6	59.8	73.4
8000 Hz	70.1	52.4	67.3
A-Weighted	87.9	78.0	86.0

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground:	**30.0**	ft
2. Horizontal distance from unit to receiver:	**50.0**	ft
3. Receiver height above ground:	**5.7**	ft
4. Height of obstruction:	**0.0**	ft
5. Horizontal distance from obstruction to receiver:	**0.0**	ft
6. Horizontal distance from unit to obstruction:	**0.0**	ft

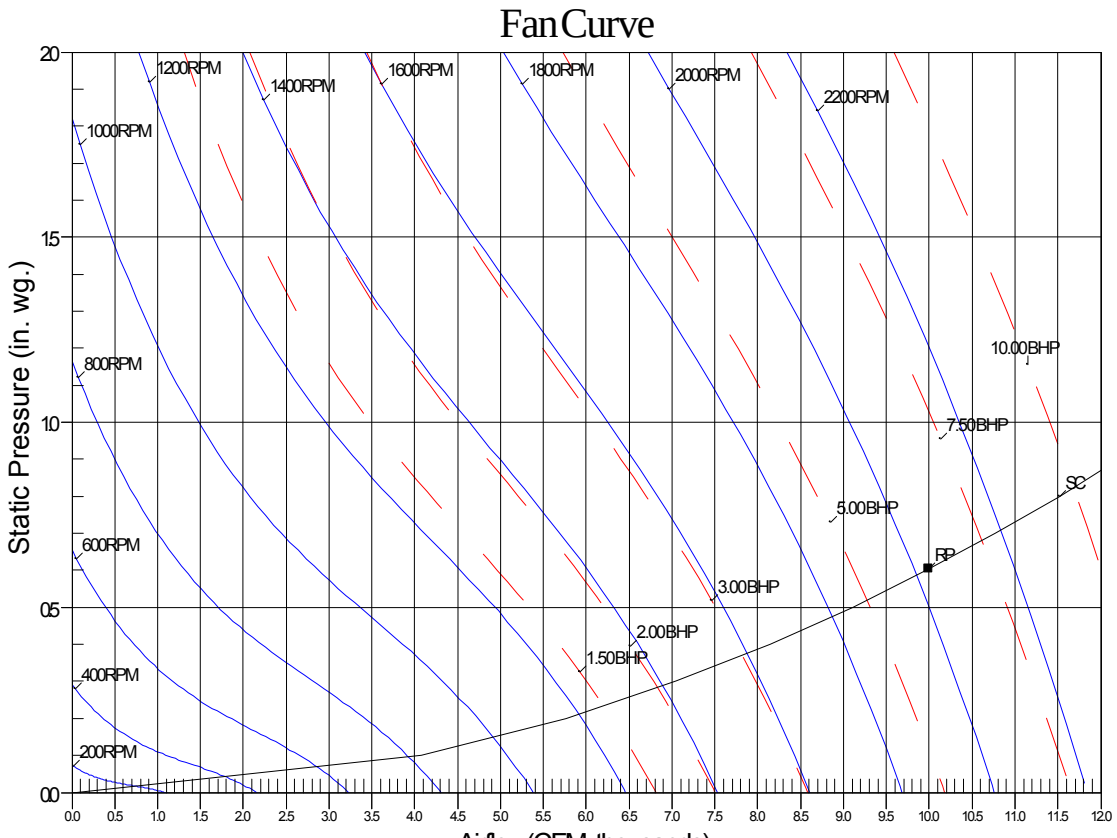
Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3	98.1 Lw
B	70.9	72.2	75.8	80.1	80.7	78.6	74.4	66.2	85.9 LwA

C	64.7	55.9	52.0	50.9	48.3	45.0	41.0	34.9	65.7 Lp
D	38.5	39.8	43.4	47.7	48.3	46.2	42.0	33.8	53.5 LpA

Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.



RPM=2030 BHP=6.27 Maximum RPM=2200 Maximum BHP=8.10
SC-System Curve RP-Rated Point

AC-74

Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report

Unit Report For AC-74

Project: Lynwood USD Firebaugh HS
Prepared By:

10/17/2024
06:30PM

Unit Parameters

Unit Model: **48FCDM24AJM6-3U0A0**
Unit Size: **24 (20 Tons)**
Volts-Phase-Hertz: **460-3-60**
Heating Type: **Gas**
Heat Control: **Low Heat**
Duct Cfg: **Horizontal Supply / Horizontal Return**
DX Options: **Two Stage Cooling/Single Circuit**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **11' 9.5"**
Unit Width: **7' 2.375"**
Unit Height: **3' 11.75"**
Total Operating Weight: **2240** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size: **3/4**
Condensate Drain Line Size: **3/4**
Return Air Filter Type: **Throwaway**
Return Air Filter Quantity: **6**
Return Air Filter Size: **20 x 25 x 2**

Selection includes construction throwaway filter into the base fan curve.

Unit Configuration

High Static Option - Horizontal Models
Al/Cu - Al/Cu - Louvered Hail Guard
SystemVu Controller
Temperature Ultra Low Leak Economizer w/Baro Relief, Vertical and Horizontal Airflow
Standard Packaging

Warranty Information

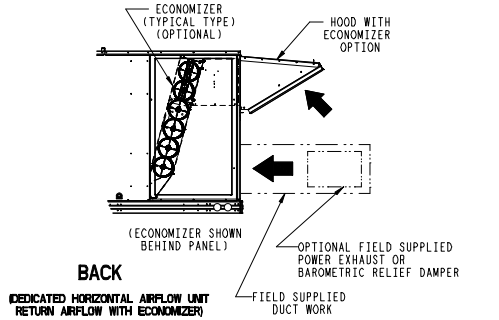
1-Year parts(std.)
5-Year compressor parts(std.)
10-Year heat exchanger - Aluminized(std.)
3-Year SystemVu Controller

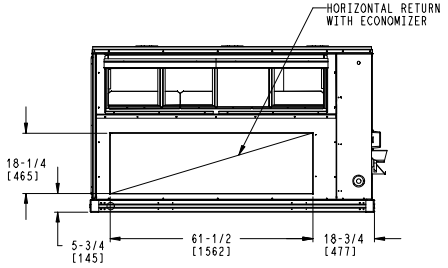
No optional warranties were selected.

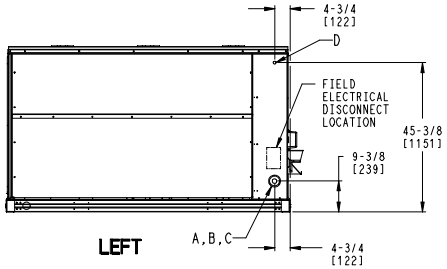
NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

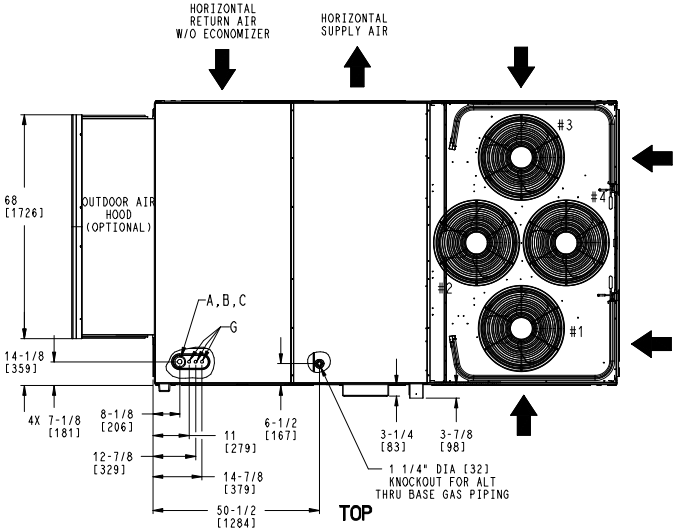
Ordering Information

Part Number	Description	Quantity
48FCDM24AJM6-3U0A0	Rooftop Unit	1
	Base Unit	
	Al/Cu - Al/Cu - Louvered Hail Guard	
	SystemVu controller, ULTRA LOW LEAK EconoMi$er2 temperature economizer with barometric relief. Syst	





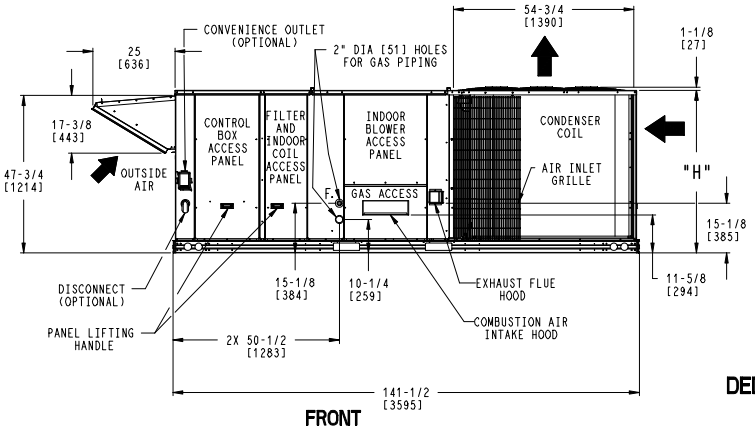


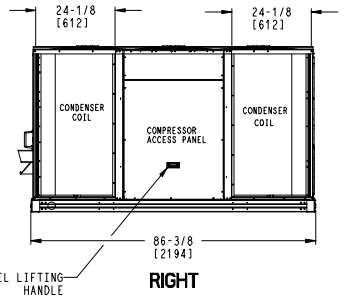


	CONNECTION SIZES
A	1 3/8" DIA [35] FIELD POWER SUPPLY KNOCKOUT
B	3" DIA [76] FIELD POWER SUPPLY KNOCKOUT
C	3 5/8" DIA [92] FIELD POWER SUPPLY KNOCKOUT
D	7/8" DIA [22] FIELD CONTROL WIRING HOLE
F	3/4"-14 NPT GAS CONNECTION (NOT SHOWN)
G	7/8" DIA [22] FIELD CONTROL WIRING KNOCKOUT

UNIT	H
24 SIZE	49-3/8 [1253]
28 SIZE	57-3/8 [1456]

NOTES:
1. DIMENSIONS ARE IN INCHES. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE





DEDICATED HORIZONTAL AIRFLOW UNIT 24,28 SIZE

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 24,28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT		REV
U.S. ECCN:NSR	2 OF 5	02/10/22	-		50HE003872	-

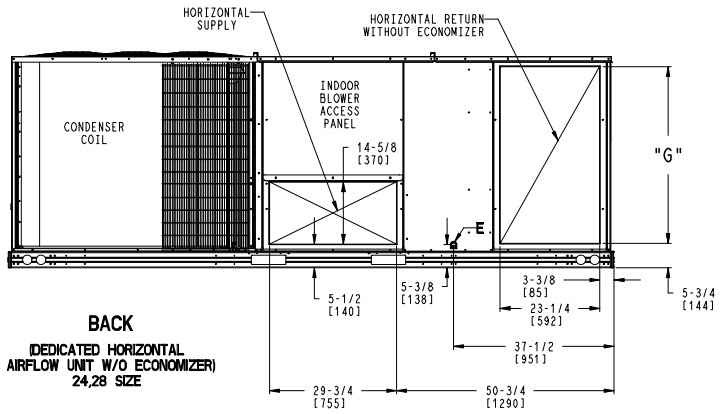
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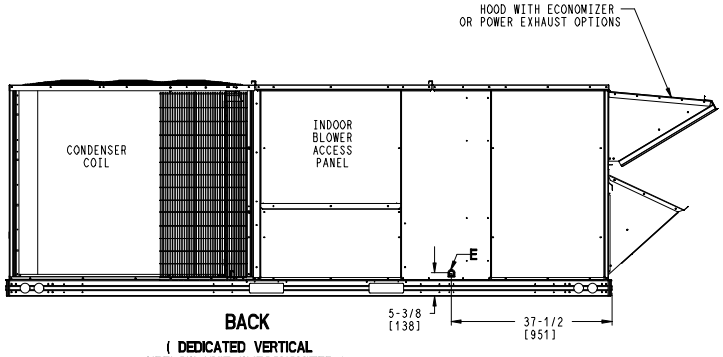
	CONNECTION SIZES
E	3/4"-14 NPT CONDENSATE DRAIN

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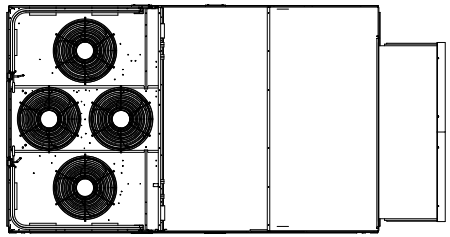
UNIT	G
24 SIZE	41-3/8 [1049]
28 SIZE	49-1/4 [1251]



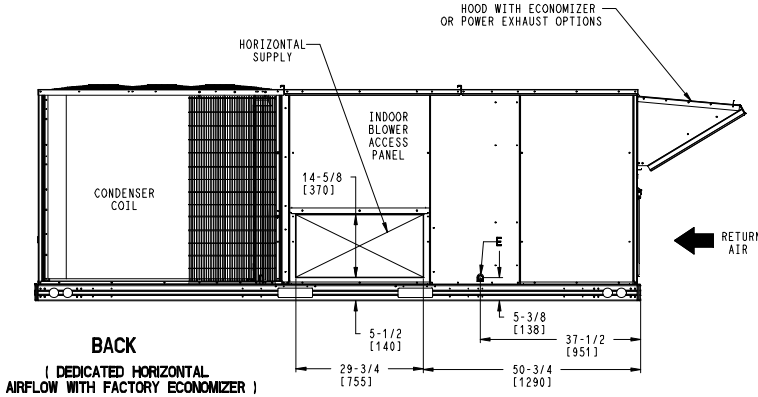
BACK
(DEDICATED HORIZONTAL AIRFLOW UNIT W/O ECONOMIZER)
24,28 SIZE



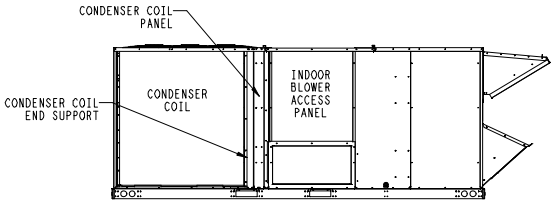
BACK
(DEDICATED VERTICAL AIRFLOW UNIT W/ECONOMIZER)
24,28 SIZE



28 SIZE CONDENSER COIL TOP VIEW



BACK
(DEDICATED HORIZONTAL AIRFLOW WITH FACTORY ECONOMIZER)
24,28 SIZE



28 SIZE CONDENSER COIL END BRACKET SUPPORT

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	3 OF 5	02/10/22	-	48FC 24,28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE003872	-

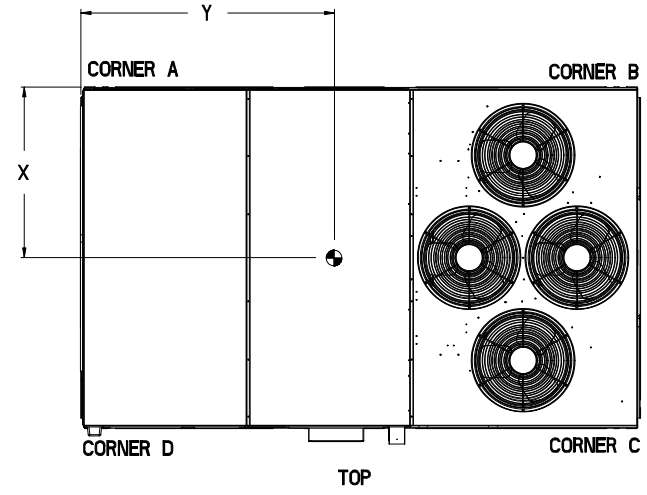
UNIT	STD UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48FC24	2000	907	429	195	505	229	576	261	489	222	76 1/2 [1943]	46 [1168]	16 1/2 [419]
48FC28	2174	986	458	208	583	264	634	288	498	226	79 1/4 [2013]	45 [1143]	19 [483]

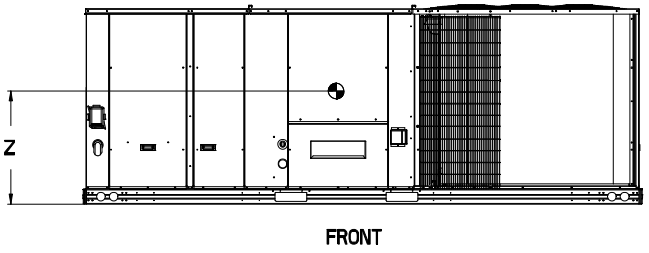
Carrier

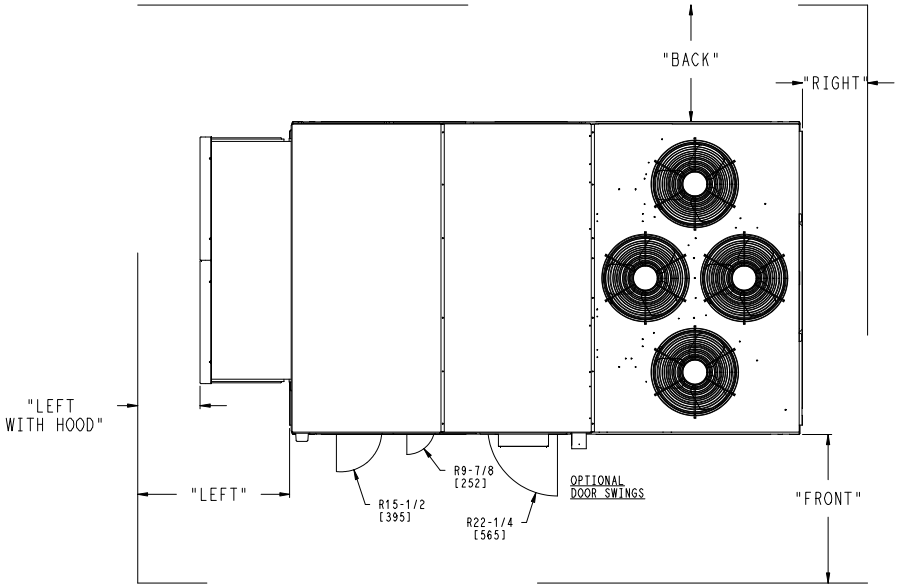
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* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.







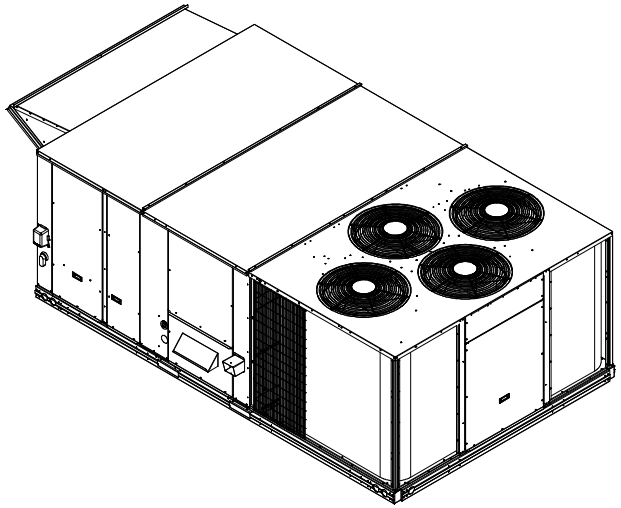
NOTES:

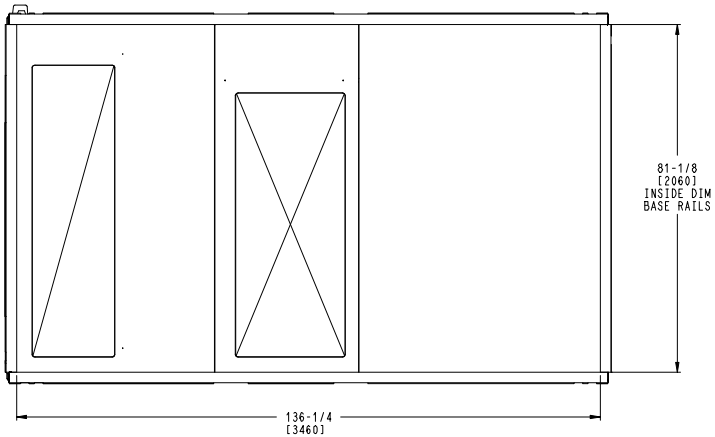
1. CLEARANCE ABOVE THE UNIT TO BE 72"
2. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

CLEARANCE			
	SERVICE WITH:	SERVICE WITH:	OPERATING
SURFACE	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK	42 [1067mm]	36 [914mm]	18 [457mm]
LEFT WITH HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	4 OF 5	02/10/22	-	48FC 24,28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE003872	-

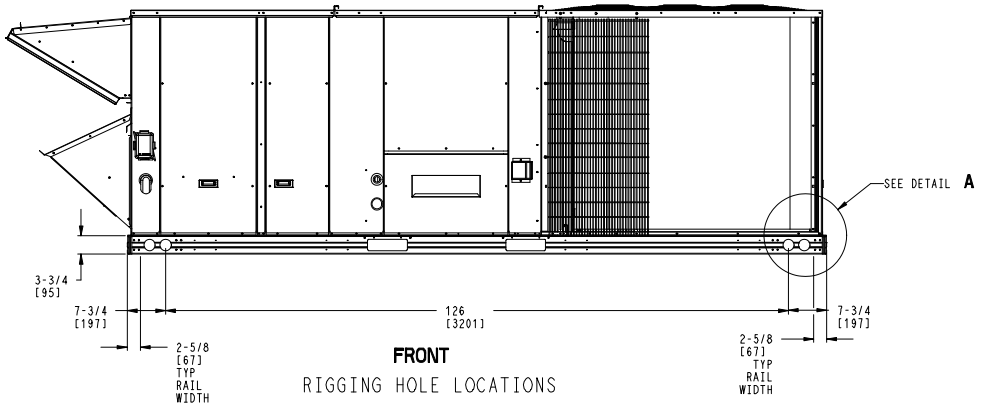
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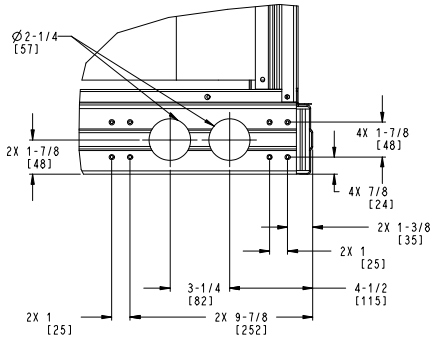
BOTTOM

INSIDE BASERAIL DIMENSIONS



FRONT

RIGGING HOLE LOCATIONS



DETAIL **A**
TYP 4 PLCS

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 24,28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT		REV
U.S. ECCN:NSR	5 OF 5	02/10/22	-		50HE003872	-

Part Number:48FCDM24AJM6-3U0A0

ARI EER:	**10.00**	
IEER:	**14.5**	

Base Unit Dimensions

Unit Length:	**141.5**	in
Unit Width:	**86.4**	in
Unit Height:	**47.8**	in

Operating Weight

Base Unit Weight:	**1873**	lb
High Static Option - Horizontal Models:	**30**	lb
Al/Cu - Al/Cu - Louvered Hail Guard:	**90**	lb
SystemVu Controller:	**2**	lb
Temperature Ultra Low Leak Economizer w/Baro Relief, Vertical and Horizontal Airflow:	**245**	lb
Total Operating Weight:	**2240**	lb

Unit

Unit Voltage-Phase-Hertz:	**460-3-60**	
Air Discharge:	**Horizontal**	
Fan Drive Type:	**Vane Axial**	
Actual Airflow:	**8000**	CFM
Site Altitude:	**0**	ft

Cooling Performance

Condenser Entering Air DB:	**95.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**58.6**	F
Evaporator Leaving Air WB:	**56.9**	F
Evaporator Leaving Air Enthalpy:	**24.32**	BTU/lb
Gross Cooling Capacity:	**256.07**	MBH
Gross Sensible Capacity:	**184.89**	MBH
Compressor Power Input:	**20.65**	kW
Coil Bypass Factor:	**0.113**	

Heating Performance

Heating Airflow:	**8000**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**90.6**	F
Gas Heating Input Capacity:	**176.0 / 220.0**	MBH
Gas Heating Output Capacity:	**142.0 / 178.0**	MBH
Temperature Rise:	**20.6**	F
Thermal Efficiency (%):	**81.0**	

Supply Fan

External Static Pressure:	**0.50**	in wg
Options / Accessories Static Pressure		
Economizer:	**0.08**	in wg
Application External Static (ESP + Unit Opts/Acc.):	**0.58**	in wg
Fan RPM:	**1898**	
Fan Power:	**3.81**	BHP
NOTE:	**Selected IFM RPM Range: 250 - 2200**	

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Voltage Range:	**414 - 506**	

Compressor #1 RLA: **16**
Compressor #1 LRA: **140**
Compressor #2 RLA: **16**
Compressor #2 LRA: **140**
Indoor Fan Motor Type: **HIGH-HORZ**
Indoor Fan Motor FLA (Total): **5.6**
Combustion Fan Motor FLA (ea): **0.3**
Power Supply MCA: **50.8**
Power Supply MOCP (Fuse or HACR): **60**
Disconnect Size FLA: **54**
Disconnect Size LRA: **304**
Electrical Convenience Outlet: **None**
Outdoor Fan [Qty / FLA (ea)]: **4 / 0.9**

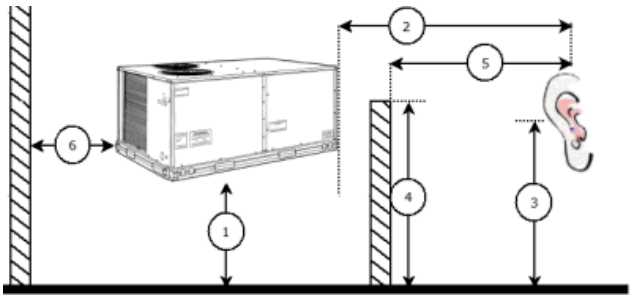
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	82.6	82.1	95.6
125 Hz	83.7	78.0	87.5
250 Hz	86.1	73.1	84.2
500 Hz	80.0	70.2	84.2
1000 Hz	79.7	70.8	81.7
2000 Hz	77.2	65.1	77.9
4000 Hz	72.4	56.1	73.2
8000 Hz	65.0	47.9	66.3
A-Weighted	84.7	74.2	87.0

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **0.0** ft
5. Horizontal distance from obstruction to receiver: **0.0** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

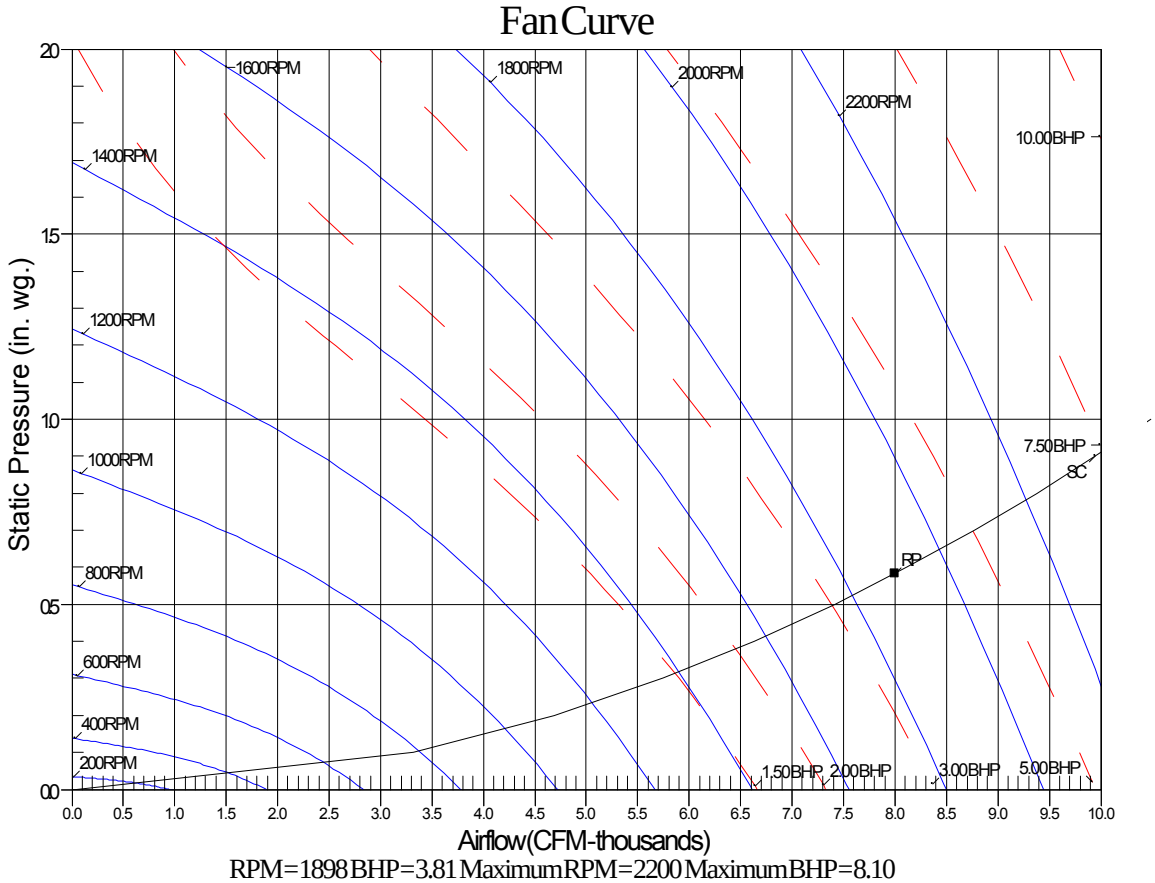
Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	95.6	87.5	84.2	84.2	81.7	77.9	73.2	66.3	96.9 Lw

B	69.4	71.4	75.6	81.0	81.7	79.1	74.2	65.2	86.5 LwA
C	63.2	55.1	51.8	51.8	49.3	45.5	40.8	33.9	64.5 Lp
D	37.0	39.0	43.2	48.6	49.3	46.7	41.8	32.8	54.1 LpA

Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.



RPM=1898 BHP=3.81 Maximum RPM=2200 Maximum BHP=8.10
SC-System Curve RP-Rated Point

AC-60

Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report

Unit Parameters

Unit Model: **48FCDM12A3M6-3A0A0**
Unit Size: **12 (10.0 Tons)**
Volts-Phase-Hertz: **460-3-60**
Heating Type: **Gas**
Heat Control: **Low Heat**
Duct Cfg: **Horizontal Supply / Horizontal Return**
DX Options: **Single Circuit, Two Stage Cooling**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **7' 4.125"**
Unit Width: **4' 11.5"**
Unit Height: **4' 1.375"**
Total Operating Weight: **927** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size: **3/4**
Condensate Drain Line Size: **3/4**
Return Air Filter Type: **Throwaway**
Return Air Filter Quantity: **4**
Return Air Filter Size: **20 x 20 x 2**

Selection includes construction throwaway filter into the base fan curve.

Unit Configuration

High Static (EcoBlue)
Al/Cu - Al/Cu - Louvered Hail Guards
SystemVu Controls
Standard Packaging

Warranty Information

1-Year parts(std.)
5-Year compressor parts(std.)
10-Year heat exchanger - Aluminized(std.)
3-Year SystemVu

No optional warranties were selected.

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
48FCDM12A3M6-3A0A0	Rooftop Unit	1
	Base Unit	
	High Static (EcoBlue)	
	Al/Cu - Al/Cu - Louvered Hail Guards	
	SystemVu controller, No intake or exhaust option. SystemVu controller meets California Title 24 Sect	

NOTES:

1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE

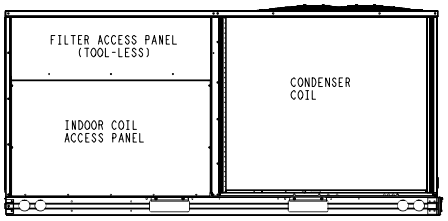
UNIT	OUTDOOR COIL TYPE	J	K	H
48FC-M08	RTPF	41 1/4 [1048]	33 3/4 [857]	15 7/8 [403]
48FC-M09	RTPF	49 3/8 [1253]	36 3/8 [925]	15 7/8 [403]
48FC-M12	RTPF	49 3/8 [1253]	36 3/8 [925]	15 7/8 [403]

RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)

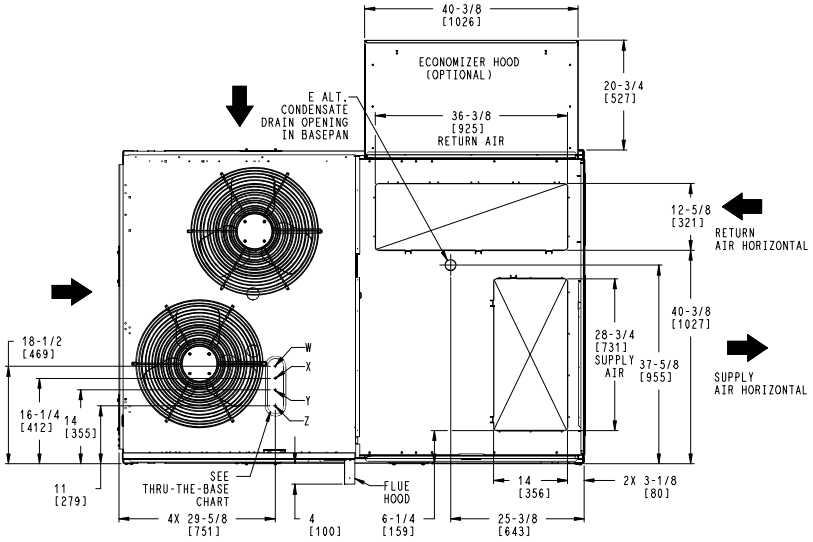
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BACK



TOP

	CONNECTION SIZES
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	1/2"-14 NPT GAS CONNECTION 3/4"-14 NPT GAS CONNECTION
G	2 " [51] DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART (FIELD INST)

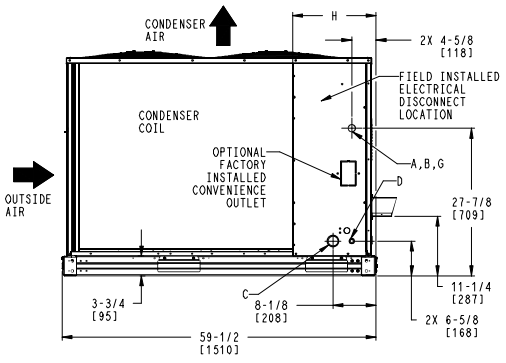
THESE HOLES REQUIRED FOR USE WITH ACCY KITS:
CRBTMPWR002A01: GAS THRU CURB
CRBTMPWR004A01: GAS THRU BASEPAN

	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	ACC.	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y	1 1/4" (002,004)	POWER	1 3/4" [44.4]
Z *	(004) 3/4" FPT	GAS	1 3/4" [44.4]
*	(002) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING. HOLE SIZE: 2" [50.8]		

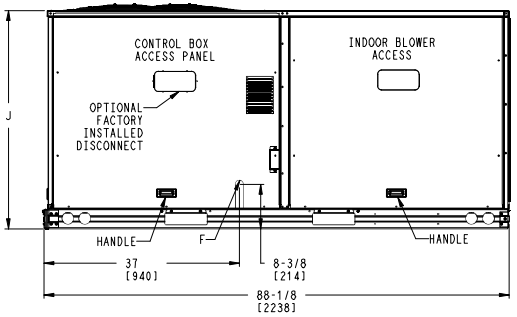
THRU-THE-BASE CHART (FIOP)

FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED. **

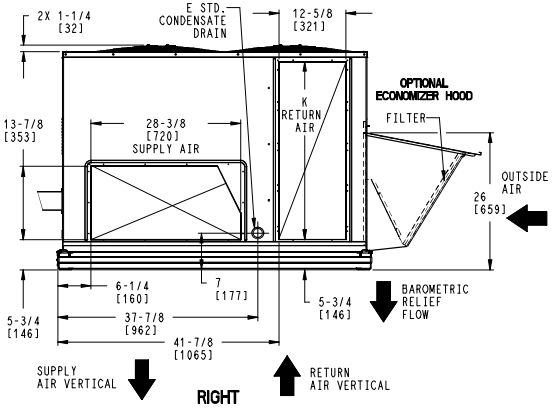
**	FOR BELOW LISTED MODELS, A FIELD SUPPLIED 1/2" ADAPTER IS REQUIRED BETWEEN BASE PAN FITTING AND GAS VALVE: 48FCD,S*08,09



LEFT



FRONT

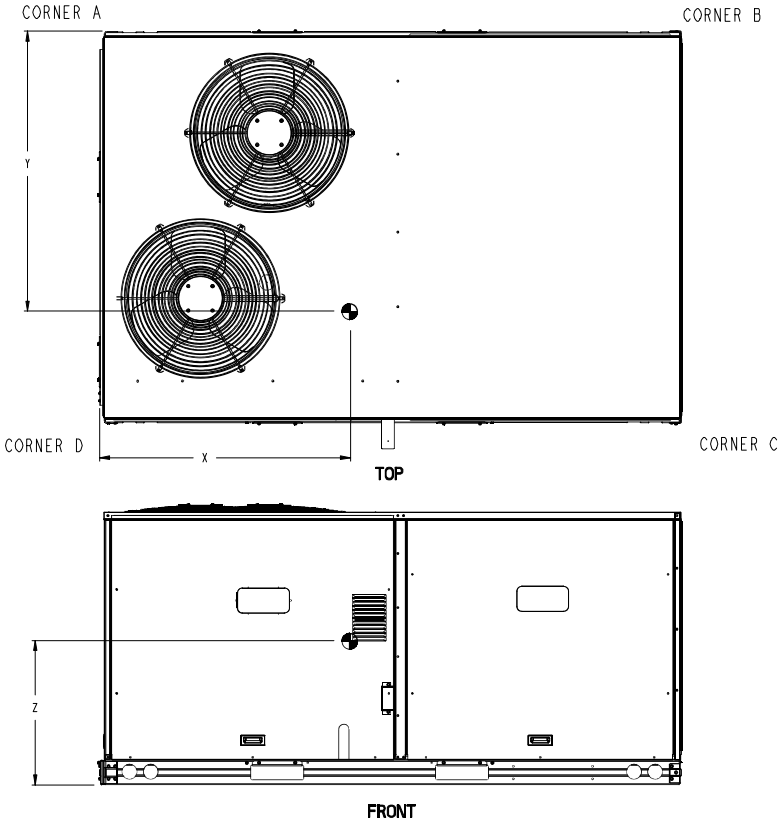


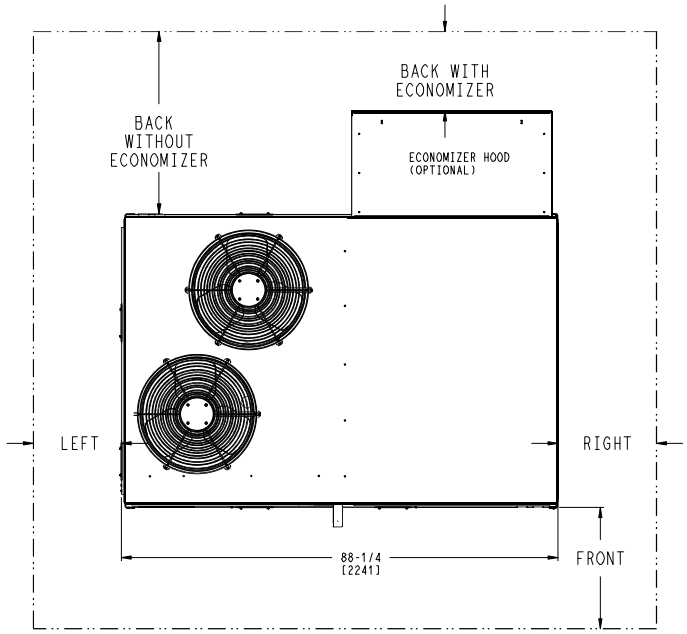
RIGHT

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	1 OF 3	03/12/21	-	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	-

UNIT	OUTDOOR COIL TYPE	STD. UNIT WEIGHT ***		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
		LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48FC-M08	RTPF	787	357	181	82	150	68	207	94	249	113	40 [1016]	34 1/2 [876]	19 3/8 [492]
48FC-M09	RTPF	868	394	197	89	160	73	229	104	282	128	39 1/2 [1003]	35 [889]	18 5/8 [473]
48FC-M12	RTPF	878	398	213	97	175	80	221	100	268	121	39 7/8 [1013]	33 1/4 [841]	18 1/2 [470]
RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)														

*** STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.





NOTE:

1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

	CLEARANCE		
	SERVICE WITH:	SERVICE WITH:	OPERATING
SURFACE	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/O ECON	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/ECON	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

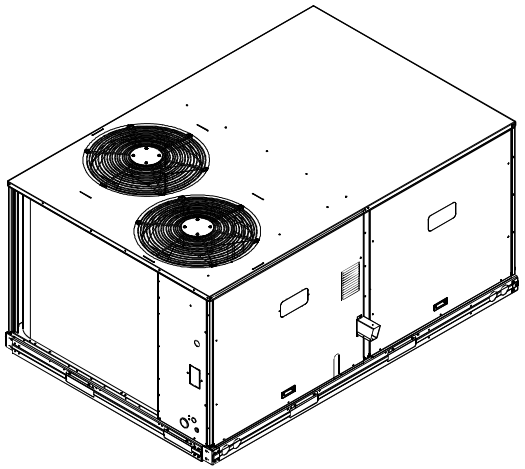
Carrier

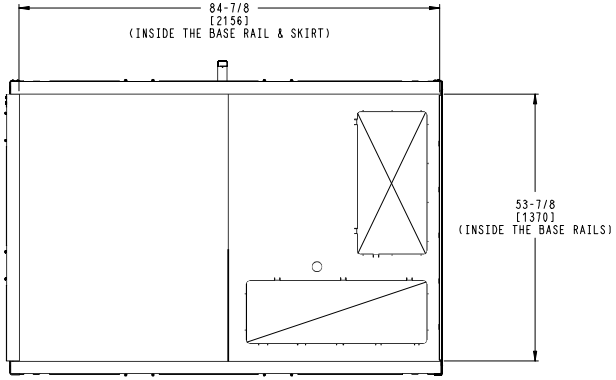
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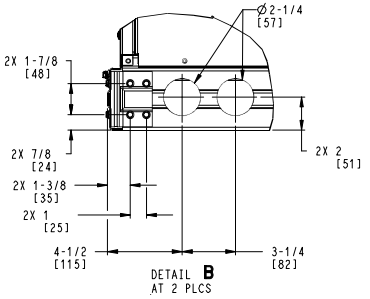
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	2 OF 3	03/12/21	-	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	-

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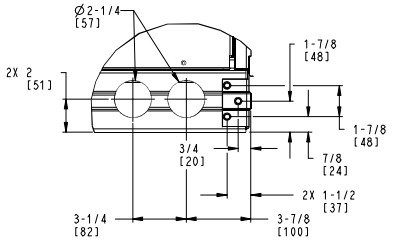




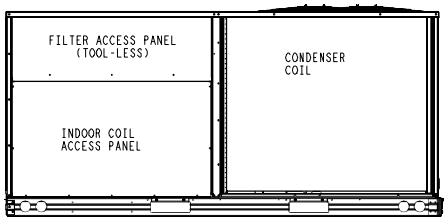
INSIDE BASERAIL DIMENSIONS
BOTTOM



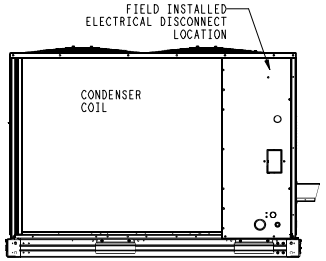
DETAIL **B**
AT 2 PLCS



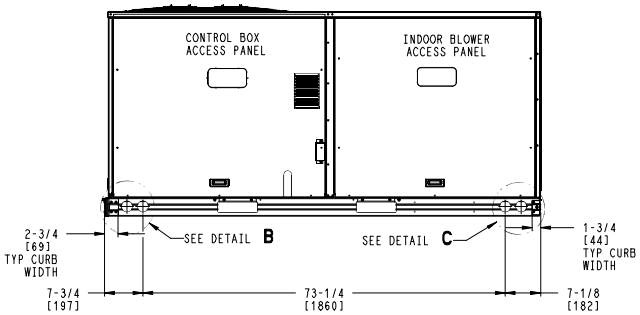
DETAIL **C**
AT 2 PLCS



BACK



LEFT



FRONT

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN: NSR	3 OF 3	03/12/21	-	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	-

Part Number:48FCDM12A3M6-3A0A0

ARI EER:	**11.00**	
IEER:	**15.0**	

Base Unit Dimensions

Unit Length:	**88.1**	in
Unit Width:	**59.5**	in
Unit Height:	**49.4**	in

Operating Weight

Base Unit Weight:	**878**	lb
High Static (EcoBlue):	**30**	lb
Al/Cu - Al/Cu - Louvered Hail Guards:	**17**	lb
SystemVu Controls:	**2**	lb
Total Operating Weight:	**927**	lb

Unit

Unit Voltage-Phase-Hertz:	**460-3-60**	
Air Discharge:	**Horizontal**	
Fan Drive Type:	**Vane Axial**	
Actual Airflow:	**4000**	CFM
Site Altitude:	**0**	ft

Cooling Performance

Condenser Entering Air DB:	**95.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**57.7**	F
Evaporator Leaving Air WB:	**57.1**	F
Evaporator Leaving Air Enthalpy:	**24.45**	BTU/lb
Gross Cooling Capacity:	**125.75**	MBH
Gross Sensible Capacity:	**96.22**	MBH
Compressor Power Input:	**9.17**	kW
Coil Bypass Factor:	**0.052**	

Heating Performance

Heating Airflow:	**4000**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**104.3**	F
Gas Heating Input Capacity:	**120.0 / 180.0**	MBH
Gas Heating Output Capacity:	**98.0 / 148.0**	MBH
Temperature Rise:	**34.3**	F

Supply Fan

External Static Pressure:	**0.50**	in wg
Fan RPM:	**1619**	
Fan Power:	**1.41**	BHP
NOTE:	**Selected IFM RPM Range: 1201 - 2200**	

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Voltage Range:	**414 - 506**
Compressor #1 RLA:	**7.7**
Compressor #1 LRA:	**60**
Compressor #2 RLA:	**7.7**
Compressor #2 LRA:	**60**
Indoor Fan Motor Type:	**HIGH**

Indoor Fan Motor FLA (Total): **5.6**
Combustion Fan Motor FLA (ea): **0.25**
Power Supply MCA: **25**
Power Supply MOCP (Fuse or HACR): **30**
Disconnect Size FLA: **26**
Disconnect Size LRA: **132**
Electrical Convenience Outlet: **None**
Outdoor Fan [Qty / FLA (ea)]: **2 / 0.8**

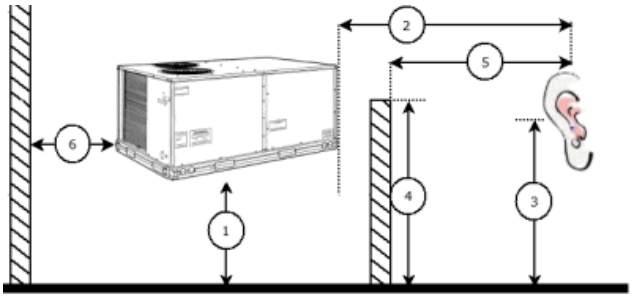
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	84.5	81.3	85.6
125 Hz	81.2	75.4	84.7
250 Hz	76.8	69.7	80.5
500 Hz	73.7	66.2	76.0
1000 Hz	75.0	66.7	72.4
2000 Hz	71.1	60.4	68.0
4000 Hz	66.4	52.6	62.8
8000 Hz	57.3	46.9	59.3
A-Weighted	78.8	70.3	79.0

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **0.0** ft
5. Horizontal distance from obstruction to receiver: **0.0** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

Detailed Acoustics Information

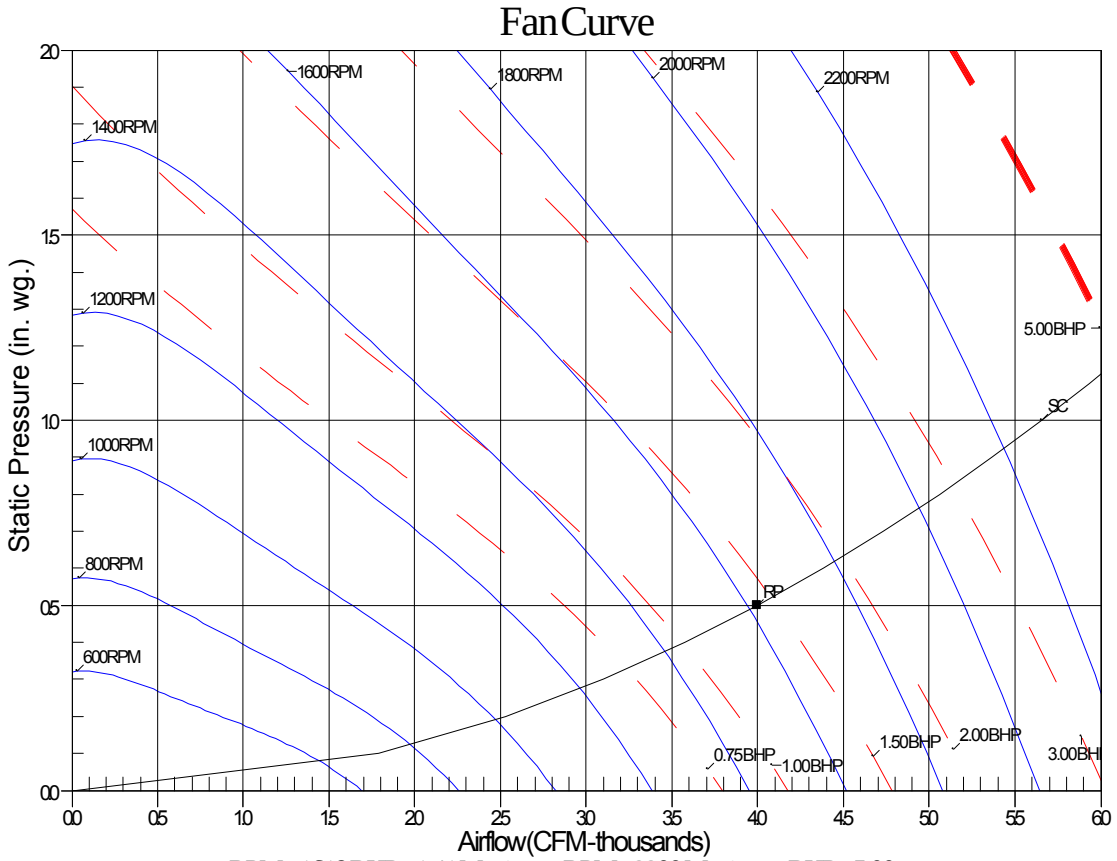
Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	85.6	84.7	80.5	76.0	72.4	68.0	62.8	59.3	89.2 Lw
B	59.4	68.6	71.9	72.8	72.4	69.2	63.8	58.2	78.5 LwA
C	53.2	52.3	48.1	43.6	40.0	35.6	30.4	26.9	56.8 Lp
D	27.0	36.2	39.5	40.4	40.0	36.8	31.4	25.8	46.1 LpA

Performance Summary For AC-60

Project: Lynwood USD Firebaugh HS 10/17/2024
Prepared By: 06:30PM

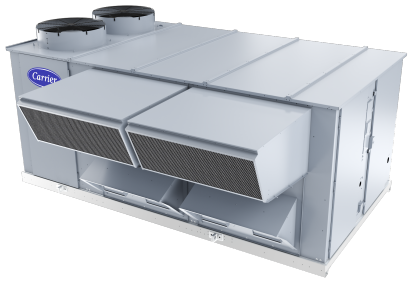
Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.



RPM=1619 BHP=1.41 Maximum RPM=2200 Maximum BHP=5.00
SC-System Curve RP-Rated Point

Tag Name: AC 58 and 59



Shipping Dimensions		
Unit Length	ft and in	18' 0"
Unit Width	ft and in	7' 10"
Unit Height	ft and in	6' 7"
Unit Operating Weight	lb	5316
Unit Shipping Weight	lb	5366

***Shipping weights and dimensions are approximate for shipping purposes. Shipping dimensions include OA hoods. See certified drawing for operating dimensions.
** Operating and shipping weights and dimensions do not include curbs, accessories, or special order options.

Exhaust/Outdoor Air	
OA Intake/Return	Ultra-Low Leak Economizer

Unit Parameters		
Unit Size		050 (50 Tons)
Unit Voltage	V-Ph-Hz	460-3-60
Supply/Return		Horizontal / Horizontal
Configuration		SAV
Heating Capacity		Low Heat - 400 MBH Input
Heat Option		2 Stage Gas Heat
Heat Type		Gas Heat

Condenser Coil	
Cond. Coil Fin Coating	MCHX Cond, Al/Cu Evap

Filtration	
Pre-Evaporator Filter Type	2" Throwaway

Factory Installed Options	
Application Type	Staged Air Volume
Terminal Block	Selected
Low Sound	Selected
Digital Compressor	Selected
30 HP Indoor Fan Motor with VFD	Selected

Ordering Information

Part Number	Description	Quantity
48K4AG50-5-6A0B0A0	Rooftop Unit	2
	Base Unit	
	Ultra-Low Leak Economizer	
	Low Sound Package	
	Digital Compressor	
	30 HP Indoor Fan Motor with VFD	

Warranty Information

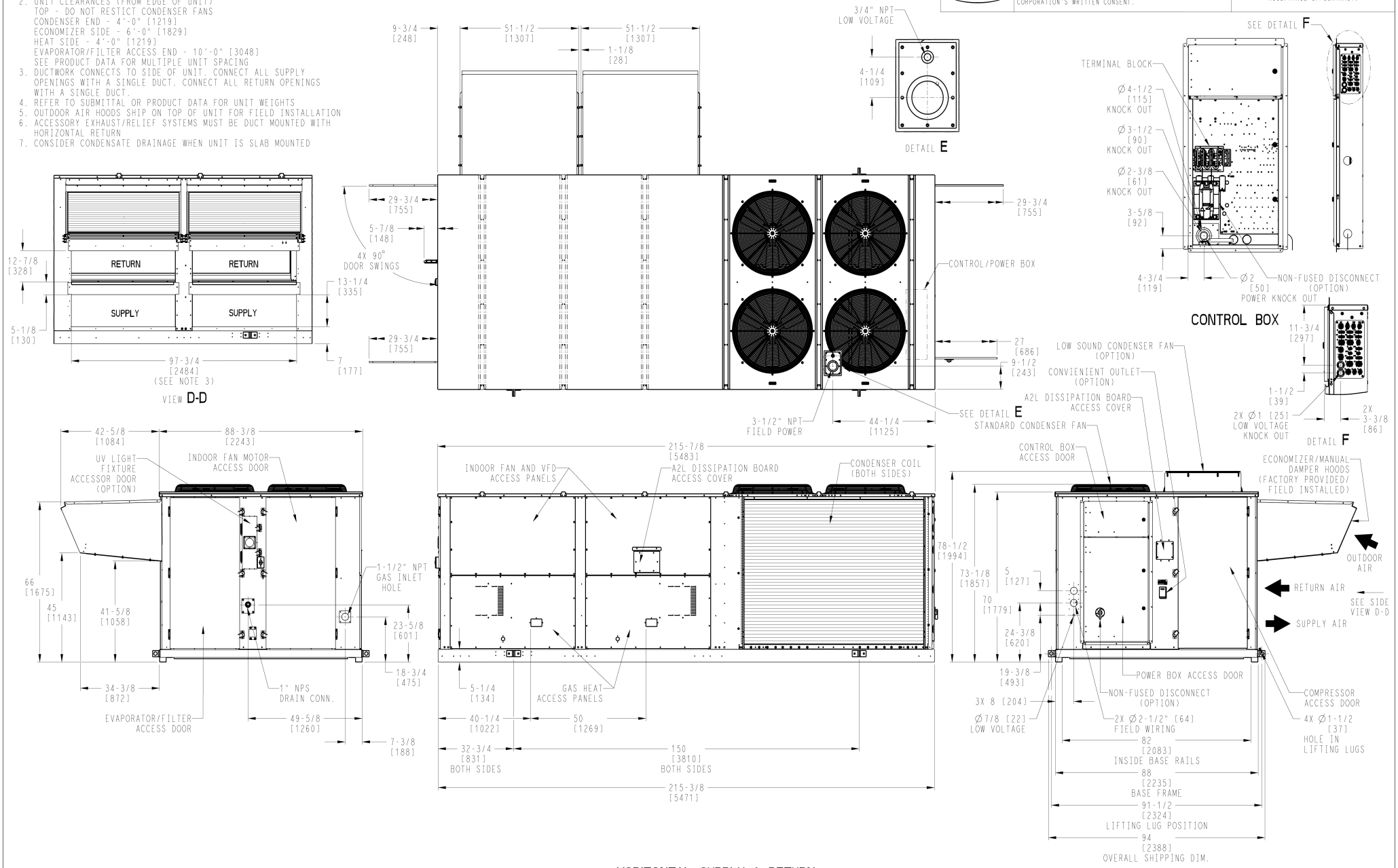
Warranty
First year - Parts only (standard)
Complete Unit 1st Year Carrier CCS Labor

Startups

Startup Part #	Description	Quantity
4850K-STC1	Start-up, First Unit Cooling	1
4850K-STH1	Start-up, First Unit Heating	1

NOTES:
1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [ ] ARE IN MILIMETERS.
2. UNIT CLEARANCES (FROM EDGE OF UNIT)
   TOP - DO NOT RESTICT CONDENSER FANS
   CONDENSER END - 4'-0" [1219]
   ECONOMIZER SIDE - 6'-0" [1829]
   HEAT SIDE - 4'-0" [1219]
   EVAPORATOR/FILTER ACCESS END - 10'-0" [3048]
   SEE PRODUCT DATA FOR MULTIPLE UNIT SPACING
3. DUCTWORK CONNECTS TO SIDE OF UNIT. CONNECT ALL SUPPLY OPENINGS WITH A SINGLE DUCT. CONNECT ALL RETURN OPENINGS WITH A SINGLE DUCT.
4. REFER TO SUBMITTAL OR PRODUCT DATA FOR UNIT WEIGHTS
5. OUTDOOR AIR HOODS SHIP ON TOP OF UNIT FOR FIELD INSTALLATION
6. ACCESSORY EXHAUST/RELIEF SYSTEMS MUST BE DUCT MOUNTED WITH HORIZONTAL RETURN
7. CONSIDER CONDENSATE DRAINAGE WHEN UNIT IS SLAB MOUNTED

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HORIZONTAL SUPPLY & RETURN

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48K SIZE 40-50	48VA006062	REV
U.S. ECCN: EAR99	2 OF 2	08/03/23	-			-

Project Name: Lynwood USD – Firebaugh High School

Tag Name: AC 58 and 59

Shipping Dimensions		
Unit Length	ft and in	18' 0"
Unit Width	ft and in	7' 10"
Unit Height	ft and in	6' 7"
Unit Operating Weight	lb	5316
Unit Shipping Weight	lb	5366

***Shipping weights and dimensions are approximate for shipping purposes. Shipping dimensions include OA hoods. See certified drawing for operating dimensions.
** Operating and shipping weights and dimensions do not include curbs, accessories, or special order options.

Performance Information		
Part Number		48K4AG50-5-6A0B0A0
Unit Refrigerant		R454B
EER		9.8
IEER		13.0
Heat Type		Gas Heat
Supply/Return		Horizontal / Horizontal
Application Type		Staged Air Volume
Voltage		460-3-60
Cooling Airflow	CFM	20000.0
Altitude	ft	0
Condenser Entering Air Temperature	F	95.0
Entering Air Temperature Dry Bulb	F	80.0
Entering Air Temperature Wet Bulb	F	67.0
Entering Air Enthalpy	BTU/lb	31.44
Leaving Air Temperature Dry Bulb	°F	58.3
Leaving Air Temperature Wet Bulb	°F	57.9
Leaving Air Enthalpy	BTU/lb	24.96
Gross Cooling Capacity	MBH	575.95
Gross Sensible Cooling Capacity	MBH	463.2
Compressor Power	kW	59.78276
Coil Bypass Factor		0.040
Refrigerant Charge, Circuit A	lb	23.5
Refrigerant Charge, Circuit B	lb	22.5

Gas Heating Data		
Heating Airflow	CFM	20000.0
Heating Entering Air Temperature	F	70.0
Gas Input		300 / 400
Heating Control		2 Stage Gas Heat
Gas Input (min)		300
Gas Input (max)		400
Gas Output		324
Heating Leaving Air Temperature	°F	85.0
Steady State Efficiency	%	81.00
Temperature Rise	°F	15.0

Electrical Data	
Voltage Range	414 - 506
Indoor Fan Motor HP	30
Power Supply MCA	130
Power Supply MOCP (Fuse or HACR)	150
Outdoor Fan Drive	LOW
Minimum Non-Fused Disconnect Amperage	138
Outdoor Fan [Qty / FLA (ea)]	4 / 2.8
Indoor Fan Motor [Qty / Hp(ea) / FLA(ea)]	1 / 30 / 40.2
Power Exhaust	NO
Control Load	2.4
Compressor 1 (Qty / RLA / LRA)	2 / 13.5 / 130
Compressor 2 (Qty / RLA / LRA)	2 / 19.4 / 147
Electrical Convenience Outlet	None

Note: Factory -installed non-fused disconnect is nominally sized.Check power wire size and disconnecting size.

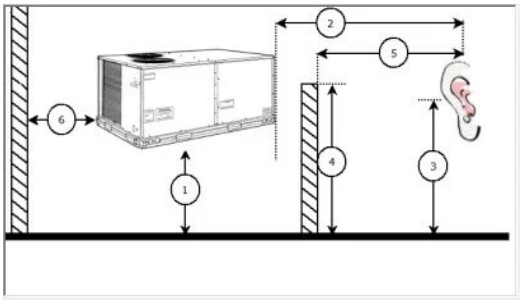
Supply Fan Information		
External static pressure	in wg	1.00
Supply Fan RPM	RPM	1284
Supply Fan BHP	BHP	32.42
Selection Static Pressure	in wg	1.00

Unit data, performance, and ratings are preliminary and are subject to change

Acoustic Information

Frequencies	Hz	63	125	250	500	1000	2000	4000	8000
Discharge	Lw	0	0	0	0	0	0	0	0
Inlet	Lw	0	0	0	0	0	0	0	0
Outdoor	Lw	0	0	0	0	0	0	0	0

Discharge / Inlet Duct Sound Power test data rated in accordance with the AHRI 260 Standard.



Advanced Acoustics Parameters

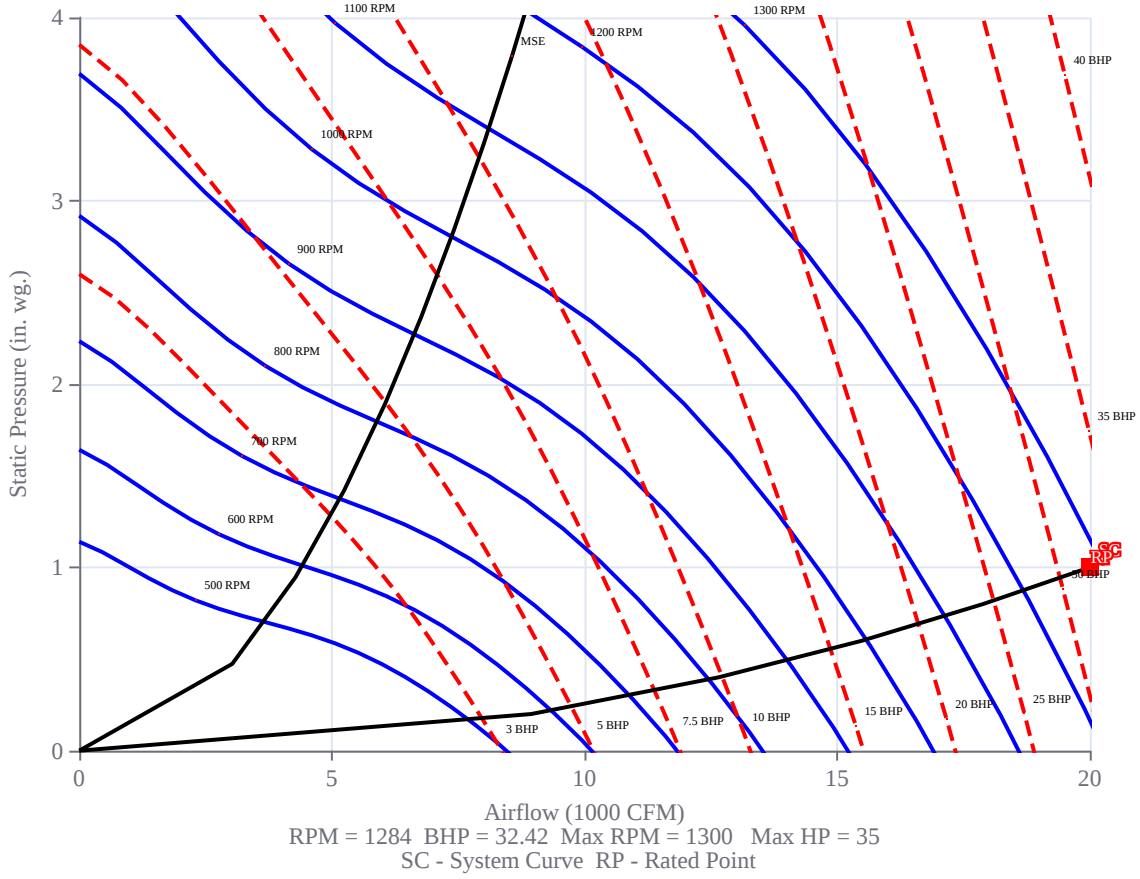
Unit height above ground	ft	30.0
Horizontal distance from unit to receiver	ft	50.0
Receiver height above ground	ft	5.7

Detailed Acoustic Information

Octave Band Center Freq.	Hz	63	125	250	500	1000	2000	4000	8000	Overall
A	Lw	0	0	0	0	0	0	0	0	9.542
B	LwA	-26.20	-16.10	-8.600	-3.200	0	1.200	1.000	-1.100	6.987
C	Lp	0	0	0	0	0	0	0	0	9.542
D	LpA	-26.20	-16.10	-8.600	-3.200	0	1.200	1.000	-1.100	6.987

Legend
A - Sound Power Levels at Unit's Acoustic Center
B - A-Weighted Sound Power Levels at Unit's Acoustic Center
C - Sound Pressure Levels at Specific Distance from Unit
D - A-Weighted Sound Pressure Levels at Specific Distance from Unit

Supply Fan Curve



RPM = 1284 BHP = 32.42 Max RPM = 1300 Max HP = 35
SC - System Curve RP - Rated Point

SECTION II. ROOFTOP ACCESSORIES

Sigler

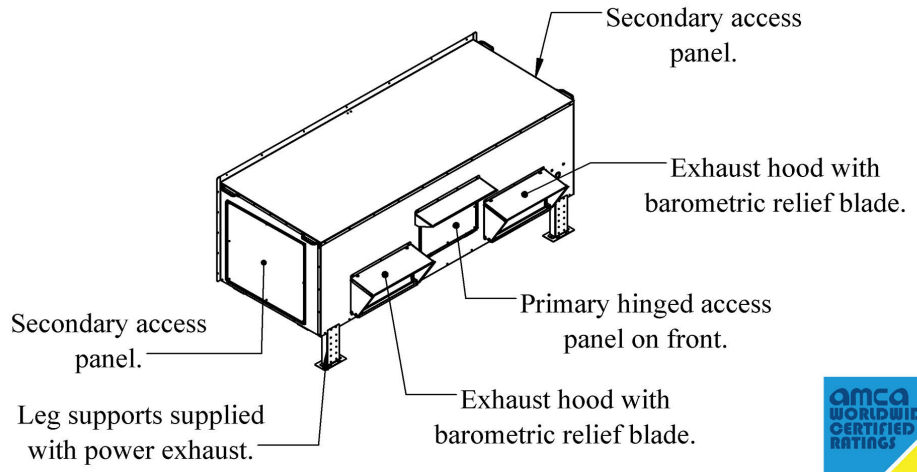
COMMERCIAL HVAC DIVISION

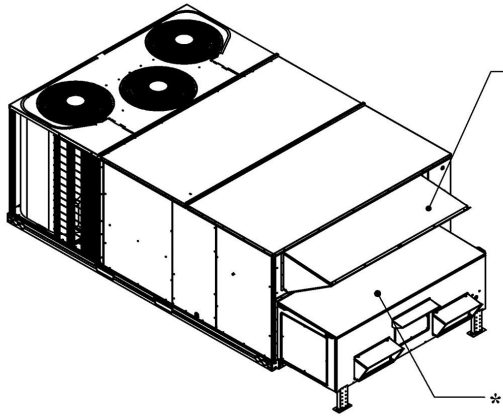
205 S. Puente Street
Brea, CA. 92821

AC-72-73

MicroMetl	Date:	Weight: 323lbs (US) 146.51kg (Metric)	Part Number: PCC-MRT69CA-D-4L6
	RTU:		
Submitted to:		Approved by:	Notes:

Power Exhaust - Power Exhaust - Modulating Speed, Centrifugal Exhaust Type, Convertible Orientation, 460 Volt Three Phase Voltage. Designed To Operate At 10318 CFM @ 1/2" - 6 HP. Painted To Match RTU. DOES NOT INCLUDE ECONOMIZER. Compatible With MicroMetl & Carrier Factory Economizers. Mounted On Return Air Ductwork In The Horizontal Application. Electrical junction box provided. High voltage cable to be field supplied and installed. BacNet Compatible.

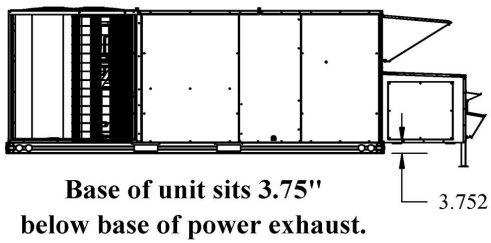




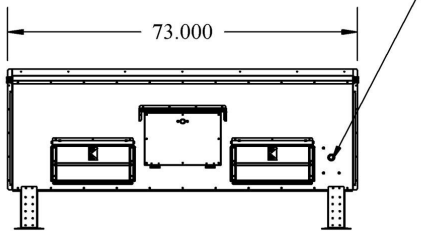
MicroMetl Corporation certifies that the models GR1 and NS1 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

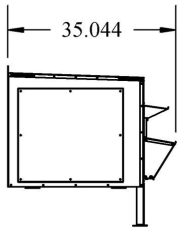
Power entry point.
1/2" and 3/4" knockouts.
(.875" and 1.125" actual)

****FIELD SUPPLIED DISCONNECT IS NEEDED FOR POWER EXHAUST****



Base of unit sits 3.75" below base of power exhaust.





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Master Revision 0001A

Page Revision 0001A

MicroMetl	Date:	Weight: 323lbs (US) 146.51kg (Metric)	Part Number: PCC-MRT69CA-D-4L6
	RTU:		
Submitted to:		Approved by:	Notes:

Power Exhaust - Power Exhaust - Modulating Speed, Centrifugal Exhaust Type, Convertible Orientation, 460 Volt Three Phase Voltage. Designed To Operate At 10318 CFM @ 1/2" - 6 HP. Painted To Match RTU. DOES NOT INCLUDE ECONOMIZER. Compatible With MicroMetl & Carrier Factory Economizers. Mounted On Return Air Ductwork In The Horizontal Application. Electrical junction box provided. High voltage cable to be field supplied and installed. BacNet Compatible.

Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2013 / 2016 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls (JADE HJW10).
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2013 / 2016 damper leakage requirements as stated in Table 6.4.3.4.3., and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12.
3. **IECC:** Economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2015 section c403.2.4.7 for Fault Detection and Diagnostic requirements, Note: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which is included in some models (i.e. -DYXB) and must be ordered separately on others (i.e. -DYDB, -DYEB).
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated 1" w.g. Refer to MicroMetl NS1 catalog sheet on web site for details. Relief air dampers (when provided) are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

MicroMetl Corporation certifies that the models GR1 and NS1 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

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Master Revision 0001A

Page Revision 0001A

MicroMetl	Date:	Weight: 323lbs (US) 146.51kg (Metric)	Part Number: PCC-MRT69CA-D-4L6
	RTU:		
Submitted to:		Approved by:	Notes:

Power Exhaust - Power Exhaust - Modulating Speed, Centrifugal Exhaust Type, Convertible Orientation, 460 Volt Three Phase Voltage. Designed To Operate At 10318 CFM @ 1/2" - 6 HP. Painted To Match RTU. DOES NOT INCLUDE ECONOMIZER. Compatible With MicroMetl & Carrier Factory Economizers. Mounted On Return Air Ductwork In The Horizontal Application. Electrical junction box provided. High voltage cable to be field supplied and installed. BacNet Compatible.

- 2HP Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses
2V2	208-230/240	3	Constant Volume	2.0	7.6-7.2	9.5-9.0	12.4-11.7	N/A
2L2 or 2T2	208-230/240	3	Modulating	2.0	13.6*	17	30.6	25 Amp
4V2	460/480	3	Constant Volume	2.0	3.8	4.8	6.2	N/A
4L2 or 4T2	460/480	3	Modulating	2.0	6.5*	8.1	14.6	10 Amp

- 4HP Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses
2V4	208-230/240	3	Constant Volume	4.0	11.2-10.8	14.0-13.5	18.2-13.1	N/A
2L4 or 2T4	208-230/240	3	Modulating	4.0	20.6*	25.8	46.4	40 Amp
4V4	460/480	3	Constant Volume	4.0	5.4	6.8	8.8	N/A
4L4 or 4T4	460/480	3	Modulating	4.0	10.5*	13.1	23.6	20 Amp

- 6HP Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses
2V6	208-230/240	3	Constant Volume	6.0	18.4-17.2	23.0-21.5	29.9-28.0	N/A
2L6 or 2T6	208-230/240	3	Modulating	6.0	28.8*	36	64.8	40 Amp
4V6	460/480	3	Constant Volume	6.0	8.6	10.8	14.0	N/A
4L6 or 4T6	460/480	3	Modulating	6.0	14.3*	17.9	32.2	25 Amp

*VFD Input Current

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MicroMetl	Date:	Weight: 323lbs (US) 146.51kg (Metric)	Part Number: PCC-MRT69CA-D-4L6
	RTU:		
Submitted to:		Approved by:	Notes:

Power Exhaust - Power Exhaust - Modulating Speed, Centrifugal Exhaust Type, Convertible Orientation, 460 Volt Three Phase Voltage. Designed To Operate At 10318 CFM @ 1/2" - 6 HP. Painted To Match RTU. DOES NOT INCLUDE ECONOMIZER. Compatible With MicroMetl & Carrier Factory Economizers. Mounted On Return Air Ductwork In The Horizontal Application. Electrical junction box provided. High voltage cable to be field supplied and installed. BacNet Compatible.

Data provided by blower manufacturer

"2 HP" Airflow & Sound Data - Assumes .5 Internal Exhaust Cabinet Static.

CFM	ESP	RPM	Freq. (Hz)	63	125	250	500	1000	2000	4000	8000	Blower Outlet dBA @ 5ft.
6916	0.1	712	dBA	84.0	80.0	75.0	73.0	71.0	69.0	66.0	63.0	66.0
6652	.25	756		86.0	80.0	76.0	74.0	72.0	70.0	66.0	63.0	67.0
6548	.3	775		87.0	81.0	77.0	75.0	73.0	70.0	67.0	64.0	67.0
6358	.4	804		88.0	82.0	77.0	75.0	73.0	70.0	67.0	64.0	68.0
6136	.5	837		89.0	84.0	79.0	77.0	74.0	72.0	69.0	66.0	69.0
5884	.6	869		89.0	87.0	81.0	79.0	75.0	74.0	71.0	68.0	71.0

"4 HP" Airflow & Sound Data - Assumes .5 Internal Exhaust Cabinet Static.

CFM	ESP	RPM	Freq. (Hz)	63	125	250	500	1000	2000	4000	8000	Blower Outlet dBA @ 5ft.
9188	0.1	836	dBA	90.0	89.0	83.0	80.0	77.0	76.0	72.0	69.0	73.0
9010	.25	859		90.0	88.0	83.0	80.0	76.0	76.0	72.0	69.0	72.0
8942	.3	868		90.0	88.0	83.0	80.0	76.0	75.0	72.0	69.0	72.0
8814	.4	886		90.0	88.0	83.0	80.0	76.0	75.0	72.0	69.0	72.0
8676	.5	907		91.0	88.0	83.0	80.0	76.0	75.0	72.0	69.0	72.0
8272	.75	970		92.0	89.0	84.0	81.0	77.0	76.0	73.0	70.0	73.0
7880	1.0	1033		92.0	91.0	86.0	82.0	78.0	77.0	74.0	71.0	74.0
7594	1.1	1055		93.0	93.0	87.0	84.0	78.0	78.0	75.0	72.0	76.0

"6 HP" Airflow & Sound Data - Assumes .5 Internal Exhaust Cabinet Static.

CFM	ESP	RPM	Freq. (Hz)	63	125	250	500	1000	2000	4000	8000	Blower Outlet dBA @ 5ft.
10732	0.1	939	dBA	93.0	93.0	88.0	85.0	80.0	80.0	77.0	73.0	77.0
10574	.25	954		92.0	93.0	88.0	84.0	79.0	80.0	76.0	73.0	76.0
10506	.3	959		92.0	93.0	88.0	84.0	79.0	79.0	76.0	73.0	76.0
10428	.4	973		92.0	93.0	88.0	84.0	79.0	79.0	76.0	73.0	76.0
10318	.5	987		92.0	93.0	87.0	84.0	79.0	79.0	76.0	72.0	76.0
9964	.75	1027		93.0	93.0	87.0	84.0	79.0	79.0	75.0	72.0	76.0
9670	1.00	1080		93.0	94.0	88.0	85.0	80.0	79.0	76.0	73.0	77.0
9394	1.25	1137		94.0	95.0	89.0	85.0	81.0	80.0	77.0	74.0	78.0
8800	1.50	1186		95.0	96.0	91.0	87.0	82.0	81.0	78.0	75.0	79.0

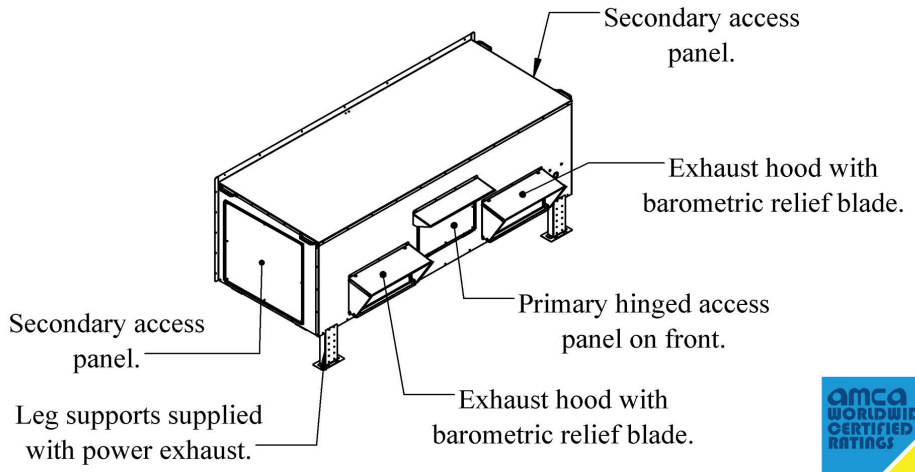
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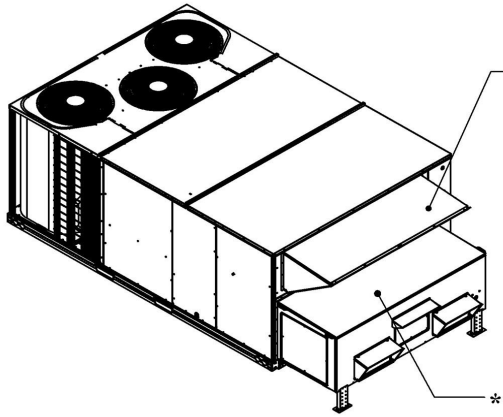
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AC-74

MicroMetl	Date:	Weight: 323lbs (US) 146.51kg (Metric)	Part Number: PCC-MRT69CA-D-4L4
	RTU:		
Submitted to:		Approved by:	Notes:

Power Exhaust - Power Exhaust - Modulating Speed, Centrifugal Exhaust Type, Convertible Orientation, 460 Volt Three Phase Voltage. Designed To Operate At 8676 CFM @ 1/2" - 4HP. Painted To Match RTU. DOES NOT INCLUDE ECONOMIZER. Compatible With MicroMetl & Carrier Factory Economizers. Mounted On Return Air Ductwork In The Horizontal Application. Electrical junction box provided. High voltage cable to be field supplied and installed. BacNet Compatible.

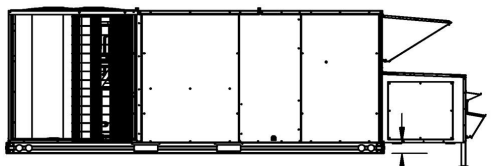




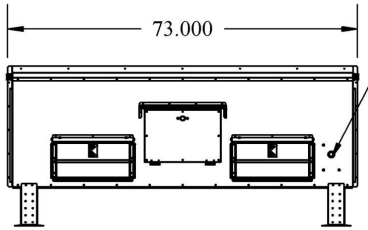
MicroMetl Corporation certifies that the models GR1 and NS1 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

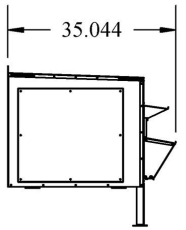
Power entry point.
1/2" and 3/4" knockouts.
(.875" and 1.125" actual)

****FIELD SUPPLIED DISCONNECT IS NEEDED FOR POWER EXHAUST****



Base of unit sits 3.75" below base of power exhaust.





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MicroMetl	Date:	Weight: 323lbs (US) 146.51kg (Metric)	Part Number: PCC-MRT69CA-D-4L4
	RTU:		
Submitted to:		Approved by:	Notes:

Power Exhaust - Power Exhaust - Modulating Speed, Centrifugal Exhaust Type, Convertible Orientation, 460 Volt Three Phase Voltage. Designed To Operate At 8676 CFM @ 1/2" - 4HP. Painted To Match RTU. DOES NOT INCLUDE ECONOMIZER. Compatible With MicroMetl & Carrier Factory Economizers. Mounted On Return Air Ductwork In The Horizontal Application. Electrical junction box provided. High voltage cable to be field supplied and installed. BacNet Compatible.

Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2013 / 2016 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls (JADE HJW10).
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2013 / 2016 damper leakage requirements as stated in Table 6.4.3.4.3., and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12.
3. **IECC:** Economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2015 section c403.2.4.7 for Fault Detection and Diagnostic requirements, Note: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which is included in some models (i.e. -DYXB) and must be ordered separately on others (i.e. -DYDB, -DYEB).
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated 1" w.g. Refer to MicroMetl NS1 catalog sheet on web site for details. Relief air dampers (when provided) are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

MicroMetl Corporation certifies that the models GR1 and NS1 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

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MicroMetl	Date:	Weight: 323lbs (US) 146.51kg (Metric)	Part Number: PCC-MRT69CA-D-4L4
	RTU:		
Submitted to:		Approved by:	Notes:

Power Exhaust - Power Exhaust - Modulating Speed, Centrifugal Exhaust Type, Convertible Orientation, 460 Volt Three Phase Voltage. Designed To Operate At 8676 CFM @ 1/2" - 4HP. Painted To Match RTU. DOES NOT INCLUDE ECONOMIZER. Compatible With MicroMetl & Carrier Factory Economizers. Mounted On Return Air Ductwork In The Horizontal Application. Electrical junction box provided. High voltage cable to be field supplied and installed. BacNet Compatible.

- 2HP Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses
2V2	208-230/240	3	Constant Volume	2.0	7.6-7.2	9.5-9.0	12.4-11.7	N/A
2L2 or 2T2	208-230/240	3	Modulating	2.0	13.6*	17	30.6	25 Amp
4V2	460/480	3	Constant Volume	2.0	3.8	4.8	6.2	N/A
4L2 or 4T2	460/480	3	Modulating	2.0	6.5*	8.1	14.6	10 Amp

- 4HP Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses
2V4	208-230/240	3	Constant Volume	4.0	11.2-10.8	14.0-13.5	18.2-13.1	N/A
2L4 or 2T4	208-230/240	3	Modulating	4.0	20.6*	25.8	46.4	40 Amp
4V4	460/480	3	Constant Volume	4.0	5.4	6.8	8.8	N/A
4L4 or 4T4	460/480	3	Modulating	4.0	10.5*	13.1	23.6	20 Amp

- 6HP Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses
2V6	208-230/240	3	Constant Volume	6.0	18.4-17.2	23.0-21.5	29.9-28.0	N/A
2L6 or 2T6	208-230/240	3	Modulating	6.0	28.8*	36	64.8	40 Amp
4V6	460/480	3	Constant Volume	6.0	8.6	10.8	14.0	N/A
4L6 or 4T6	460/480	3	Modulating	6.0	14.3*	17.9	32.2	25 Amp

*VFD Input Current

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MicroMetl	Date:	Weight: 323lbs (US) 146.51kg (Metric)	Part Number: PCC-MRT69CA-D-4L4
	RTU:		
Submitted to:		Approved by:	Notes:

Power Exhaust - Power Exhaust - Modulating Speed, Centrifugal Exhaust Type, Convertible Orientation, 460 Volt Three Phase Voltage. Designed To Operate At 8676 CFM @ 1/2" - 4HP. Painted To Match RTU. DOES NOT INCLUDE ECONOMIZER. Compatible With MicroMetl & Carrier Factory Economizers. Mounted On Return Air Ductwork In The Horizontal Application. Electrical junction box provided. High voltage cable to be field supplied and installed. BacNet Compatible.

Data provided by blower manufacturer

"2 HP" Airflow & Sound Data - Assumes .5 Internal Exhaust Cabinet Static.

CFM	ESP	RPM	Freq. (Hz)	63	125	250	500	1000	2000	4000	8000	Blower Outlet dBA @ 5ft.
6916	0.1	712	dBA	84.0	80.0	75.0	73.0	71.0	69.0	66.0	63.0	66.0
6652	.25	756		86.0	80.0	76.0	74.0	72.0	70.0	66.0	63.0	67.0
6548	.3	775		87.0	81.0	77.0	75.0	73.0	70.0	67.0	64.0	67.0
6358	.4	804		88.0	82.0	77.0	75.0	73.0	70.0	67.0	64.0	68.0
6136	.5	837		89.0	84.0	79.0	77.0	74.0	72.0	69.0	66.0	69.0
5884	.6	869		89.0	87.0	81.0	79.0	75.0	74.0	71.0	68.0	71.0

"4 HP" Airflow & Sound Data - Assumes .5 Internal Exhaust Cabinet Static.

CFM	ESP	RPM	Freq. (Hz)	63	125	250	500	1000	2000	4000	8000	Blower Outlet dBA @ 5ft.
9188	0.1	836	dBA	90.0	89.0	83.0	80.0	77.0	76.0	72.0	69.0	73.0
9010	.25	859		90.0	88.0	83.0	80.0	76.0	76.0	72.0	69.0	72.0
8942	.3	868		90.0	88.0	83.0	80.0	76.0	75.0	72.0	69.0	72.0
8814	.4	886		90.0	88.0	83.0	80.0	76.0	75.0	72.0	69.0	72.0
8676	.5	907		91.0	88.0	83.0	80.0	76.0	75.0	72.0	69.0	72.0
8272	.75	970		92.0	89.0	84.0	81.0	77.0	76.0	73.0	70.0	73.0
7880	1.0	1033		92.0	91.0	86.0	82.0	78.0	77.0	74.0	71.0	74.0
7594	1.1	1055		93.0	93.0	87.0	84.0	78.0	78.0	75.0	72.0	76.0

"6 HP" Airflow & Sound Data - Assumes .5 Internal Exhaust Cabinet Static.

CFM	ESP	RPM	Freq. (Hz)	63	125	250	500	1000	2000	4000	8000	Blower Outlet dBA @ 5ft.
10732	0.1	939	dBA	93.0	93.0	88.0	85.0	80.0	80.0	77.0	73.0	77.0
10574	.25	954		92.0	93.0	88.0	84.0	79.0	80.0	76.0	73.0	76.0
10506	.3	959		92.0	93.0	88.0	84.0	79.0	79.0	76.0	73.0	76.0
10428	.4	973		92.0	93.0	88.0	84.0	79.0	79.0	76.0	73.0	76.0
10318	.5	987		92.0	93.0	87.0	84.0	79.0	79.0	76.0	72.0	76.0
9964	.75	1027		93.0	93.0	87.0	84.0	79.0	79.0	75.0	72.0	76.0
9670	1.00	1080		93.0	94.0	88.0	85.0	80.0	79.0	76.0	73.0	77.0
9394	1.25	1137		94.0	95.0	89.0	85.0	81.0	80.0	77.0	74.0	78.0
8800	1.50	1186		95.0	96.0	91.0	87.0	82.0	81.0	78.0	75.0	79.0

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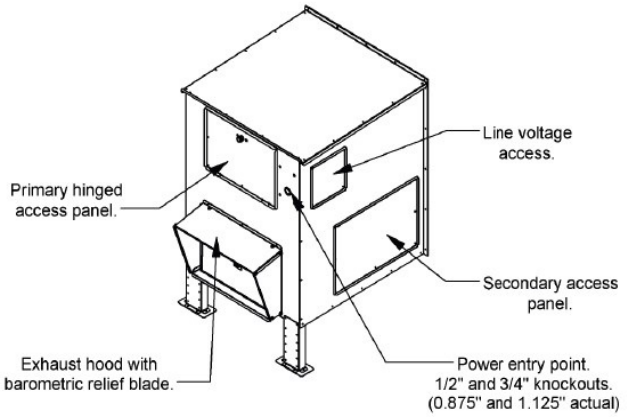
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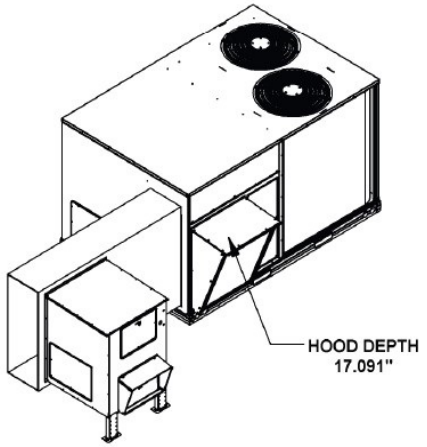
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Submitted To: achang@siglers.com	Job:	Notes:		

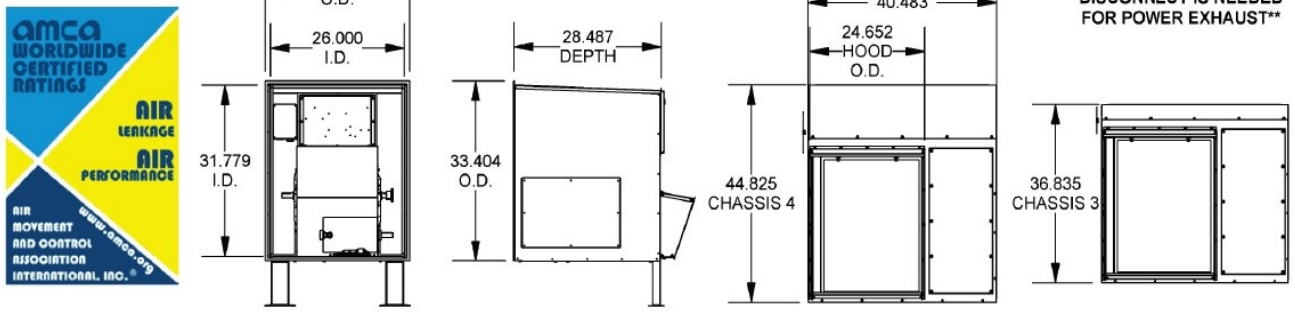
Economizer & Power Exhaust Combination Package, Genesis Ultra Low Leak Horizontal with RTU Open - Premier Link - System VU - No Controller, Belimo Actuator, Adjustable Dry Bulb Sensor, 460 Volt Three Phase, Modulating, Designed To Operate At 4400 CFM @ 1/2" - 2 HP. Power Exhaust Painted To Match RTU, All Necessary Panels And Hardware Included. Electrical junction box provided. High voltage cable to be field supplied and installed. Power Exhaust VFD is BacNet Compatible..

FEATURES:

- Includes ECH-SRT34CB series economizer.
- External gear driven dampers with roll formed blades.
- Designed for horizontal applications only.
- Factory assembled rain hood, with aluminum water entrainment filters.
- Filter access door supplied with RTU.
- Hinged filter access door is NOT currently available.
- Rain hood is sloped for water run off.
- All harnesses and plugs needed are supplied.
- Economizer is class 1A & AMCA certified.
- Relief blades are AMCA certified.
- Uses filter rack with unit.
- Field supplied and installed disconnect is required.
- Blower is forward curved, double inlet, with pre-lubricated ball bearings, have a dynamically balanced wheel, and are mounted on rubber isolators.
- Thermally protected motors.
- Adjustable motor pulleys.
- Ships with adjustable legs - 8" - 14".
- See page 2 for PE performance and electrical data.







Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2013 / 2016 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls.
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2013 / 2016 damper leakage requirements as stated in Table 6.4.3.4.3., and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12.
3. **IECC:** Economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2015 section c403.2.4.7 for Fault Detection and Diagnostic requirements, Note: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which is included in some models (i.e. -D2XH) and must be ordered separately on others (i.e. -D2DH, -D2EH).
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated at 1" w.g. Refer to MicroMetl NS2 catalog sheet on web site for details. Relief air dampers (when provided) are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

Control Types	
-D2DH	W7220 controller, 2-Speed, Sylk Bus actuator, Adjustable Drybulb controls
-D2EH	W7220 controller, 2-Speed, Sylk Bus actuator, Enthalpy controls
-D2XH	W7220 controller, 2-Speed, Sylk Bus actuator, Dual Adjustable Drybulb controls
-D2ZH	W7220 controller, 2-Speed, Sylk Bus actuator, Dual Enthalpy controls
-D0DB-4	RTU Open - Premier Link - System VU, No Controller, Adjustable dry bulb, Belimo
-D0DB-X	Comfortlink - No controller, Adjustable dry bulb, Belimo MFT with 500 ohm resistor
-D00B	2-10Vdc Belimo only actuator with feedback and end switch
-D00H	2-10Vdc Honeywell non-communication actuator only
-D00H-H	Honeywell communicating Sylk Bus actuator only
PE Options	
-2V1 or -2V2 or -2V3	208/230V 3PH, Constant Volume, 1HP or 2HP or 3HP
-2L1 or -2L2 or -2L3	208/230V 3PH, Modulating, BACNet ready, 1HP or 2HP or 3HP
-2T1 or -2T2 or -2T3	208/230V 3PH, 3rd Party Controls, BACNet ready, 1HP or 2HP or 3HP
-4V1 or -4V2 or -4V3	460V 3PH, Constant Volume, 1HP or 2HP or 3HP
-4L1 or -4L2 or -4L3	460V 3PH, Modulating, BACNet ready, 1HP or 2HP
-4T1 or -4T2 or -4T3	460V 3PH, 3rd Party Controls, BACNet ready, 1HP or 2HP or 3HP

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MicroMetl	Date: 10/18/2024	Weights: 285lbs/129.28kg	Units:	Part Number: PECH-SRT34CB-D0DB-4L2-4
Submitted To: achang@siglers.com		Job:		Notes:

Economizer & Power Exhaust Combination Package, Genesis Ultra Low Leak Horizontal with RTU Open - Premier Link - System VU - No Controller, Belimo Actuator, Adjustable Dry Bulb Sensor, 460 Volt Three Phase, Modulating, Designed To Operate At 4400 CFM @ 1/2" - 2 HP. Power Exhaust Painted To Match RTU, All Necessary Panels And Hardware Included. Electrical junction box provided. High voltage cable to be field supplied and installed. Power Exhaust VFD is BacNet Compatible..

Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2013 / 2016 prescriptive section 140.4 (damper leakage etc.), and when used with Carrier Comfortlink, RTU Open, System Vu, or I/O Flex 6126 control systems, meet mandatory section 120.2.i for Fault Detection and Diagnostic requirements. 5 Year Warranty for parts and components only.
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2013/2016 damper leakage requirements, and meet 2016 Fault Detection and Diagnosis requirements when used with Carrier Comfortlink, RTU Open, System Vu, or I/O Flex 6126 control systems.
3. **IECC:** Economizers meet IECC 2012, IECC 2015, and IECC 2018 for outside air, return air, and relief damper (when provided) leakage requirements, and when used with Carrier Comfortlink, RTU Open, System Vu, or I/O Flex control systems meet IECC 2015 and IECC 2018 for Fault Detection and Diagnostic requirements. Note: IECC 2015 and IECC 2018 requires differential return air sensor, which must be ordered separately.
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated at 1" w.g. Refer to MicroMetl NS2 catalog sheet on web site for details. Relief air dampers (when provided) are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

Features:

- Includes **ECH-SRT34CA** Series Economizer (less barometric relief hood). See economizer submittal for economizer details.
- Designed specifically for horizontal discharge applications.
- Includes assembled rainhood with aluminum water entrainment filters in the outside air section.
- Rainhood is sloped for water run-off.
- All harnesses and plugs needed are provided.

Notes:

1. Control systems include DDC actuator mounted on the outside air damper, and some models include 500 OHM resistor and outside air temperature sensor.
2. Differential return air sensor if required can be ordered from OEM unit factory, and is field installed in return duct.
3. ASHRAE, IECC, and Title 24 require the economizer controller be capable of reporting faults to a fault management application accessible by day-to-day operating or service personnel, or annunciated locally on zone thermostats or in some codes other devices are acceptable. Refer to applicable code requirements and to DDC controller for options.



MicroMetl Corporation certifies that the models GR1 and NS2 shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

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MicroMetl	Date: 10/18/2024	Weights: 285lbs/129.28kg	Units:	Part Number: PECH-SRT34CB-D0DB-4L2-4
Submitted To: achang@siglers.com	Job:	Notes:		

Economizer & Power Exhaust Combination Package, Genesis Ultra Low Leak Horizontal with RTU Open - Premier Link - System VU - No Controller, Belimo Actuator, Adjustable Dry Bulb Sensor, 460 Volt Three Phase, Modulating, Designed To Operate At 4400 CFM @ 1/2" - 2 HP. Power Exhaust Painted To Match RTU, All Necessary Panels And Hardware Included. Electrical junction box provided. High voltage cable to be field supplied and installed. Power Exhaust VFD is BacNet Compatible..

- 1/2HP Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses
1VH	208-230/240	1	Constant Volume	0.5	4.1-4.3	5.1-5.4	9.2-9.7	N/A
2VH	208-230/240	3	Constant Volume	0.5	2.3-2.2	2.9-2.8	5.2-5.0	N/A
1LH or 1TH	208-230/240	1	Modulating	0.5	5.7*	7.1	12.8	10 Amp
2LH or 2TH	208-230/240	3	Modulating	0.5	3.9*	4.9	8.8	10 Amp
4VH	460/480	3	Constant Volume	0.5	1.1	1.4	2.5	N/A
4LH or 4TH	460/480	3	Modulating	0.5	1.5*	1.9	3.4	10 Amp

- 1HP Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses
2V1	208-230/240	3	Constant Volume	1.0	3.8-3.6	4.8-4.5	8.6-8.1	N/A
1L1	208-230/240	1	Modulating	1.0	10.0*	12.5	22.5	20 Amp
2L1 or 2T1	208-230/240	3	Modulating	1.0	6.4*	8.0	14.4	12 Amp
4V1	460/480	3	Constant Volume	1.0	1.9	2.4	4.3	N/A
4L1 or 4T1	460/480	3	Modulating	1.0	2.8*	3.5	6.3	10 Amp

*VFD Input Current

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Submitted To: achang@siglers.com		Job:		Notes:

Economizer & Power Exhaust Combination Package, Genesis Ultra Low Leak Horizontal with RTU Open - Premier Link - System VU - No Controller, Belimo Actuator, Adjustable Dry Bulb Sensor, 460 Volt Three Phase, Modulating, Designed To Operate At 4400 CFM @ 1/2" - 2 HP. Power Exhaust Painted To Match RTU, All Necessary Panels And Hardware Included. Electrical junction box provided. High voltage cable to be field supplied and installed. Power Exhaust VFD is BacNet Compatible..

- Series Medium Static Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses
2V1	208-230	3	Constant Volume	1.0	3.8-3.6	4.8-4.5	8.6-8.1	N/A
2L1 or 2T1	230	3	Modulating	1.0	6.4*	8	14.4	12 Amp
4V1	460	3	Constant Volume	1.0	1.9	2.4	4.3	N/A
4L1 or 2T1	460	3	Modulating	1.0	2.8*	3.5	6.3	10 Amp

- Series High Static Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses
2V2	208-230	3	Constant Volume	2.0	5.6-5.4	7.0-6.8	12.6-12.2	N/A
2L2 or 2T2	230	3	Modulating	2.0	9.5*	11.9	21.4	15 Amp
4V2	460	3	Constant Volume	2.0	2.7	3.4	6.1	N/A
4L2 or 4T2	460	3	Modulating	2.0	4.5*	5.6	10.1	10 Amp

General Table

- Series Ultra High Static Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provide Fuses
2V3	208-230	3	Constant Volume	3.0	9.2-8.6	11.5-10.8	20.7-19.4	N/A
2L3 or 2T3	230	3	Modulating	3.0	13.6*	17	30.6	25 Amp
4V3	460	3	Constant Volume	3.0	4.3	5.4	9.7	N/A
4L3 or 4T3	460	3	Modulating	3.0	6.5*	8.1	14.6	10 Amp

*VFD Input Current

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Submitted To: achang@siglers.com	Job:	Notes:		

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"1 HP" Sound Data - Assumes .3125 Internal Exhaust Cabinet Static.

CFM	ESP	RPM	Freq. (Hz)	63	125	250	500	1000	2000	4000	8000	Blower Outlet dBA @ 5ft.
3575	0.1	667	dBA	80	77	72	69	68	66	63	60	63
3450	.25	702		81	76	72	70	68	66	62	59	63
3400	.3	717		81	76	72	70	68	66	62	59	63
3300	.4	745		82	77	73	71	69	66	63	60	63
3200	.5	778		84	78	74	71	70	67	64	61	64
3100	.6	809		85	78	74	72	70	67	64	61	65
2925	.75	859		86	83	78	75	72	70	67	64	67

"2 HP" Sound Data - Assumes .3125 Internal Exhaust Cabinet Static.

CFM	ESP	RPM	Freq. (Hz)	63	125	250	500	1000	2000	4000	8000	Blower Outlet dBA @ 5ft.
4650	0.1	812	dBA	87	86	80	78	74	74	70	67	70
4550	.25	827		87	85	79	77	74	73	69	66	70
4525	.3	834		87	85	79	77	74	73	69	66	70
4450	.4	850		87	85	79	77	73	72	69	66	70
4400	.5	867		87	84	79	77	73	72	69	65	70
4350	.6	888		87	85	79	77	73	72	69	66	70
4250	.75	924		88	85	80	77	73	72	69	66	70

"3 HP" Sound Data - Assumes .3125 Internal Exhaust Cabinet Static.

CFM	ESP	RPM	Freq. (Hz)	63	125	250	500	1000	2000	4000	8000	Blower Outlet dBA @ 5ft.
5400	0.1	922	dBA	90	90	85	82	77	77	74	71	74
5325	.25	934		90	90	85	81	77	77	73	70	74
5300	.3	938		90	90	85	81	77	77	73	70	74
5250	.4	946		89	90	84	81	76	76	73	70	74
5200	.5	957		89	90	84	81	76	76	73	69	74
5150	.6	971		89	89	84	81	76	76	73	69	74
5050	.75	993		89	89	84	81	76	75	72	69	74

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AC 58 and 59

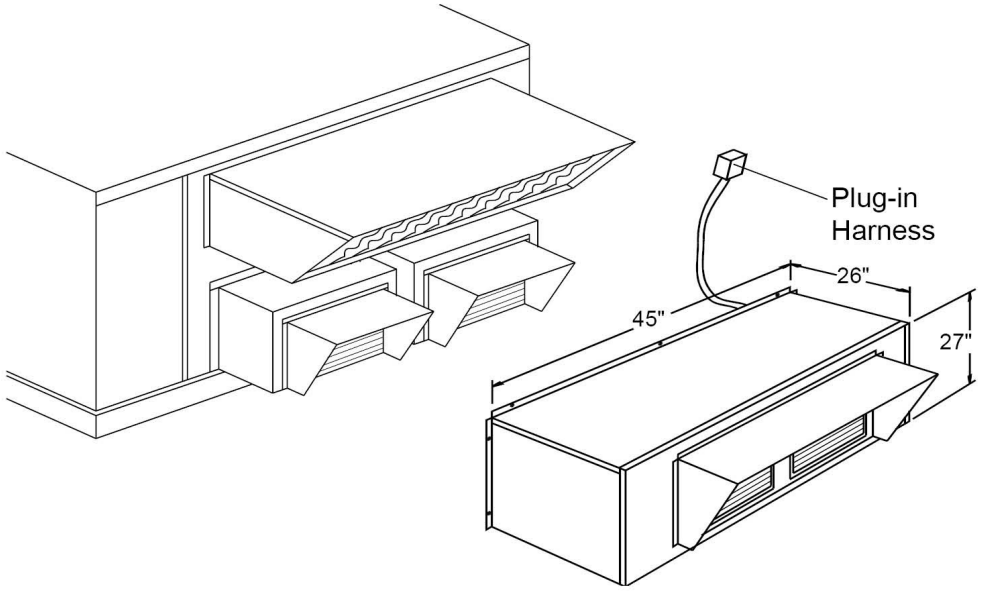
MicroMetl	Date:	Weight: 300lbs (US) 136.08kg (Metric)	Part Number: 1090-3104-LA910
	RTU:		
Submitted to:		Approved by:	Notes:

Power Exhaust - Power Exhaust - Modulating Speed, Centrifugal Exhaust Type, Convertible Orientation, 460 Volt Three Phase Voltage. Designed To Operate At 20907 CFM @ 1/2" - 12 HP. Painted To Match RTU. DOES NOT INCLUDE ECONOMIZER. Compatible With Carrier Factory Economizers. Mounted On Return Air Ductwork In The Horizontal Application. BacNet Compatible

MicroMetl Advantages

1. Blowers are forward curbed double inlet with pre-lubricated ball bearings and with a dynamically balanced wheel.
2. Thermally protected motors.
3. Relief dampers have gasketed blades.
4. Fans mounted on rubber isolator.
5. Adjustable motor pulley.
6. Large, full size front access door for easy service.
7. Motor and pulley are up front for easy adjusting.
8. Housing is painted and insulated with 1” - 1.5lb. density insulation.
9. Power Cord is SEOW/SOW 14-4.

1 Module - 1090-110*						
ESP	0.25	0.375	0.5	0.625	0.75	1
Max CFM	8147	7011	6969	7186	7070	3193
2 Module - 1090-210*						
ESP	0.25	0.375	0.5	0.625	0.75	1
Max CFM	16294	14022	13938	14372	14140	6386
3 Module - 1090-310*						
ESP	0.25	0.375	0.5	0.625	0.75	1
Max CFM	24441	21033	20907	21558	21210	9579



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Master Revision 0001A

Page Revision 0001A

MicroMetl	Date:	Weight: 300lbs (US) 136.08kg (Metric)	Part Number: 1090-3104-LA910
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Applicable to the following part numbers:
CRPWREXH071A00 (2M4 & 4M4 only)
CRPWREXH072A00(2M4 & 4M4 only)
1090-1***

- Series Single Module Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses per each module
2V4	208-230/240	3	Constant Volume	4.0	11.2-10.8	14.0-13.5	18.2-13.1	N/A
2L4 or 2T4	208-230/240	3	Modulating	4.0	20.6*	25.8	46.4	40 Amp
4V4	460	3	Constant Volume	4.0	5.4	6.8	8.8	N/A
4L4 or 4T4	460	3	Modulating	4.0	10.5*	13.1	23.6	20 Amp

Applicable to the following part numbers:
CRPWREXH074A00 (2M4 & 4M4 only)
CRPWREXH075A00 (2M4 & 4M4 only)
1090-2***

- Series Double Module Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses per each module
2V4	208-230/240	3	Constant Volume	4.0	22.4-21.6	28.0-27.0	29.4-28.4	N/A
2L4 or 2T4	208-230/240	3	Modulating	4.0	41.2*	51.5	67.0	40 Amp
4V4	460	3	Constant Volume	4.0	10.8	12.5	14.2	N/A
4L4 or 4T4	460	3	Modulating	4.0	21.0*	26.3	34.1	20 Amp

Applicable to the following part numbers:
CRPWREXH077A00 (2M4 & 4M4 only)
CRPWREXH078A00 (2M4 & 4M4 only)
1090-3***

- Series Triple Module Power Exhaust Configurations and Electrical Data

Suffix	Voltage	Phase	Description	HP	FLA	MCA	MOCP	Internally Provided Fuses per each module
2V4	208-230/240	3	Constant Volume	4.0	33.6-32.4	42.0-40.5	40.6-39.2	N/A
2L4 or 2T4	208-230/240	3	Modulating	4.0	61.8*	77.3	87.6	40 Amp
4V4	460	3	Constant Volume	4.0	16.2	20.3	19.6	N/A
4L4 or 4T4	460	3	Modulating	4.0	31.5*	39.4	44.6	20 Amp

*VFD Input Current

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Indianapolis_3035 N. Shadeland Ave., Indianapolis, IN 46226_800.MMC.HVAC •• Sparks_905 Southern Way, Sparks, NV 89431_800.884.4MMC •• Longview_201 Kodak Blvd., Longview, TX 75602_903.248.4800

REFERENCE

Building	Mark For	Exisiting unit Model	Orentation	Tonnage	Voltage	Replacement
Library	AC-72	YCH301CALFCA	Horizontal	25	460-3-60	48FCDM28AJM6-3U0A0
Library	AC -73	YCH301CALFCA	Horizontal	25	460-3-60	48FCDM28AJM6-3U0A0
Library	AC-74	YCH241CALFCA	Horizontal	20	460-3-60	48FCDM20AJM6-3U0A0
~~Library~~	~~Mini Split 1~~	~~MUH24WN~~	~~Split~~	~~2~~	~~208/230-1-60~~	~~38MARBQ24AA3~~
GYM	AC-59	YCH600A4LR0A4NC1ABCOEOOH00000	Horizontal	50	460-3-60	48A8D050-SM65AEE
GYM	AC-60	YHC120A4RLA1T00000	Horizontal	10	460-3-60	48FCDM12A3M6-3A0A0
GYM	AC-58	YCH600A4LR0A4NC1ABCOEOOH00000	Horizontal	50	460-3-60	48A8D050-SM65AEE

PRODUCT DATA SHEET

ClimaVision HyperStat

All-in-one commercial thermostat and humidistat for superior IAQ management and localized temperature control



HyperStat | Part # 7C-HS-C2W-X

- Occupancy, temperature, light, humidity, sound, CO_2 and optional VOC and particulate matter (PM2.5 and PM10)(7C-SE-K1X-X)
- TFT LCD display with touch slider and user buttons
- (6) Onboard relays
- (3) Analog outputs
- (2) Thermistor inputs
- (2) Analog inputs

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ClimaVision HyperStat

Give your occupants the power of IAQ management and localized temperature control with the ClimaVision HyperStat, an all-in-one thermostat and humidistat thoughtfully crafted to support healthy, comfortable spaces. Each stat has up to eight on-board sensors for a complete picture of IAQ in your zone and has control capabilities for up to three-stage equipment to fine-tune sequences for optimal building health.

The HyperStat works out of the box with the ClimaVision intelligent building solution. Replacing non-connected thermostats with the HyperStat's cloud-enabled capabilities is as easy as swapping out the wires. The sleek, contemporary design will look right at home in any space.



Part # 7C-HS-C2W-X

OVERVIEW

The HyperStat is an all-in-one IAQ sensing station, thermostat and humidistat. It brings HVAC equipment online for secure remote management from any smartphone or connected device. Occupants can make temperature adjustments within predefined limits from a touch slider or buttons. The TFT Display provides valuable insights to users or technicians.

This device supports the WELL Building standard for healthy buildings and tracks occupancy, temperature, dedicated CO2, humidity, light, sound, and optional VOC and particulate matter measurements every 60 seconds.

KEY FEATURES

- Built-in sequences for occupancy detection mean your HyperStat prioritizes health and comfort when it matters most and saves valuable energy when spaces are empty.
- Pre-loaded equipment profiles allow for interfacing to a wide variety of staged and fully modulating equipment.
- Facility directors have real-time access to sensor data and remote control over building parameters through the HyperStat's integration with ClimaVision's building intelligence suite of web and mobile apps.
- ClimaVision's secure encrypted 900Mhz mesh network allows for lightweight, reliable communications between devices and the ClimaVision Central Control Unit, eliminating the need for running wires throughout a facility.

ADDITIONAL FEATURES

- Over-the-air firmware updates
- Sensor bus for power and communication
- Commissions and communicates with the CCU in just minutes with Bluetooth pairing

EQUIPMENT CONTROL

Supports staging of cooling, heating, or fan (up to 3 stages) or fully modulating:

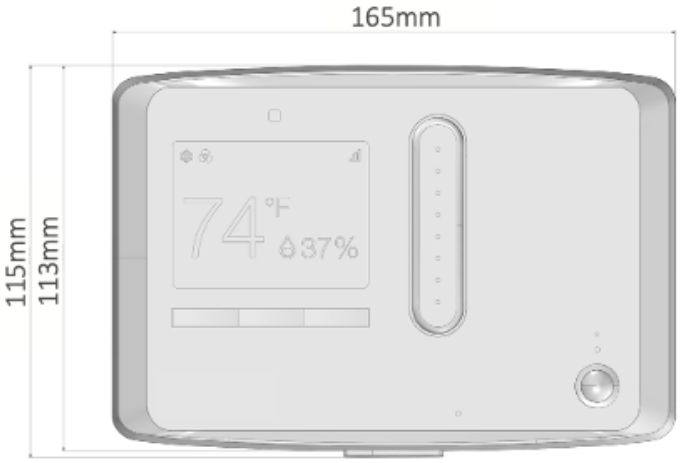
- Rooftop Units
- Water Source Heat Pumps
- Unit Heaters
- PTAC Units
- 2-Pipe Fan Coil Units
- Induction Units

INCLUDED

(1) HyperStat
(2) Mounting screws

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ClimaVision HyperStat



MECHANICAL

Dimensions	6.5” x 4.5” x 1.15” (165mm x 115mm x 29 mm)
Mounting	(2) screws in drywall
Screen	2.8” 240x320 pixel TFT LCD
Operating Range	32°F to 122°F (0°C to 50°C)

SENSORS

Temperature	Operating range between 32°F to 122°F (0°C to 50°C); typical accuracy of +/- 1°F or 0.2°C
Humidity	Operating range between 20 to 85% noncondensing; Typical accuracy of +/- 2% RH
Dedicated CO_2 Sensor	Range 0-40’000 ppm; Accuracy +/-30ppm over range of 400-10,000ppm and lifetime of 15 years
Light	Ambient light sensor; high-accuracy UV index sensor; matches erythemal curve; < 100 mix resolution
Sound	40-120dB response for 100 Hz to 10Khz
Occupancy	Passive Infra Red (PIR) with detection range of 4m with 30-degree angle
VOC	TVOC: 0-60’000 ppb. Typical Accuracy - 15% of measured value

OPTIONAL SENSOR

PM2.5, PM10 7C-SE-K1X-X	Detection range of 0-1000ug/m3 and accuracy of +/-10ug/m3 (PM2.5, 0-100 ug/m3) or +/- 25ug/m3 (PM10, 0-100ug/m3)

ELECTRICAL

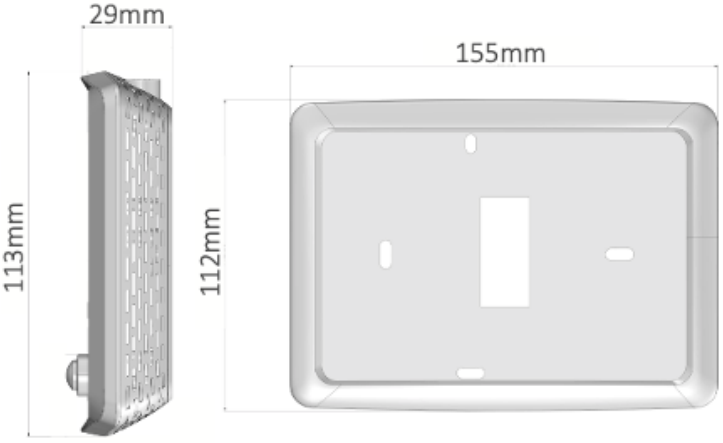
Power	24V AC/DC (+/-15%) with nominal power consumption 1.0W and maximum consumption of 2.5W

COMMUNICATIONS

Bluetooth	BLE4.1; used during commissioning
Mesh	900 MHz IEEE 802.15.4-compliant; used for device communication on mesh network
Wired	4 wire RS-485 interface 3 wire connector for low-power sensor bus

WALL PLATE

6.1” x 4.4” (155mm x 113mm)



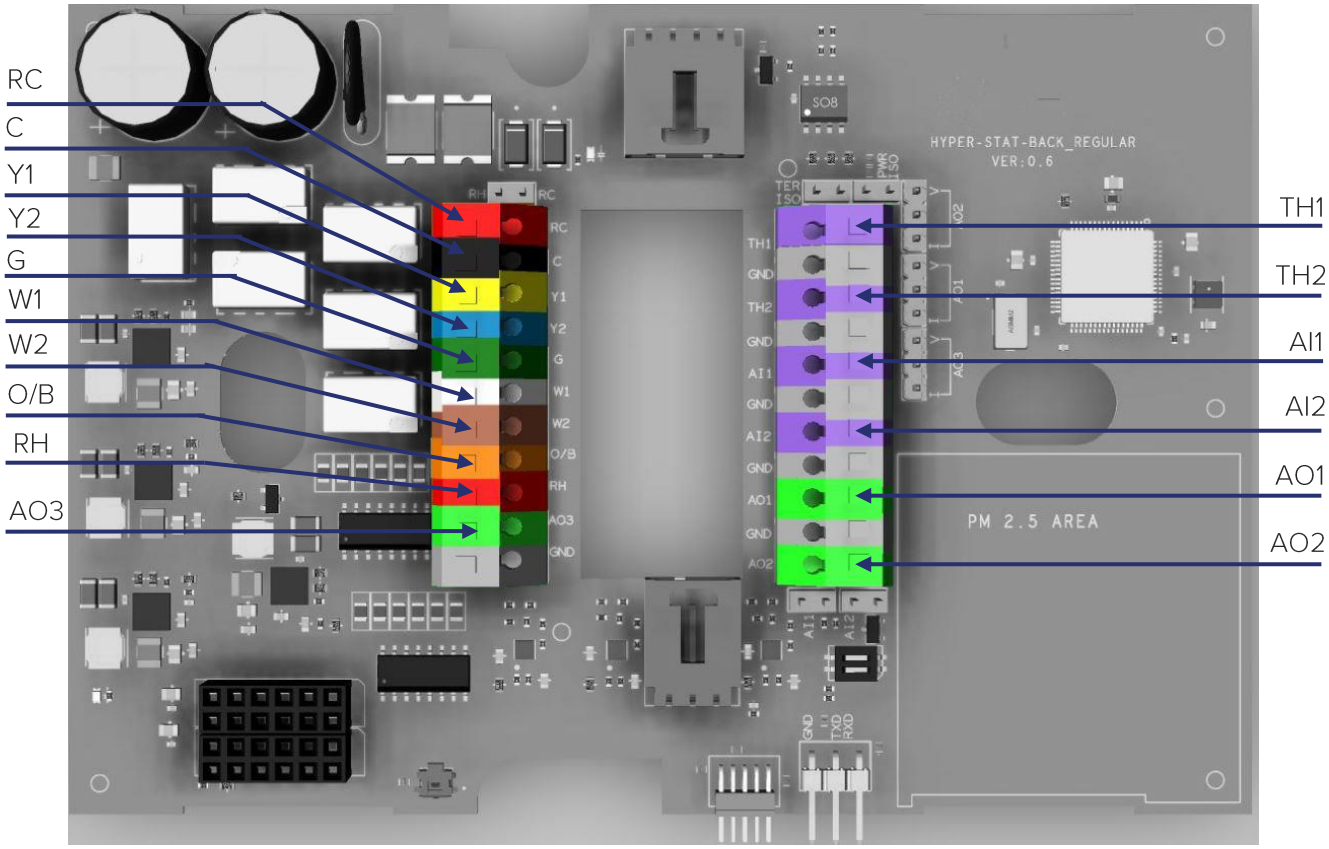
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ClimaVision HyperStat

I/O

Inputs	(2) 10k type-2 thermistor inputs with 2% accuracy (2) 0-10V analog voltage inputs with 2% detection accuracy
Outputs	(6) 24V dc/1A relays (3) 0-10V/4 -20ma (max load of 20mA per channel) analog outputs

INTERFACE PCB



DSA

103-25

LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

☐ Project has a geotechnical report or construction documents require special inspection by a geotechnical engineer.
☑ Project does NOT have and does NOT require a geotechnical report.

	TYPE	BY
S1 | SOILS - GENERAL		
☐ S1a: Site Preparation	See Notes	PI
S2 | COMPACTION AND FILL		
☐ S2a: Fill Materials	Test	LOR*
☐ S2b: Fill Placement	Continuous	LOR*
☐ S2c: Compaction	Test	LOR*
S3 | DRIVEN DEEP FOUNDATIONS (PILES)		
☐ S3a: Materials and Members	Continuous	GE*
☐ S3b: Pile Capacity	Test	LOR*
☐ S3c: Driving Operations	Continuous	GE*
☐ S3d: Pile Installation	Continuous	GE*
☐ S3e: Specialty Piles	*	*
S4 | CAST-IN-PLACE DEEP FOUNDATIONS (PIERS)		
☐ S4a: Drilling Operations	Continuous	PI
☐ S4b: Pier Construction	Continuous	PI
☐ S4c: Bearing Strata	Continuous	GE*
S5 | RETAINING WALLS		
☐ S5a: Backfill Placement	Continuous	GE*
☐ S5b: Soil Reinf. and Drainage	Continuous	GE*
☐ S5c: Segmental Retaining Walls	Continuous	GE*
S6 | OTHER SOILS		
☐ S6a: Soil Improvement Test	Test	GE*
☐ S6b: Soil Improvement Inspection	Continuous	GE*
☐ S6c: Not used.	N/A	N/A
☐ S6d: Not used.	N/A	N/A
☐ S6e: Not used.	N/A	N/A
☐ S6f: Not used.	N/A	N/A
☐ S6g: Not used.	N/A	N/A
☐ S6h: Not used.	N/A	N/A
☐ S6i: Not used.	N/A	N/A
☐ S6j: Not used.	N/A	N/A
☐ S6k: Not used.	N/A	N/A
☐ S6l: Not used.	N/A	N/A
☐ S6m: Not used.	N/A	N/A
☐ S6n: Not used.	N/A	N/A

* See Appendix for additional information.

	TYPE	BY
C1 | CAST-IN-PLACE CONCRETE		
☐ C1a: Mix Design	Continuous	SI
☐ C1b: Reinforcing Steel	Test	LOR
☐ C1c: Concrete Material	Test	LOR
☐ C1d: Strength Test	Test	LOR
☐ C1e: Batch Plant Inspection		SI
C2 | PRESTRESSED CONCRETE		
☐ C2a: Tendons and Anchorage	Test	LOR
☐ C2b: Tendon Placement	Periodic	SI
☐ C2c: Concrete Strength	Periodic	SI
☐ C2d: Stressing Operations	Continuous	SI
C3 | PRECAST CONCRETE		
☐ C3a: General Fabrication	Continuous	SI
☐ C3b: General Erection	Periodic	SI*
☐ C3c: Diaphragm Connections	Continuous	SI
☐ C3d: Diaphragm Tolerances	Periodic	SI
C4 | SHOTCRETE		
☐ C4a: Placement	Continuous	SI
☐ C4b: Shotcrete Material	Test	LOR
C5 | POST-INSTALLED ANCHORS		
☐ C5a: Inspection	See notes	SI*
☐ C5b: Test	Test	LOR
C6 | OTHER CONCRETE		
☐ C6a: Not used.	N/A	N/A
☐ C6b: Not used.	N/A	N/A
☐ C6c: Not used.	N/A	N/A
☐ C6d: Not used.	N/A	N/A
☐ C6e: Not used.	N/A	N/A
☐ C6f: Not used.	N/A	N/A
☐ C6g: Not used.	N/A	N/A
☐ C6h: Not used.	N/A	N/A
☐ C6i: Not used.	N/A	N/A
☐ C6k: Not used.	N/A	N/A
☐ C6l: Not used.		
Not used.		

* See Appendix for additional information.

Project Name: **Firebaugh High School**
School District: **Lynwood Unified School District**

Application No.: **03-125870** Increment:
File No.: **19-H31**

LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

	TYPE	BY
M1 | STRUCTURAL MASONRY f'm PSI:		
☐ M1a: Mill Certificates - Reinf.	Periodic	SI*
☐ M1b: Material Certificates	Test	LOR
☐ M1c: Strength Test	Test	LOR
☐ M1d: Mortar Proportions	Periodic	SI
☐ M1e: Grout Proportions	Periodic	SI
☐ M1f: Batch Plant Inspection		SI
☐ M1g: Core Tests	Test	LOR
☐ M1h: Prisms	Continuous	SI
☐ M1i: Dowels and Supports	Periodic	SI
☐ M1j: Reinforcement and Members	Periodic	SI
☐ M1k: Reinforcement Placement	Continuous	SI
☐ M1l: Grout Placement	Continuous	SI
☐ M1m: Unit Layup and Joints	Periodic	SI*
☐ M1n: Cold/Hot Weather Work	Periodic	SI
☐ M1o: Anchors and Embeds	Continuous	SI
☐ M1p: Grout Cavity	Continuous	SI
M2 | VENEER OR GLASS BLOCK PARTITIONS		
☐ M2a: Mortar and Grout	Periodic	SI
☐ M2b: Unit Layup and Joints	Periodic	SI
☐ M2c: Wires and Connector	Periodic	SI
☐ M2d: Anchors and Embeds	Periodic	SI
☐ M2e: Cold/Hot Weather Work	Periodic	SI*
☐ M2f: Adhered Veneer Bond	Test	LOR
M3 | POST-INSTALLED ANCHORS		
☑ M3a: Inspection	Varies*	SI*
☑ M3b: Test	Test	LOR
M4 | OTHER MASONRY		
☐ M4a: Not used.	N/A	N/A
☐ M4b: Not used.	N/A	N/A
☐ M4c: Not used.	N/A	N/A
☐ M4d: Not used.	N/A	N/A
☐ M4e: Not used.	N/A	N/A
☐ M4f: Not used.	N/A	N/A
☐ M4g: Not used.	N/A	N/A
☐ M4h: Not used.	N/A	N/A
☐ M4i: Not used.	N/A	N/A
☐ M4j: Not used.	N/A	N/A
☐ M4k: Not used.		
☐ M4l: Not used.		
☐ M4m: Not used.		
Not used.		

* See Appendix for additional information.

	TYPE	BY
S/A1 | STEEL AND ALUMINUM		
☑ S/A1a: Material Identification	Periodic	*
☑ S/A1b: Unidentified Material	Test	LOR
☑ S/A1c: Steel Fabrication	Periodic	SI
☐ S/A1d: Buckling Restrained Brace	Test*	LOR
S/A2 | HIGH-STRENGTH BOLTS		
☑ S/A2a: Product Verification	Periodic	SI
☑ S/A2b: Bolts, Nuts, and Washers	Test	LOR
☑ S/A2c: Snug Tight	Periodic	SI
☐ S/A2d: Pretensioned / Slip-Critical	*	SI
S/A3 | WELDING		
☑ S/A3a: Weld Material	Periodic	SI
☑ S/A3b: Certificate of Compliance	Periodic	SI
☑ S/A3c: WPS and Qualifications	Periodic	SI
S/A4 | SHOP WELDING		
☐ S/A4a: Weld Category A	Continuous	SI
☑ S/A4b: Weld Category B	Periodic	SI
☐ S/A4c: Stairs and Railing	Periodic	SI
☐ S/A4d: Reinf. Steel Weldability	Periodic	SI
☐ S/A4e: Reinforcing Steel	Continuous	SI
S/A5 | FIELD WELDING		
☐ S/A5a: Weld Category A	Continuous	SI
☑ S/A5b: Weld Category B	Periodic	SI
☐ S/A5c: End Welded Studs	Periodic	SI
☐ S/A5d: Deck Welds	Periodic	SI
☐ S/A5e: Cold-Formed Steel	Periodic	SI
☐ S/A5f: Stairs and Railing	Periodic	SI
☐ S/A5g: Reinf. Steel Weldability	Periodic	SI
☐ S/A5h: Reinforcing Steel	Continuous	SI
S/A6 | NONDESTRUCTIVE TESTING		
☐ S/A6a: Ultrasonic	Test	LOR
☐ S/A6b: Magnetic Particle	Test	LOR
☐ S/A6c:Not used.	N/A	N/A
☐ S/A6d:Not used.	N/A	N/A
☐ S/A6e:Not used.	N/A	N/A
S/A7 | STEEL JOISTS AND TRUSSES		
☐ S/A7a: Fabrication	Continuous	SI
S/A8 | METAL BUILDING		
☐ S/A8a: Inspection	Periodic	SI
S/A9 | SPRAYED FIRE-RESISTANT MATERIALS		
☐ S/A9a: Surface and Installation	Periodic	SI
☐ S/A9b: Density	Test	LOR
☐ S/A9c: Bond: Adhesion/Cohesion	Test	LOR

* See Appendix for additional information.

Project Name: **Firebaugh High School** Application No.: **03-125870** Increment:
School District: **Lynwood Unified School District** File No.: **19-H31**

LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

	TYPE	BY
S/A10 | ANCHOR BOLTS AND ANCHOR RODS		
☐ S/A10a: Anchor Rods and Bolts	Test	LOR
☐ S/A10b: Other Threaded Rods	Test	LOR
S/A11 | STORAGE RACK SYSTEMS		
☐ S/A11a: Material Verification	Periodic	SI
☐ S/A11b: Fabrication	Periodic	SI
☐ S/A11c: Anchorage	Periodic	SI
☐ S/A11d: Completed System	Periodic	SI*
S/A12 | OTHER STEEL AND ALUMINUM		
☐ S/A12a: Not used.	N/A	N/A
☐ S/A12b: Not used.	N/A	N/A
☐ S/A12c: Not used.	N/A	N/A
☐ S/A12d: Not used.	N/A	N/A
☐ S/A12e: Not used.	N/A	N/A
☐ S/A12f: Not used.	N/A	N/A
☐ S/A12g: Not used.	N/A	N/A
☐ S/A12h: Not used.	N/A	N/A
☐ S/A12i: Not used.	N/A	N/A
☐ S/A12j: Not used.	N/A	N/A
W1 | PREFABRICATED WOOD TRUSSES		
☐ W1a: Open Web Truss Fabrication	Continuous	SI
☐ W1b: Metal Plate Truss Fabrication	Continuous	SI
W2 | MANUFACTURED WOOD ELEMENTS		
☐ W2a: GL Timber Fabrication	Continuous	SI
☐ W2b: CLT Fabrication	Continuous	SI
☐ W2c: Mass Timber Erection	Periodic	SI
☐ W2d: Connections Type A	Periodic	SI
☐ W2e: Connections Type B	Continuous	SI
☐ W2f: Sealants	Periodic	SI
W3 | OTHER WOOD		
☐ W3a: Not used.	N/A	N/A
☐ W3b: Not used.	N/A	N/A
☐ W3c: Not used.	N/A	N/A
☐ W3d: Not used.	N/A	N/A
☐ W3e: Not used.	N/A	N/A
☐ W3f: Not used.	N/A	N/A
☐ W3g: Not used.	N/A	N/A
☐ W3h: Not used.	N/A	N/A

* See Appendix for additional information.

	TYPE	BY
X | OTHER		
☐ X01: Product Load Test*	Test	LOR
☐ X02: Non-HSB Installation Torque	Continuous	SI*
☐ X03: Not used.	N/A	N/A
☐ X04: Not used.	N/A	N/A
☐ X05: Not used.	N/A	N/A
☐ X06: Not used.	N/A	N/A
☐ X07: Not used.	N/A	N/A
☐ X08: Not used.	N/A	N/A
☐ X09: Not used.	N/A	N/A
☐ X10: Not used.	N/A	N/A

EXEMPTIONS

Those items identified on the DSA-approved construction documents with a note indicating they are not part of the DSA approval or those items checked below are exempt from test and special inspection requirements. The project inspector shall verify all construction complies with the approved construction documents.

- ☐ Soils: Eligible shallow foundation elements**.
- ☐ Soils: Eligible deep foundation elements - type 1**.
- ☐ Soils: Eligible deep foundation elements - type 2**.
- ☐ Concrete/Masonry: Eligible post-installed anchors**.
- ☐ Concrete: Batch plant inspection for items listed in and complying with CBC Section 1705A.3.3.2.
- ☐ Concrete: Epoxy shear dowels in nonstructural slab-on-grade per CBC Section 1910A.5.4, Exception #4.
- ☐ Concrete/Masonry: Reinforcing bar testing for items listed in and complying with CBC Section 1910A.2.
- ☐ Masonry: Freestanding site walls and retaining walls per DSA IR 21-1.

Concrete: Eligible precast elements**.

- ☐ Welding: Eligible fences and gates**.
- ☐ Welding: Eligible railing and ramps**.
- ☐ Welding: Eligible interior cold-formed steel framing**.
- ☑ Welding: Eligible equipment curbs**.
- ☑ Welding: Eligible components supporting MEP distribution systems**.
- ☑ Welding: Eligible mounts and recreational equipment**.
- ☐ Welding: Eligible nonstructural components**.

** See Appendix for eligibility requirements.

Project Name: **Firebaugh High School** Application No.: **03-125870** Increment:

School District: **Lynwood Unified School District** File No.: **19-H31**

LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project. Any items indicated on the approved construction documents with a note stating that the items are not part of the DSA approval are not considered in this form. Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The exemption appendix at the end of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of nonstructural components, etc., per Title 24, Part 2, Chapter 17A.

Legend to TYPE and BY Columns:

Continuous - Indicates continuous special inspection is required.

Periodic - Indicates periodic special inspection is required.

Test - Indicates a test is required.

GE – Indicates special inspection shall be performed by a registered geotechnical engineer or his/her authorized representative, usually associated with the Laboratory of Record.

LOR – Indicates test or special inspection shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program (i.e., the Laboratory of Record for the project). See CAC Section 4-335.

PI - Indicates special inspection may be performed by a project inspector when specifically approved by DSA.

SI - Indicates special inspection shall be performed by an appropriately qualified/approved special inspector.

Required Verified Reports:

1. Structural Testing and Inspection: Form DSA 291
2. Post-installed Anchors: Form DSA 291 or DSA 292
3. Shop Welding Inspection: Form DSA 291 or DSA 292
4. Field Welding Inspection: Form DSA 291 or Form DSA 292
5. High-Strength Bolting Inspection: Form DSA 291 or DSA 292

Verified reports are required on the following DSA forms:

DSA 291: Laboratory of Record Verified Report

DSA 292: Special Inspectors Employed Directly by the District Verified Report

DSA 293: Geotechnical Verified Report

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.

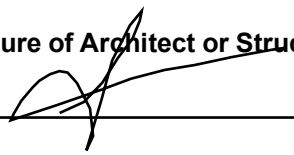
Name of Design Professional in General Responsible Charge:

Peter Sarkis S5038

Name of Structural Engineer of Record (when applicable):

Peter Sarkis S5038

Signature of Architect or Structural Engineer: **Date:**



DSA STAMP

Project Name: **Firebaugh High School**

School District: **Lynwood Unified School District**

Application No.: **03-125870** Increment:

File No.: **19-H31**

Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

NOTE: Undefined sections and table references found in this appendix are from the CBC, or California Building Code

S1. GENERAL:	
Test or Special Inspection	**Code References and Notes**
S1a: Site Preparation | Verify that: • Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations. • Foundation excavations are extended to proper depth and have reached proper material. • Materials below footings are adequate to achieve the design bearing capacity.	Refer to specific items identified in the Appendix listing exemptions for limitations. Placement of controlled fill exceeding 12" depth under foundations is not permitted without a geotechnical report.

S2. SOIL COMPACTION AND FILL:	
Test or Special Inspection	**Code References and Notes**
S2a: Fill Materials | Perform classification and testing of fill materials.	* Under the supervision of the geotechnical engineer.
S2b: Fill Placement | Verify use of proper materials, densities and inspect lift thicknesses, placement and compaction during placement of fill.	* Under the supervision of a geotechnical engineer or LOR's engineering manager. Refer to specific items identified in the end of this form listing exemptions for limitations.
S2c: Compaction | Compaction testing.	Refer to specific items identified in the Appendix listing exemptions for limitations. Placement of controlled fill exceeding 12" depth under foundations is not permitted without a geotechnical report.

S3. DRIVEN DEEP FOUNDATIONS (PILES):	
Test or Special Inspection	**Code References and Notes**
S3a: Materials and Members | Verify pile materials, sizes and lengths comply with the requirements.	* By geotechnical engineer or his or her qualified representative.
S3b: Pile Capacity | Determine capacities of test piles and conduct additional load tests as required.	* Under the supervision of the geotechnical engineer.
S3c: Driving Operations | Inspect driving operations and maintain complete and accurate records for each pile.	* By geotechnical engineer or his or her qualified representative.

S3d: Pile Installation | Verify locations of piles and their plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and record any pile damage.	* By geotechnical engineer or his or her qualified representative.
S3e: Specialty Piles | For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	* As defined on drawings or specifications.

S4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS):	
Test or Special Inspection	**Code References and Note**
S4a: Drilling Operations | Inspect drilling operations and maintain complete and accurate records for each pier.	Continuous inspection to be provided by project inspector. Refer to specific items identified in the Appendix (end of this form) listing exemptions for limitations.
S4b: Pier Construction | Verify pier locations, diameters, plumbness, bell diameters (if applicable), lengths and embedment into bedrock (if applicable); record concrete or grout volumes.	Continuous inspection to be provided by project inspector. Refer to specific items identified in the Appendix (end of this form) listing exemptions for limitations.
S4c: Bearing Strata | Confirm adequate end strata bearing capacity.	Provide tests and inspections per CONCRETE section below.

S5. RETAINING WALLS:	
Test or Special Inspection	**Code References and Notes**
S5a: Backfill Placement | Placement, compaction and inspection of backfill.	1705A.6.1. * By geotechnical engineer or his or her qualified representative. (See section S2 above).
S5b: Soil Reinf. and Drainage | Placement of soil reinforcement and/or drainage devices.	* By geotechnical engineer or his or her qualified representative.
S5c: Segmental Retaining Walls | Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	* By geotechnical engineer or his or her qualified representative. See DSA IR 18-2.

S6 | OTHER SOILS	
Test or Special Inspection	**Code References and Notes**
S6a | Soil Improvements	Submit a comprehensive report documenting final soil improvements constructed, construction observation and the results of the confirmation testing and analysis to CGS (California Geological Survey) for final acceptance. * By geotechnical engineer or his or her qualified representative.
S6b | Inspection of Soil Improvements	* By geotechnical engineer or his or her qualified representative.
S6c. | Not used.	N/A
S6d. | Not used.	N/A
S6e. | Not used.	N/A
S6f. | Not used.	N/A
S6g. | Not used.	N/A
S6h. | Not used.	N/A
S6i. | Not used.	N/A
S6j. | Not used.	N/A
S6k. | Not used.	N/A
S6l. | Not used.	N/A
S6m. | Not used.	N/A
S6n. | Not used.	N/A

Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

C1. CAST-IN-PLACE CONCRETE	
Test or Special Inspection	**Code References and Notes**
C1a: Mix Design | Verify use of required design mix.	**Table 1705A.3 Item 5, 1903A.4, 1904A.1, 1904A.2, 1910A.1 ; ACI 318 Ch. 19, 26.4, 26.13.3.2.**
C1b: Reinforcing Steel | Identify, sample, and test reinforcing steel.	**Table 1705A.3 Item 1, 1705A.3.9, 1908A.1, 1910A.2; ACI 318 Ch. 20 and Sections 25.2, 25.3, 25.5.1, 26.6.1; DSA IR 17-10 and BU 24-02. (See Appendix (end of this form) for exemptions.)**
C1c: Concrete Material | During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	**Table 1705A.3 Item 6, 1705A.3.9, 1905A.1.16; ASTM C31, ASTM C172; ACI 318 Sections 26.4, 26.5 & 26.12.**
C1d: Strength Test | Test concrete (f'c).	**1905A.1.16; ACI 318 Section 26.12.**
C1e: Batch Plant Inspection | Batch plant inspection: Continuous	**Default of "Continuous" per 1705A.3.3. If approved by DSA, batch plant inspection may be reduced to "Periodic" subject to requirements in Section 1705A.3.3.1, or not required per 1705A.3.3.2. See IR 17-13. (See Appendix (end of this form) for exemptions.)**

C2. PRESTRESSED / POST-TENSIONED CONCRETE (IN ADDITION TO SECTION C1):	
Test or Special Inspection	**Code References and Notes**
C2a: Tendons and Anchorage | Sample and test prestressing tendons and anchorages.	**1705A.3.4, Table 1705A.3 Item 1, 1910A.3; ACI 318 Ch. 20 and Sections 25.2, 26.6.1.**
C2b: Tendon Placement | Inspect placement of prestressing tendons.	**1705A.3.4, Table 1705A.3 Items 1 & 9; ACI 318 Ch. 20 and Sections 25.2, 26.6.1-26.6.3.**
C2c: Concrete Strength | Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	**Table 1705A.3 Item 13; ACI 318 Sections 26.10.2, 26.11.2, 26.13.3.3. Special inspector to verify specified concrete strength test prior to stressing.**
C2d: Stressing Operations | Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	**1705A.3.4, Table 1705A.3 Item 9; ACI 318 Sections 26.10.2, 26.13.1, 26.13.3.2.**

C3. PRECAST CONCRETE (IN ADDITION TO SECTION C1):	
Test or Special Inspection	**Code References and Notes**
C3a: General Fabrication | 1. Inspect fabrication of precast concrete members. * 2. Inspect reinforcement of the following precast concrete elements or system(s): a. special moment frames. b. boundary elements of special structural walls. c. coupling beams.	**1705A.3 Item 1, 7.** See Appendix for exemptions. *May be periodic where fabrication occurs in a PCI-certified plant. For underground structures, NPCA plant certification is acceptable. PCI MNL-116-21; PCI MNL-117-13; NPCA Quality Control Manual (QCM) 17th Edition. See IR A-15.

C3b: General Erection | Inspect erection of precast concrete members.	**Table 1705A.3 Item 10**.
C3c: Diaphragm Connections | For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to Seismic Design Category D, E or F, inspect such connections and reinforcement in the field for: 1. Installation of the embedded parts. 2. Completion of the continuity of reinforcement across joints. 3. Completion of connections in the field.	**Table 1705A.3 Item 11**.
C3d: Diaphragm Tolerances | Inspect installation tolerances of precast concrete diaphragm connections for compliance with ACI 550.5.	**Table 1705A.3 Item 12**

C4. SHOTCRETE (IN ADDITION TO SECTION C1):	
Test or Special Inspection	**Code References and Notes**
C4a: Placement | Inspect shotcrete placement for proper application techniques.	**1705A.3.9, Table 1705A.3 Item 7, 1908A.1, 1908A.2, 1908A.3. See ACI 506.2 Section 3.4, and ACI 506R.**
C4b: Shotcrete Material | Sample and test shotcrete (f'_c).	**1908A.1 and 1705A.3.9.**

C5. POST-INSTALLED ANCHORS:	
Test or Special Inspection	**Code References and Notes**
C5a: Inspection | Inspect installation of post-installed anchors	**1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic), 1705A.3.8** (See Appendix (end of this form) for exemptions). ACI 318 Sections 26.7.2, 26.13.1, 26.13.3.2, 26.13.3.3. * May be performed by the project inspector when specifically approved by DSA.
C5b: Test | Test post-installed anchors.	**1910A.5.** (See Appendix (end of this form) for exemptions.)

C6. OTHER CONCRETE:	
Test or Special Inspection	**Code References and Notes**
C6a. | Not used.	N/A
C6b. | Not used.	N/A
C6c. | Not used.	N/A
C6d. | Not used.	N/A
C6e. | Not used.	N/A
C6f. | Not used.	N/A
C6g. | Not used.	N/A
C6h. | Not used.	N/A
C6i. | Not used.	N/A
C6j. | Not used.	N/A
C6k. | Not used.	Not used.
C6l. | Not used.	Not used.

Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

M1. STRUCTURAL MASONRY:	
Test or Special Inspection	**Code References and Notes**
M1a: Mill Certificates - Reinf. | Mill certificate indicates compliance with requirements for reinforcement, anchors, ties, fasteners and metal accessories. See item C1(b) for identification, sampling and testing of reinforcing steel.	**2103A.4**; TMS 602-16 Article 1.5B.2 & 2.4. * To be performed by qualified LOR representative. Applicable testing by LOR. See IR 17-10 for unidentified reinforcing steel.
M1b: Material Certificates | Producer's certificate of compliance for masonry units, mortar and grout materials.	**1705A.4, 2103A.2, 2103A.3, 2103A.5;** TMS 602 Articles 1.5B.2, 2.1, 2.2, 2.6A and 2.6B, and Table 7 footnote 3.
M1c: Strength Test | Test masonry (f'm).	**1705A.4. For Unit Strength: 2105A.3**; TMS 602 Articles 1.4B.2 ,1.5B.1 & 1.5B.2. **For Prism (required when f'_m > 2000 psi):2105A.2;** TMS 602 Articles 1.4B.3, 1.4B.4, 1.5B.1 & 1.5B.2.
M1d: Mortar Proportions | Verify proportions or properties of site-prepared, premixed or preblended mortar.	TMS 602, Table 3 (row 5), Table 4 Item 1a. DSA PR 20-01. (See Appendix (end of this form) for exemptions.)
M1e: Grout Proportions | Verify proportions or properties of site-prepared, premixed or preblended grout.	TMS 602, Table 3 (row 5), Table 4 Item 2d. (See Appendix (end of this form) for exemptions.)
M1f: Batch Plant Inspection | Batch plant inspection: Periodic	Default of **'Continuous'** per **1705A.3.3**. If approved by DSA, batch plant inspection may be reduced to **'Periodic'** subject to requirements in Section **1705A.3.3.1,** or not required per **1705A.3.3.2.** See IR 17-13. Refer to TMS 602 Table 3 and Table 4, Item #3a. (See Appendix (end of this form) for exemptions.)
M1g: Core Tests | Test core-drilled samples.	**2105A.4**. (See Appendix (end of this form) for exemptions.)
M1h: Prisms | Inspect preparation of prisms.	TMS 602 Articles 1.4.B.3 & 1.4.B.4 & Table 4 Item 4.
M1i: Dowels and Supports | Verify size, location and condition of all dowels, construction supporting masonry, etc.	
M1j: Reinforcement and Members | Verify size, grade and type of reinforcement, connectors, and anchor bolts. Verify size and location of structural members.	TMS 602 Table 4, Items 1c & 3c.
M1k: Reinforcement Placement | Inspect placement of reinforcement, anchor bolts, and connectors.	TMS 602 Table 4 Item 2c.
M1l: Grout Placement | Placement, consolidation, and reconsolidation of grout.	TMS 602 Table 4 Item 3h.
M1m: Unit Layup and Joints | Inspect placement of masonry units and construction of mortar joints.	TMS 602 Table 4 Item 3b.
M1n: Cold/Hot Weather Work | Verify preparation, construction and protection of masonry during cold weather (temperature below 40º F) or hot weather (temperature above 90º F).	TMS 602 Table 4 Item 3f. * May be performed by the project inspector when specifically approved by DSA.
M1o: Anchors and Embeds | Inspect type, size and location of anchors and all other items to be embedded in masonry including other details of anchorage of masonry	TMS 602 Table 4 Item 3d.

to structural members, frames and other construction.	
M1p: Grout Cavity | Inspect grout space, including mortar protrusions, prior to placement of grout.	TMS 602 Table 4 Item 2a.

M2. VENEER OR GLASS BLOCK PARTITIONS:	
Test or Special Inspection	**Code References and Notes**
M2a: Mortar and Grout | Verify proportions of site prepared mortar and grout and/or verify certification of premixed mortar.	TMS 602 Table 3 (row 5) and Table 4 Items 1a & 2d.
M2b: Unit Layup and Joints | Inspect placement of units and construction of mortar joints.	TMS 602 Table 4 Item 3b.
M2c: Wires and Connector | Inspect placement of wire, connectors and anchors	TMS 602 Table 4 Item 2c.
M2d: Anchors and Embeds | Inspect type, size and location of anchors and all other items to be embedded in masonry veneer including details of anchorage of masonry to veneer backing, frames and other construction.	TMS 602 Table 4 Item 3d.
M2e: Cold/Hot Weather Work | Verify preparation, construction and protection of masonry during cold weather (temperature below 40º F) or hot weather (above 90º F).	TMS 602 Table 4 Item 3f. * May be performed by the project inspector when specifically approved by DSA.
M2f: Adhered Veneer Bond | Test adhered veneer bond strength.	**1413.2.1 (Field-constructed mock-up using specified unit, mortar, and substrate, laboratory tested in accordance with ASTM C1823).**

M3. POST-INSTALLED ANCHORS IN MASONRY:	
Test or Special Inspection	**Code References and Notes**
M3a: Inspection | Inspect installation of post-installed anchors	**1617A.1.19, 1705A.4, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic);** ACI 318 Section 26.13. * May be performed by the project inspector when specifically approved by DSA. (See Appendix (end of this form) for exemptions.)
M3b: Test | Test post-installed anchors.	**1705A.4, 1910A.5.** (See Appendix (end of this form) for exemptions.)

M4. OTHER MASONRY:	
Test or Special Inspection	**Code References and Notes**
M4a. | Not used.	N/A
M4b. | Not used.	N/A
M4c. | Not used.	N/A
M4d. | Not used.	N/A
M4e. | Not used.	N/A
M4f. | Not used.	N/A
M4g. | Not used.	N/A
M4h. | Not used.	N/A
M4i. | Not used.	N/A
M4j. | Not used.	N/A
M4k. | Not used.	Not used.
M4l. | Not used.	Not used.

Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

S/A1. STRUCTURAL STEEL, COLD-FORMED STEEL AND ALUMINUM USED FOR STRUCTURAL PURPOSES	
Test or Special Inspection	**Code References and Notes**
S/A1a: Material Identification | Verify identification of all materials and: • Mill certificates indicate material properties that comply with requirements. • Material sizes, types and grades comply with requirements.	**Table 1705A.2.1 Item 3a–3c.** 2201A.2**;** AISI S100 Section A3.1 & A3.2, AISI S240 Section A3 & A5, AISI S220 Sections A4 & A6. *By special inspector or qualified technician when performed off-site.
S/A1b: Unidentified Material | Test unidentified materials	**2201A.2.**
S/A1c: Steel Fabrication | Verify and document steel fabrication per DSA- approved construction documents.	Not applicable to cold-formed steel light-frame construction, except for trusses (**1705A.2.5**).
S/A1d: Buckling Restrained Brace | Verify and document steel fabrication per DSA-approved construction documents.	Testing and special inspections in accordance with IR 22-4. For DSA accepted fabrication shops, BRB manufacturer's Certificate of Compliance in lieu of testing and special inspections. See IR 22-4.

S/A2. HIGH-STRENGTH BOLTS:	
Test or Special Inspection	**Code References and Notes**
S/A2a: Product Verification | Verify identification markings and manufacturer's certificates of compliance conform to ASTM standards specified in the DSA-approved documents.	**Table 1705A.2.1 Items 1a & 1b, 2201A.2;** AISC 360 Section A3.3, J3.1, and N3.2; RCSC Section 1.5 & 2.1; DSA IR 17-8 & DSA IR 17-9.
S/A2b: Bolts, Nuts, and Washers | Test high-strength bolts, nuts and washers.	**Table 1705A.2.1 Item 1c, 2216A.1**; RCSC Section 7.2; DSA IR 17-8.
S/A2c: Snug Tight | Bearing-type ("snug tight") connections.	**Table 1705A.2.1 Item 2a, 1705A.2.8, 2201 A.4**; AISC 360 J3.1, J3.2, M2.5 & N5.6; RCSC Section 9.1; DSA IR 17-9.
S/A2d: Pretensioned / Slip-Critical | Pretensioned and slip-critical connections.	**Table 1705A.2.1 Items 2b & 2c, 1705A.2.8, 2201A.4;** AISC 360 J3.1, J3.2, M2.5 & N5.6; RCSC Sections 9.2 & 9.3; DSA IR 17-9 *"Continuous" or "Periodic" depends on the tightening method used.

S/A3. WELDING:	
Test or Special Inspection	**Code References and Notes**
S/A3a: Weld Material | Verify weld filler material identification markings per AWS designation listed on the DSA-approved documents and the WPS.	**1705A.2.7, Table 1705A.2.1 Items 4 & 5**; AWS D1.1 and AWS D1.8 for structural steel; AWS D1.2 for Aluminum; AWS D1.3 for cold-formed steel; AWS D1.4 for reinforcing steel; DSA IR 17-3.
S/A3b: Certificate of Compliance | Verify weld filler material manufacturer's certificate of compliance.	DSA IR 17-3.
S/A3c: WPS and Qualifications | Verify WPS, welder qualifications and equipment.	DSA IR 17-3.

S/A4. SHOP WELDING (IN ADDITION TO SECTION S/A3):	
Test or Special Inspection	**Code References and Notes**
S/A4a: Weld Category A | Inspect groove welds, multi-pass fillet welds, single pass fillet welds > 5/16", plug and slot welds.	**Table 1705A.2.1 Items 5a.1–4;** AISC 360 & 370 (and AISC 341 as applicable); DSA IR 17-3.
S/A4b: Weld Category B | Inspect single-pass fillet welds ≤ 5/16", floor and roof deck welds.	**1705A.2.3, Table 1705A.2.1 Items 5a.5 & 5a.6;** AISC 360 & 370 (and AISC 341 as applicable); DSA IR 17-3.
S/A4c: Stairs and Railing | Inspect welding of stairs and railing systems.	**1705A.2.1**; AISC 360 & 370 (and AISC 341 as applicable); AWS D1.1 & D1.3; DSA IR 17-3.
S/A4d: Reinf. Steel Weldability | Verification of reinforcing steel weldability other than ASTM A706.	**1705A.3.1**; AWS D1.4; DSA IR 17-3. Verify carbon equivalent reported on mill certificates.
S/A4e: Reinforcing Steel | Inspect welding of reinforcing steel.	**Table 1705A.2.1 Item 5b, 1705A.3.1, Table 1705A.3 Item 2, 1903A.5;** AWS D1.4; DSA IR 17-3.

S/A5. FIELD WELDING (IN ADDITION TO SECTION S/A3):	
Test or Special Inspection	**Code References and Notes**
S/A5a: Weld Category A | Inspect groove welds, multi-pass fillet welds, single pass fillet welds > 5/16", plug and slot welds.	**Table 1705A.2.1 Items 5a.1–4;** AISC 360 & 370 (AISC 341 as applicable); DSA IR 17-3.
S/A5b: Weld Category B | Inspect single-pass fillet welds ≤ 5/16".	**Table 1705A.2.1 Item 5a.5;** AISC 360 & 370 (AISC 341 as applicable); DSA IR 17-3.
S/A5c: End Welded Studs | Inspect end-welded studs (ASTM A-108) installation (including bend test).	**2216A.2**; AISC 360 & 370 (AISC 341 as applicable); AWS D1.1; DSA IR 17-3.
S/A5d: Deck Welds | Inspect floor and roof deck welds.	**1705A.2.3, Table 1705A.2.1 Item 5a.6;** AISC 360 & 370 (AISC 341 as applicable); AWS D1.3; DSA IR 17-3.
S/A5e: Cold-Formed Steel | Inspect welding of structural cold-formed steel.	**1705A.2.7;** AWS D1.3; DSA IR 17-3. The quality control provisions of AISI S240 Chapter D shall also apply. * May be performed by the project inspector when specifically approved by DSA.
S/A5f: Stairs and Railing | Inspect welding of stairs and railing systems.	**1705A.2.1;** AISC 370 (AISC 341 as applicable); AWS D1.1 & D1.3; DSA IR 17-3. * May be performed by the project inspector when specifically approved by DSA.
S/A5g: Reinf. Steel Weldability | Verification of reinforcing steel weldability.	**1705A.3.1**; AWS D1.4; DSA IR 17-3. Verify carbon equivalent reported on mill certificates.
S/A5h: Reinforcing Steel | Inspect welding of reinforcing steel.	**Table 1705A.2.1 Item 5b, 1705A.3.1, Table 1705A.3 Item 2, 1903A.5;** AWS D1.4; DSA IR 17-3.

S/A6. NONDESTRUCTIVE TESTING:	
Test or Special Inspection	**Code References and Notes**
S/A6a: Ultrasonic | Ultrasonic	**1705A.2.1, Table 1705A.2.1 Item 4c, 1705A.2.7;** AISC 341 J6.2, AISC 360 N5.5; AWS D1.1, AWS D1.8; DSA IR 17-2.
S/A6b: Magnetic Particle | Magnetic Particle	**1705A.2.1, Table 1705A.2.1 Item 4c, 1705A.2.7;** AISC 341 J6.2, AISC 360 N5.5; AWS D1.1, AWS D1.8; DSA IR 17-2.
S/A6c: Not used.	N/A
S/A6d: Not used.	N/A
S/A6e: Not used.	N/A

S/A7. STEEL JOISTS AND TRUSSES:	
Test or Special Inspection	**Code References and Notes**
S/A7a: Fabrication | Verify size, type and grade for all chord and web members as well as connectors and weld filler material; verify joist profile, dimensions and camber (if applicable); verify all weld locations, lengths and profiles; mark or tag each joist.	**1705A.2.4, Table 1705A.2.4;** AWS D1.1; DSA IR 22-3 for steel joists only. **1705A.2.5;** AWS D1.3 for cold-formed steel trusses.

S/A8. METAL BUILDING:	
Test or Special Inspection	**Code References and Notes**
S/A8a: Inspection | Inspect: • Installation of rafter/beam flange braces and column flange braces. • Installation of purlins and girts, including specified lapping. • Purlin and girt restraint/bridging/bracing. • Installation of X-bracing, tightened to remove any sag	**1705A.2.6, Table 1705A.2.6, 1705A.2.1, 1705A.2.3, 1705A.2.4 and 1705A.2.5**

S/A9. SPRAYED FIRE-RESISTANT MATERIALS:	
Test or Special Inspection	**Code References and Notes**
S/A9a: Surface and Installation | Examine structural steel surface conditions, inspect application, take samples, measure thickness and verify compliance of all aspects of application with DSA-approved documents.	**1705A.15, 1705A.15.1, 1705A.15.2, 1705A.15.3, 1705A.15.4, 1705A.15.5, 1705A.15.6.**
S/A9b: Density | Test density.	**1705A.15.1, 1705A.15.5, ASTM E605**
S/A9c: Bond: Adhesion/Cohesion | Bond strength adhesion/cohesion.	**1705A.15.1, 1705A.15.6, ASTM E736**

S/A10. ANCHOR BOLTS AND ANCHOR RODS:	
Test or Special Inspection	**Code References and Notes**
S/A10a: Anchor Rods and Bolts | Anchor Bolts and Anchor Rods	Identify, sample and test anchor bolts and anchor rods **not** meeting exemptions identified in Section 1 of IR 17-11.
S/A10b: Other Threaded Rods | Threaded rod not used for foundation anchorage.	Identify, sample and test threaded rods **not** meeting exemptions identified in Section 1 of IR 17-11.

S/A11. STORAGE RACK SYSTEMS:	
Test or Special Inspection	**Code References and Notes**
S/A11a: Material Verification | Materials used, to verify compliance with one or more of the material test reports in accordance with the approved construction documents.	Table 1705A.13.7
S/A11b: Fabrication | Fabricated storage rack elements.	1704A.2.5; Table 1705A.13.7
S/A11c: Anchorage | Storage rack anchorage installation.	ANSI/MH16.1 Section 7.3.2; Table 1705A.13.7
S/A11d: Completed System | Completed storage rack system to indicate compliance with the approved construction documents.	Table 1705A.13.7; * May be performed by the project inspector when specifically approved by DSA.

S/A12. Other Steel	
Test or Special Inspection	**Code References and Notes**
S/A12a. | Not used.	N/A
S/A12b. | Not used.	N/A
S/A12c. | Not used.	N/A
S/A12d. | Not used.	N/A
S/A12e. | Not used.	N/A
S/A12f. | Not used.	N/A
S/A12g. | Not used.	N/A
S/A12h. | Not used.	N/A
S/A12i. | Not used.	N/A
S/A12j. | Not used.	N/A
S/A12k. | Not used.	Not used.
S/A12l. | Not used.	Not used.

W1. PREFABRICATED WOOD TRUSSES:	
Test or Special Inspection	**Code References and Notes**
W1a: Open Web Truss Fabrication | Inspect fabrication of manufactured open-web trusses.	**1705A.5.6;** DSA IR 23-8.
W1b: Metal Plate Truss Fabrication | Inspect fabrication of manufactured metal-plate- connected trusses.	**1705A.5.6, 1705A.5.7;** DSA IR 23-4.

W2. MANUFACTURED WOOD STRUCTURAL ELEMENTS:	
Test or Special Inspection	**Code References and Notes**
W2a: GLS Timber Fabrication | Inspect fabrication of structural glued-laminated timber.*	* See **1705A.5.5** for exceptions
W2b: CLT Fabrication | Inspect fabrication of cross-laminated timber.	**1705A.5.5**
W2c: Mass Timber Erection | Inspect erection of mass timber.	**Table 1705A.5.3**, Item 2
W2d: Connections Type A | Inspect mass timber connections with threaded fasteners, bolts, and/or adhesive anchors other than described in item e below. Inspect concealed mass timber connections.	**Table 1705A.5.3**, Items 3.1, 3.3, 3.4, 3.5. For threaded fasteners: Verify use of proper installation equipment. Verify use of pre-drilled holes where required. Inspect screws, including diameter, length, head type, spacing, installation angle, and depth.
W2e: Connections Type B | Inspect mass timber connections with adhesive anchors installed in a horizontal or upward orientation.	**Table 1705A.5.3**, Item 3.2
W2f: Sealants | Inspect application of sealants or adhesives applied to mass timber elements.	**1705A.20**

W3. OTHER Wood:	
Test or Special Inspection	**Code References and Notes**
W3a. | Not used.	N/A
W3b. | Not used.	N/A
W3c. | Not used.	N/A
W3d. | Not used.	N/A
W3e. | Not used.	N/A
W3f. | Not used.	N/A
W3g. | Not used.	N/A
W3h. | Not used.	N/A
W3i. | Not used.	N/A
W3j. | Not used.	N/A
W3k. | Not used.	Not used.
W3l. | Not used.	Not used.

X1. OTHER:	
Test or Special Inspection	**Code References and Notes**
X01. | Load test for identified product(s):	1709A.2, 1709A.3. Testing is not required for: 1) a product with a valid evaluation service report per DSA IR A-5, or 2) a product that can be justified by structural calculation.
X02. | Installation torque for non-HS bolts on communication tower identified as essential service facility projects (ESFP).	Calibrated wrench use required, verified by SI during installation. DSA Policy PL 18-01: Communication Towers, Poles and Buildings Utilized by State Agencies for Essential Services Communications. *EXCEPTION: Non-ESFP may use PI without need for notification to DSA.
X03. | Not used.	N/A
X04. | Not used.	N/A
X05. | Not used.	N/A
X06. | Not used.	N/A
X07. | Not used.	N/A
X08. | Not used.	N/A
X09. | Not used.	N/A
X10. | Not used.	N/A

EXEMPTIONS

SOILS - EXEMPTIONS:
Soils: Eligible shallow foundation elements | Shallow foundations, are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception Item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC, Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill with depth not exceeding 12". These exempt structures shall be identified on the approved construction documents.
Soils: Eligible deep foundation elements, Type 1 | Deep foundation acting as cantilever footing with a design based on minimum allowable pressures per CBC Table 1806A.2 and without a geotechnical report are exempt from special inspection and testing by a Geotechnical Engineer for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.). These exempt structures shall be identified on the approved construction documents.
Soils: Eligible deep foundation elements Type 2 | Deep foundation acting as cantilever footing with a design based on minimum allowable pressures per CBC Table 1806A.2 and without a geotechnical report are exempt from special inspection and testing by a Geotechnical Engineer for the following cases: A) single-story open fabric shade structure, or B) covered walkway structure with an apex height less than 10'-0" above adjacent grade. These exempt structures shall be identified on the approved construction documents.

CONCRETE/MASONRY - EXEMPTIONS:
Concrete/Masonry: Eligible post-installed anchors | Post-installed anchors for the following: A) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment – see item 7 for "Welding" in the Appendix below) given in CBC Section 1617A.1.18 or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding" in the Appendix below.
Concrete: Batch plant inspection for items listed in and complying with CBC Section 1705A.3.3.2. | Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.
Concrete: Epoxy shear dowels in nonstructural slab-on-grade per CBC Section 1910A.5.4, Exception #4. | Epoxy shear dowels in site flatwork and/or other nonstructural concrete.
Concrete/Masonry: Reinforcing bar testing for items listed in and complying with CBC Section 1910A.2. | Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section. These exempt structures shall be identified on the approved construction documents.
Masonry: Freestanding site walls and retaining walls per DSA IR 21-1. | Freestanding and site retaining masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per DSA IR 21-1.
Eligible precast elements | Structural tests and special inspections are not required for the following concrete precast elements. Provide a certificate of compliance at delivery. Exemptions shall be identified on the approved construction documents. 1. Underground vaults no greater than 5 feet x 5 feet x unlimited height and pipe manufactured to an ASTM standard, 5 foot or less in diameter. 2. Elements manufactured in a PCI or NPCA certified manufacturing plant:

A. Underground vaults no greater than 16 feet in both length and width, of unlimited height, not subject to loading greater than HS 20-44.
B. Pipe.
C. Stair treads, landing planks.

WELDING - EXEMPTIONS:
Welding: Eligible fences and gates | Fences, gates with maximum leaf span of 10', and gates with a maximum rolling section of 10' all having an apex height less than 8'-0" above lowest adjacent grade.
Welding: Eligible railing and ramps | Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade; fillet welds shall not be ground flush.
Welding: Eligible interior cold-formed steel framing | Non-bearing non-shearwall interior cold-formed steel framing spanning less than 15'-0" in height and header less than 10'-0" in opening width, such as in interior partitions, interior soffits, etc.
Welding: Eligible equipment curbs | Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection.)
Welding: Eligible components supporting MEP distribution systems | Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection.)
Welding: Eligible mounts and recreational equipment | TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection.)
Welding: Eligible nonstructural components | Any support for exempt non-structural components given in CBC Section 1617A.1.18 meeting the following: A) when supported on a floor/roof, <400# or resulting composite center of mass (including component's center of mass) ≤4' above supporting floor/roof, B) when hung from a wall or roof/floor, and <20# for discrete units or <5 plf for distributed systems.

HVAC REPLACEMENT - FIREBAUGH HIGH SCHOOL ADMIN / LIBRARY BLDG AND GYM BLDG.
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD, CA 90262

Plot Date: 3/10/2026 12:02:24 PM

Project # 2025-131_R26

AGENCY APPROVAL

DSA A# 03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

TITLE SHEET

ADDITIONAL MECHANICAL / ELECTRICAL / PLUMBING NOTES

1. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
2. AN INSPECTOR WHO IS SPECIALLY QUALIFIED IN MECHANICAL AND ELECTRICAL WORK WILL BE REQUIRED FOR THIS PROJECT.
3. COMPLY WITH CFC CHAPTER 33 AND CBC CHAPTER 33.
4. ENERGY COMPLIANCE REVIEW AND APPROVAL IS REQUIRED PRIOR TO DSA APPROVAL OF THE CONSTRUCTION DOCUMENTS.
5. A DSA-CERTIFIED CLASS 3 PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY DSA SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342. PART 2. TITLE 24, CCR.
6. THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.
7. LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).
8. MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER 1, 2021.
9. ENVELOPE AND PROCESS EQUIPMENT ACCEPTANCE TESTS SHALL BE PERFORMED BY THE INSTALLING CONTRACTOR, ENGINEER/ARCHITECT OF RECORD OR THE OWNER'S AGENT.
10. A LISTING OF CERTIFIED ATT CAN BE FOUND AT: HTTPS://WWW.ENERGY.CA.GOV/PROGRAMS-AND-TOPICS/PROGRAMS/ACCEPTANCE-TEST-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM/ACCEPTANCE.
11. THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED, AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION / INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.
12. PROJECT INSPECTORS WILL COLLECT THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.
13. A WRITTEN SITE SAFETY PLAN IN COMPLIANCE WITH CFC 3303.1.1 MUST BE PREPARED AND AVAILABLE ON SITE PRIOR TO COMMENCEMENT OF ANY MOBILIZATION, DEMOLITION AND/OR CONSTRUCTION.
14. CLEAN AND SANITIZE ALL EXISTING SUPPLY AND RETURN DUCTWORK CONNECTED TO THE REPLACED HVAC EQUIPMENT PRIOR TO SYSTEM STARTUP. CLEANING SHALL BE PER NADCA ACR STANDARD AND SANITIZATION SHALL USE EPA-APPROVED PRODUCTS SUITABLE FOR OCCUPIED SCHOOL FACILITIES".

NON-UTILIZATION OF ASBESTOS MATERIAL

NO ASBESTOS OR ASBESTOS-CONTAINING PRODUCTS SHALL BE USED IN THIS CONSTRUCTION OR IN ANY TOOLS, DEVICES, CLOTHING OR EQUIPMENT USED TO AFFECT THIS CONSTRUCTION.

ASBESTOS AND OR ASBESTOS CONTAINING PRODUCTS SHALL BE DEFINED AS ALL ITEMS CONTAINING BUT NOT LIMITED TO CRYSTALLITE, CROCIDOLITE, AMOSITE, ANTHOPYLLITE, TERMOLITE AND ANTINOLITE.

ANY OR ALL MATERIAL CONTAINING GREATER THAN ONE TENTH OF ONE PERCENT(> 1 %) ASBESTOS SHALL BE DEFINED AS ASBESTOS CONTAINING MATERIAL.

ANY DISPUTES INVOLVING THE QUESTION OF WHETHER OR NOT MATERIAL INSTALLED WITH ASBESTOS-CONTAINING EQUIPMENT WILL BE SETTLED BY ELECTRON MICROSCOPY: THE COST OF ANY SUCH TEST SHALL BE PAID BY THE CONTRACTOR.

ALL WORK OR MATERIALS FOUND TO CONTAIN ASBESTOS OR WORK OR MATERIAL INSTALLED WITH ASBESTOS-CONTAINING EQUIPMENT WILL BE IMMEDIATELY REJECTED AND THIS WORK WILL BE REMOVED AT NO ADDITIONAL COST TO THE DISTRICT.

DECONTAMINATION AND REMOVAL

DECONTAMINATION AND REMOVAL OF WORK FOUND TO CONTAIN ASBESTOS OR WORK INSTALLED WITH ASBESTOS-CONTAINING EQUIPMENT SHALL BE DONE ONLY UNDER SUPERVISION OF A QUALIFIED CONSULTANT, KNOWLEDGEABLE IN THE FIELD OF ASBESTOS ABATEMENT AND ACCREDITED BY THE ENVIRONMENTAL PROTECTION AGENCY.

THE ASBESTOS REMOVAL CONTRACTOR SHALL BE AN EPA ACCREDITED CONTRACTOR QUALIFIED IN THE REMOVAL OF ASBESTOS AND SHALL BE CHOSEN AND APPROVED BY THE ASBESTOS CONSULTANT WHO SHALL HAVE SOLE DISCRETION AND FINAL DETERMINATION IN THIS MATTER.

THE ASBESTOS CONSULTANT SHALL BE CHOSEN AND APPROVED BY THE DISTRICT WHO SHALL HAVE SOLE DISCRETION AND FINAL DETERMINATION IN THIS MATTER.

THE WORK WILL NOT BE ACCEPTED UNTIL ASBESTOS CONTAMINATION IS REDUCED TO LEVELS DEEMED ACCEPTABLE BY THE ASBESTOS CONSULTANTS. HOLD HARMLESS

INTERFACE OF WORK UNDER THIS CONTRACT WITH WORK CONTAINING ASBESTOS SHALL BE EXECUTED BY THE CONTRACTOR AT HIS RISK AND HIS DISCRETION WITH FULL KNOWLEDGE OF THE CURRENTLY ACCEPTED STANDARDS, HAZARDS RISKS, AND LIABILITIES ASSOCIATED WITH ASBESTOS WORK AND ASBESTOS CONTAINING PRODUCTS.

BY EXECUTION OF THIS CONTRACT THE CONTRACTOR ACKNOWLEDGES THE ABOVE AND AGREES TO HOLD ASSIGNS FOR ALL ASBESTOS LIABILITY WHICH MAY BE ASSOCIATED WITH THIS WORK AND AGREES TO CONTRACT TO EQUALLY DEFEND WITH RESPECT TO THE ABOVE MENTIONED STANDARDS, HAZARDS, RISKS AND LIABILITIES.

THE CONTRACTOR SHALL, PRIOR TO COMMENCEMENT OF THIS WORK, PROVIDE A DULY SIGNED AND NOTARIZED AFFIDAVIT THAT HE HAS INSTRUCTED HIS EMPLOYEES WITH RESPECT TO THE ABOVE MENTIONED STANDARDS, HAZARDS, RISKS AND LIABILITIES AND THE CONTENTS AND REQUIREMENTS OF THIS PORTION OF THE CONTRACT DOCUMENTS.

HAZARD MATERIALS

IN THE EVENT THE CONTRACTOR ENCOUNTERS ON THE SITE MATERIALS REASONABLY BELIEVED TO BE ASBESTOS OR POLYCHLORINATED BIPHENYL (PCB) WHICH HAS NOT BEEN RENDERED HARMLESS, THE CONTRACTOR SHALL IMMEDIATELY STOP WORK IN THE AREA AFFECTED AND REPORT THE CONDITION TO THE DISTRICT AND ENGINEER IN WRITING

THE WORK IN THE AFFECTED AREA SHALL NOT THEREAFTER BE RESUMED EXCEPT BY WRITTEN AGREEMENT OF THE DISTRICT AND CONTRACTOR IF IN FACT THE MATERIAL IS ASBESTOS OR POLYCHLORINATED BIPHENYL (PCB), OR WHEN IT HAS BEEN RENDERED HARMLESS, BY WRITTEN AGREEMENT OF THE DISTRICT AND CONTRACTOR, OR IN ACCORDANCE WITH FINAL DETERMINATION BY THE ENGINEER.

MATERIAL SAFETY DATA SHEETS (MSDS)

CONTRACTOR IS REQUIRED TO ENSURE THAT MATERIAL SAFETY DATA SHEETS ARE AVAILABLE IN A READILY ACCESSIBLE PLACE AT THE WORK SITE; FOR ANY MATERIAL REQUIRING A MATERIAL SAFETY DATA SHEET PER THE FEDERAL "HAZARD COMMUNICATION" STANDARD, OR EMPLOYEES RIGHT TO KNOW LAW.

THE CONTRACTOR IS ALSO REQUIRED TO ENSURE PROPERLY LABELING ANY SUBSTANCE BROUGHT ONTO THE JOB SITE, AND THAT ANY PERSON WORKING WITH THE MATERIAL, IS INFORMED OF THE HAZARDS OF THE SUBSTANCE AND FOLLOWS PROPER HANDLING AND PROTECTION PROCEDURES.

PROJECT CONTACT INFO

MECHANICAL, PLUMBING AND FIRE PROTECTION (PRIME)
OPTIMUM ENERGY DESIGN
5200 E. LA PALMA
ANAHEIM, CALIFORNIA 92807
(714) 693-2277
CONTACT: ABBY BANERJEE, P.E., PRINCIPAL

STRUCTURAL (CONSULTANT)
PETRA STRUCTURAL ENGINEERS, INC
17981 SkyPark Circle, Suite 0
IRVINE, CA 92614
(949) 404-3351
CONTACT: PETER SARKIS S.E.

ELECTRICAL
OPTIMUM ENERGY DESIGN
5200 E. LA PALMA
ANAHEIM, CALIFORNIA 92807
(714) 693-2277
CONTACT: ROLANDO E. SOTELO

OWNER
LYNWOOD UNIFIED SCHOOL DISTRICT
11321 BULLIS ROAD
LYNWOOD, CA 90262
(310) 886-1600

MECHANICAL ANCHORS IN CONCRETE

1. MECHANICAL ANCHOR SYSTEMS:
   A. SIMPSON STRONG-BOLT 2 (ESR-3037).
   B. HILTI " KB-TZ2" (ESR 4266).
   C. SIMPSON TITEN HD (-ESR-2713).
   D. HILTI "KWIK HUS-EZ"(ESR-3027).
   E. STRONG-BOLT 2 (ICC ESR 3037, LAAR 25891)
   F. USE ONLY MECHANICAL ANCHOR SYSTEMS THAT HAVE BEEN PRE-QUALIFIED IN ACCORDANCE WITH THE PROVISIONS OF ICC-ES AC193, AND APPROVED FOR USE IN CRACKED CONCRETE. ANCHOR SYSTEMS SHALL BE INSTALLED PER THE REQUIREMENTS OF THE ICC-ES EVALUATION SERVICES REPORT FOR THE SPECIFIC ANCHOR, OR AS REQUIRED BY THE MANUFACTURER.
   G. ANCHOR DIAMETER REFERS TO THE ANCHOR SIZE AND NOT THE DIAMETER OF THE HOLE. REFER TO THE MANUFACTURER'S INSTRUCTIONS FOR REQUIRED DIAMETER OF DRILLED HOLE.
   H. HILTI 'KB3' (ESR-1385)
2. WHERE THE MANUFACTURER'S INSTALLATION INSTRUCTIONS OR APPLICABLE ICC-ESR CALL FOR THE APPLICATION OF AN INSTALLATION TORQUE, THE SPECIFIED TORQUE SHALL BE APPLIED WITH A CALIBRATED TORQUE WRENCH. FOLLOWING ATTAINMENT OF10% OF THE SPECIFIED TORQUE, 100% OF THE SPECIFIED TORQUE SHALL BE REACHED WITHIN 7 OR FEWER COMPLETE TURNS OF NUT. THE SPECIFIED INSTALLATION TORQUE SHALL NOT BE EXCEEDED.
3. USE OF ZINC-COATED CARBON STEEL ANCHORS IS LIMITED TO DRY, INTERIOR LOCATIONS, UNLESS OTHERWISE NOTED. PROVIDE STAINLESS STEEL OR HOT-DIP GALVANIZED ANCHORS FOR APPLICATIONS EXPOSED TO EXTERIOR WEATHER CONDITIONS.
4. WHERE MECHANICAL ANCHORS ARE USED IN A STANDOFF CONFIGURATION (I.E., WHERE THE ATTACHMENT IS PREPARED FROM THE CONCRETE IN WHICH THE ANCHOR IS INSTALLED), A NUT AND WASHER SHALL BE PROVIDED AT THE CONCRETE SURFACE TO FACILITATE SETTING OF THE ANCHOR AND TO TRANSMIT AXIAL COMPRESSION LOADS INTO CONCRETE.
5. THE SPECIAL INSPECTOR SHALL BE ON THE JOBSITE CONTINUOUSLY DURING ANCHOR INSTALLATIONS, UNLESS OTHERWISE NOTED IN ICC-ES ESR, TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, HOLE DIMENSIONS, ANCHOR SPACINGS, EDGE DISTANCES, SLAB THICKNESS, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE.
6. THE TENSION TESTING OF THE MECHANICAL ANCHORS SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR AND REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO THE ENFORCEMENT AGENCY. IF ANY ANCHORS FAIL THE TENSION-TESTING REQUIREMENTS, THE ADDITIONAL TESTING REQUIREMENTS SHALL BE ACCEPTABLE TO THE ENFORCEMENT AGENCY.
7. TEST QUANTITY OF ANCHORS AS NOTED BELOW:

APPLICATION	QUANTITY
STRUCTURAL	100% OF BOLTS (10% FOR SILL PLATES)
NON-STRUCTURAL	50% OF BOLTS

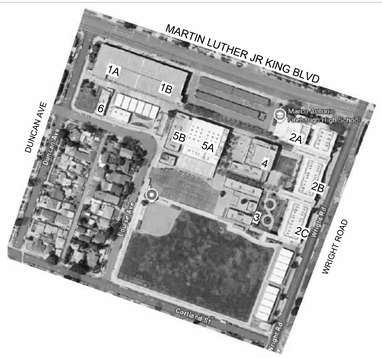
8. ANCHORS TO BE TESTED SHALL BE SELECTED AT RANDOM BY THE INSPECTOR.
9. ALL TESTING SHALL BE PERFORMED A MINIMUM OF 24 HOURS AFTER INSTALLATION
10. UNDERCUT ANCHORS THAT ALLOW VISUAL CONFIRMATION OF FULL SET NEED NOT TO BE TESTED, UNLESS OTHERWISE NOTED BY ENFORCEMENT AGENCY OR ENGINEER OF RECORD.
11. WHERE THE DESIGN TENSION ON ANCHORS IS LESS THAN 100 POUNDS AND THOSE ANCHORS ARE CLEARLY IDENTIFIED ON THE CONTRACT DOCUMENTS, ONLY 10 PERCENT OF THE ANCHORS NEED BE TESTED, UNLESS OTHERWISE NOTED BY ENFORCEMENT AGENCY OR ENGINEER OF RECORD.
12. THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS:
   A. HYDRAULIC RAM METHOD: THE ANCHOR SHALL HAVE NO OBSERVABLE MOVEMENT AT THE APPLICATION OF LOAD. FOR MECHANICAL ANCHORS, A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENTS IS THAT THE WASHER UNDER THE NUT BECOMES LOOSE.
   B. TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN ONE-HALF (1/2) TURN OF THE NUT.
   C. USE OF CALIBRATED SPRING LOADED WASHERS.
13. IF ANY ANCHOR FAILS TESTING, TEST ALL ANCHORS OF THE SAME TYPE, INSTALLED BY THE SAME TRADE, NOT PREVIOUSLY TESTED UNTIL TWENTY (20 CONSECUTIVE ANCHOR PASS, THEN RESUME THE INITIAL TEST FREQUENCY.
14. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND DRILLED-IN ANCHORS.
15. IF REBAR IS ENCOUNTERED DURING THE DRILLING, THE CONTRACTOR SHALL IMMEDIATELY TERMINATE DRILLING AND CONTACT THE ENGINEER OF RECORD. THE ENGINEER OF RECORD WILL AUTHORIZE USING ONE OF THE FOLLOWING PROCEDURES:
   A. IF THE ANCHOR MAY BE SHIFTED, FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT THE MINIMUM SPACING BETWEEN AN ABANDONED HOLE AND A DRILLED HOLE USED FOR A POST INSTALLED ANCHOR SHALL NOT BE LESS THAN 1-1/2 ANCHOR DIAMETERS UNLESS OTHERWISE APPROVED BY THE ENFORCEMENT AGENCY.
   B. IF THE ANCHOR LOCATION MAY NOT BE SHIFTED, CORE AN OVERSIZE HOLE AT THE DIRECTION OF THE ENGINEER OF RECORD AND GROUT AN APPROVED ANCHOR PLACE.
16. IF THE CONCRETE CRACKS DURING THE INSTALLATION OF THE ANCHOR, THE ANCHOR SHALL BE REMOVED OR ABANDONED.
17. MAXIMUM INSTALLATION TOREQUE SHALL BE PER MFR'S CODE EVALUATION REPORT.
18. FOR THE ANCHORS INSTALLED INTO CONCRETE USING SIMPSON STRONG-BOLT 2 (ICC ESR 3037, LAAR 25891)

STRUCTURAL CONCRETE		
ANCHOR DIAMETER	TORQUE (ft-lb) (STAINLESS STEEL)	TORQUE (ft-lb) (CARBON STEEL)
3/8"	30	30
1/2"	65	60
5/8"	80	90
3/4"	150	150

CONCRETE OVER METAL DECK		
ANCHOR DIAMETER	PLACED IN LOWER FLUTE	PLACED IN UPPER FLUTE
	TORQUE (ft/lbf)	
3/8"	30	30
1/2"	60	60
5/8"	80	-
3/4"	150	-

TITEN HD SCREW ANCHOR	
ANCHOR DIAMETER	TORQUE (ft-lb)
3/8"	50
1/2"	65
5/8"	100
3/4"	150

TITEN HD ROD HANGER	
ANCHOR DIAMETER	TORQUE (ft-lb)
3/8"	50
1/2"	50



STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED BY AN APPROVED AND LICENSED FABRICATOR IN ACCORDANCE WITH THE AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS (LATEST EDITION), AND WITH CHAPTER 22A OF THE CODE.
2. ALL STRUCTURAL STEEL SHALL CONFORM TO THE ASTM DESIGNATION AS INDICATED BELOW (UNO):

WF AND WT SHAPES	A992
PIPE COLUMNS	A53, GRADE B
HSS SECTIONS	A500, GRADE C
BOLTS	A325
BOLTS IN CONCRETE/MASONRY	A307
ANGLES, CHANNELS, PLATES	A36
ANCHOR RODS	F1554, GRADE 36 UNO

3. THE STRUCTURAL STEEL FABRICATOR SHALL FURNISH SHOP DRAWINGS TO THE ARCHITECT OF ALL STEEL FOR ARCHITECTS AND STRUCTURAL ENGINEERS REVIEW AND APPROVAL BEFORE FABRICATION.
4. BOLT HOLES USED IN STEEL SHALL BE 1/16" LARGER IN DIAMETER THAN NOMINAL SIZE OF BOLT USED, EXCEPT AS NOTED.
5. ALL STRUCTURAL STEEL SURFACES THAT ARE ENCASED IN CONCRETE, OR MASONRY, SPRAY ON FIREPROOFING, OR ARE ENCASED BY BUILDING FINISH, SHALL BE LEFT UNPAINTED.
6. ALL WELDING IS TO BE DONE BY CERTIFIED WELDERS APPROVED USING E70XX ELECTRODES (UNO). ALL WELDS SHALL BE IN CONFORMITY WITH THE PROJECT SPECIFICATIONS AND THE CODE FOR WELDING IN BUILDING CONSTRUCTION (AWS D1.1 LATEST REVISION) OF THE AMERICAN WELDING SOCIETY. SEE SPECIAL INSPECTIONS SECTION FOR WELDING INSPECTION REQUIREMENTS.
7. WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WHERE FILLET WELD SYMBOL IS GIVEN WITHOUT INDICATION OF SIZE, USE MINIMUM SIZE WELDS AS SPECIFIED IN AISC MANUAL OF STEEL CONSTRUCTION 13TH EDITION, TABLE J2.4.
8. ALL EXPOSED STRUCTURAL STEEL AND MISCELLANEOUS METAL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
9. ALL GROOVE WELDS SHALL BE FULL PENETRATION UNLESS NOTED OTHERWISE.
10. WHERE FINISH IS ATTACHED TO STRUCTURAL STEEL PROVIDE 1/2"DIA. BOLT HOLES @ 48" OC @ W, C, L, MEMBERS AND 1/2"Ø. WELDED STUDS @ 48" OC @ TUBE & PIPE MEMBERS FOR ATTACHMENT OF NAILERS, SEE ARCHITECTURAL DRAWINGS FOR FINISHES SEISMIC LOAD RESISTING SYSTEM (SLRS) IS DEFINED AS THE ASSEMBLY OF STRUCTURAL ELEMENTS IN THE BUILDING THAT RESISTS SEISMIC LOADS, INCLUDING COLUMNS, BEAMS, GIRDERS, STRUCTS, COLLECTORS, CHORDS AND BRACES, AND THE CONNECTIONS BETWEEN THESE ELEMENTS SPECIFICALLY DESIGN TO RESIST SEISMIC FORCES, AS DESIGNATED ON THE DRAWINGS.
11. WELD MATERIALS USED IN SLRS WELD CONNECTIONS SHALL CONFORM TO THE FOLLOWING TOUGHNESS REQUIREMENTS:
   A. WELD CONNECTIONS SHALL BE MADE WITH A FILLER METAL THAT CAN PRODUCE WELDS THAT HAVE A MINIMUM CHARPHY V-NOTCH TOUGHNESS OF 20 FT-LB AT 0 DEGREES F AS DETERMINED BY THE APPROPIATE AWS CLASSIFICATION TEST METHOD.
   B. WELDED CONNECTIONS DESIGNATED AS 'DEMAND CRITICAL' SHALL BE MADE WITH A FILLER METAL CAPABLE OF PROVIDING A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LB AT 20 DEGRESS F AS DETERMINED BY THE APPROPIATE AWS CLASSIFICATION TEST METHOD, AND 40 FT-LB AT 70 DEGRESS F AS DETERMINED BY APPENDIX X OF ANSI/AISC 341.

LOADING

1. DESIGN LOADS
   ROOF LIVE LOAD = 20 PSF
2. WIND ANALYSIS PER CHAPTER 16A OF THE CODE
   RISK CATEGORY = III
   BASIC WIND SPEED, V = 101 mph
   EXPOSURE = C
3. SEISMIC ANALYSIS PER CHAPTER 16A OF THE CODE UTILIZING THE FOLLOWING:
   A. PROCEDURE - EQUIVALENT LATERAL FORCE ANALYSIS (Rho = 1.3)
   B. MECHANICAL EQUIPMENT ANCHORAGE

SEISMIC PARAMETERS			
S_S =	1.688g	S_{DS} =	1.350g
S_1 =	0.603g	S_{D1} =	0.683g
F_a =	1.2	DESIGN CATEGORY =	D
F_v =	1.7	SITE CLASS =	D-DEFAULT
I_P =	1.00	F_p =	0.68
ap =	2.5	Ω_O =	2.0
R_P =	6.0		

SUBMITTALS

1. THE FOLLOWING CHECKED DEFERRED SUBMITTAL ITEMS MUST BE REVIEWED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL TO THE ARCHITECT FOR CONSIDERATION. THE ARCHITECT SHALL FORWARD THE SUBMITTAL TO THE ENGINEER OF RECORD (EOR) FOR REVIEW. IN NO CASE SHALL DEFERRED SUBMITTAL ITEMS BE DELIVERED TO THE JOBSITE PRIOR TO REVIEW AND APPROVAL BY THE BUILDING OFFICIAL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE TURN-AROUND TIME OF EACH PARTY AND TO MAKE APPROPRIATE TIME ALLOWANCES.
2. PLANS FOR THE DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED IN A TIMELY MANNER THAT ALLOWS A MINIMUM OF 15 WORKING DAYS FOR INITIAL PLAN REVIEW. ALL COMMENTS RELATED TO THE DEFERRED SUBMITTALS MUST BE ADDRESSED TO THE SATISFACTION OF THE PLAN CHECK DIVISION PRIOR TO THE APPROVAL OF THE SUBMITTAL ITEMS.

✓ STRUCTURAL STEEL SHOP DRAWINGS

SPECIAL INSPECTIONS

1. ALL SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF CBC CH 17A AND ANY ADDITIONAL REQUIREMENTS STATED IN THESE DRAWINGS AND/OR THE PROJECT SPECIFICATIONS.
2. THE OWNER SHALL PROVIDE FOR A SPECIAL INSPECTOR(S) WHO WILL PROVIDE SPECIAL INSPECTIONS OF THE CONSTRUCTION AS REQUIRED BY THE CODE OR ANY OTHER GOVERNING AUTHORITY. ANY SUCH DISCREPANCY SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
3. THE SPECIAL INSPECTOR SHALL BE QUALIFIED BY THE JURISDICTION TO PROVIDE INSPECTIONS OF THE SPECIFIC CONSTRUCTION OR OPERATION REQUIRED. PROOF OF SUCH QUALIFICATION SHALL BE PROVIDED TO THE BUILDING OFFICIAL PRIOR TO THE START OF INSPECTIONS.
4. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, THE ENGINEER, ARCHITECT AND THE CONTRACTOR IN A TIMELY MANNER. ALL DISCREPANCIES BETWEEN THE INSPECTORS WORK AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF NOT CORRECTED, TO THE ENGINEER, ARCHITECT AND THE BUILDING OFFICIAL. THE SPECIAL INSPECTOR SHALL KEEP RECORDS SUCH THAT ALL CONCERNED PARTIES CAN IDENTIFY THE WORK THAT WAS INSPECTED AND DISCREPANCIES AND SUCH THAT CORRECTED WORK IS RECORDED IN A TIMELY MANNER.
5. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN GENERAL CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE. IF NON-CONFORMING WORK REMAINS, THEN THIS WORK SHALL BE ITEMIZED AND NOTED IN THE REPORT.
6. THE CONTRACTOR SHALL GIVE ACCESS TO THE WORK REQUIRING SPECIAL INSPECTION. THE CONTRACTOR SHALL PROVIDE A DESIGNATED AREA, ON SITE, FOR THE SPECIAL INSPECTOR TO RECEIVE CORRESPONDENCE AND AN AREA TO LEAVE CORRESPONDENCE FOR THE BUILDING OFFICIAL AND THE CONTRACTOR. THE CONTRACTOR SHALL DESIGNATE A QUALITY CONTROL INDIVIDUAL THAT SHALL ACT AS THE MAIN POINT OF CONTACT FOR THE INSPECTOR, ENGINEER AND ARCHITECT REGARDING INSPECTIONS ISSUES.
7. A PRE-INSPECTION MEETING SHALL BE HELD AND ORGANIZED BY THE CONTRACTOR ONCE INSPECTION HAS STARTED. AS A MINIMUM, THE ENGINEER, SPECIAL INSPECTOR, ARCHITECT, BUILDING OFFICIAL, OWNER'S REPRESENTATIVE AND THE CONTRACTOR'S QUALITY CONTROL INDIVIDUAL SHALL BE INVITED TO ATTEND. THE PURPOSE OF THE MEETING WILL BE TO MEET EACH OTHER, CONFIRM THE SCOPE OF WORK FOR EACH DISCIPLINE, ESTABLISH COMMUNICATION PROTOCOLS AND ANSWER ANY QUESTIONS.

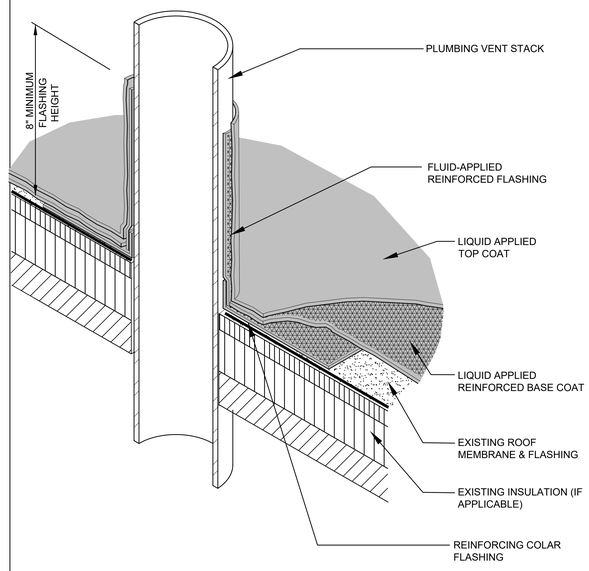
SHEET INDEX

SHEET NUMBER	SHEET NAME
T1	TITLE SHEET
AD01	BUILDING 2A (ADMIN / LIBRARY BLDG) WATERPROOFING DETAILS
AD02	BUILDING 5A (GYM BLDG) WATERPROOFING DETAILS
S2.01	BUILDING 2A (ADMIN / LIBRARY BLDG) ROOF FRAMING PLAN
S501	BUILDING 5A (GYM BLDG) ROOF FRAMIN GPLAN
S601	TYPICAL STEEL DETAILS
M0.1	MECHANICAL GENERAL NOTES AND SCHEDULES
M0.2	MECHANICAL SCHEDULES
MD2.1	BUILDING 2A DEMOLITION FIRST FLOOR PLAN
M2.1	BUILDING 2A CONSTRUCTION FIRST FLOOR PLAN
MD2.1A	UILDING 2A ENLARGED DEMOLITION FIRST FLOOR PLAN
M2.1A	BUILDING 2A ENLARGED CONSTRUCTION FIRST FLOOR PLAN
MD2.2	BUILDING 2A DEMOLITION SECOND FLOOR PLAN
M2.2	BUILDING 2A CONSTRUCTION SECOND FLOOR PLAN
MD2.2A	BUILDING 2A ENLARGED DEMOLITION SECOND FLOOR PLAN
M2.2A	BUILDING 2A ENLARGED CONSTRUCTION SECOND FLOOR PLAN
MD2.3	BUILDING 5A DEMOLITION FLOOR PLAN
M2.3	BUILDING 5A CONSTRUCTION FLOOR PLAN
MD3.1	BUILDING 2A DEMOLITION ROOF PLAN
M3.1	BUILDING 2A CONSTRUCTION ROOF PLAN
MD3.2	BUILDING 5A DEMOLITION ROOF PLAN
M3.2	BUILDING 5A CONSTRUCTION ROOF PLAN
M4.1	MECHANICAL DETAILS
M4.2	MECHANICAL DETAILS
M5.1	MECHANICAL CONTROLS
M6.1	MECHANIDAL T24 - BUILDING 2A
M6.2	MECHANICAL T24 - BUILDING 5A
E0.1	ELECTRICAL GENERAL NOTES, SYMBOLS LIST, AND ABBREVIATIONS
ED3.1	BUILDING 2A DEMOLITION ROOF PLAN
ED3.2	BUILDING 5A DEMOLITION ROOF PLAN
E2.1	BUILDING 2A CONSTRUCTION ROOF PLAN
E3.1	BUILDING 2A CONSTRUCTION ROOF PLAN
E3.2	BUILDING 5A CONSTRUCTION ROOF PLAN
P0.1	PLUMBING GENERAL NOTES AND LEGEND
PD3.1	BUILDING 2A DEMOLITION ROOF PLAN
P3.1	BUILDING 2A CONSTRUCTION ROOF PLAN
PD3.2	BUILDING 5A DEMOLITION ROOF PLAN
P3.2	BUILDING 5A CONSTRUCTION ROOF PLAN
P4.1	PLUMBING DETAILS

GENERAL NOTES CONTINUATION

23. CONTRACTOR SHALL PROVIDE THE ENGINEER AND DISTRICT WITH A CONSTRUCTION SCHEDULE (WHICH SHALL BE APPROVED IN WRITING) PRIOR TO START OF CONSTRUCTION. ALL ASPECTS OF CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO TRENCHING, TEMPORARY WALK AND DRIVE WAYS, UNIT SYSTEM DISABLING, PIPE REMOVAL/INSTALLATION, UNIT START-UP, CONTROLS INSTALLATION, PHASING, ETC. SHALL BE CONSIDERED.
24. THESE PLANS WERE PREPARED IN A MANNER CONSISTENT WITH EXISTING PROFESSIONAL STANDARDS AND WITH THE UNDERSTANDING THAT THESE DRAWINGS WOULD BE USED SOLELY BY QUALIFIED AND EXPERIENCED CONTRACTORS AND/OR DESIGN PROFESSIONALS FOR USE IN THE CON-STRUCTION OF THIS SPECIFIC PROJECT ONLY. THE DETAILS INDICATED ON THESE PLANS REPRESENT GENERAL TYPICAL DETAILS REQUIRED FOR COMMUNICATING THIS PROJECT'S DESIGN INTENT TO SUCH AN MAY NOT INCLUDE ALL THE DETAILS NECESSARY FOR THE FINAL COMPLETION OF THIS PROJECT.
25. FOR NEW WORK ABOVE CEILING, CAREFULLY REMOVE CEILING TILE AND SAVE. CUT AROUND GYPSUM BOARD OR PLASTER CEILING, PREPARE SURFACE TO RECEIVE NEW WORK. AFTER WORK IS DONE, REPAIR, RE-PLASTER OR INSTALL NEW GYPSUM WALLBOARD TO MATCH ADJACENT SURFACE AND REINSTALL ACOUSTICAL TILE. IF TILE IS DAMAGED, REPLACE WITH NEW TILE TO MATCH EXISTING.
26. OCCUPANTS OF THE EXISTING BUILDING SHALL BE SPARED INCONVENIENCE DUE TO THE CONTRACTOR'S WORK, DEBRIS, ETC. ENTRANCES AND CORR-IDORS SHALL BE PROTECTED AND KEPT FREE OF CONSTRUCTION. THE DISTRICT SHALL BE NOTIFIED IN ADVANCE OF TIMES OF DELIVERY OF EQUIPMENT AND

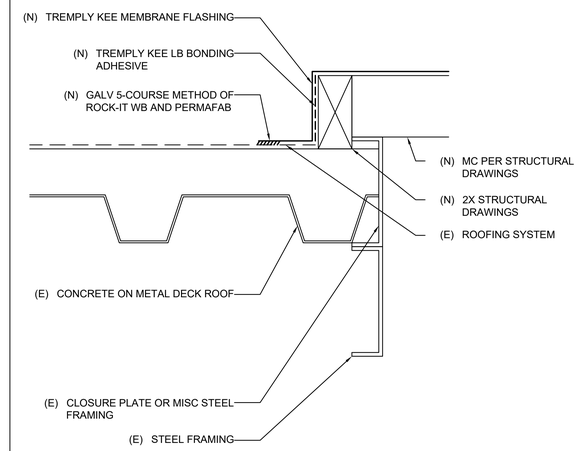
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NOTES

1. PRIMING OF THE SUBSTRATE MAY BE REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.

PLUMBING VENT OR PIPE PENETRATION FULLY REINFORCED RESTORATION	SCALE: NTS	NUMBER: 2



TREMPLY KEE TYPICAL MECHANICAL CURB UNIT 72, 73, 74	SCALE: NTS	NUMBER: 1

LINES ARCHITECTS
2040 Lomita Blvd, Suite 104
Lomita, CA 90717
Tel: (310) 634-3838

DSA A# 03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD, CA 90262

SHEET TITLE

BUILDING 2A
(ADMIN/LIBRARY BLDG)
WATERPROOFING DETAILS

APPROVED STAMP



REVISION SCHEDULE

Delta	Description	Issue Date
	DSA Submittal	01/09/26
	DSA Backcheck 1	03/12/26

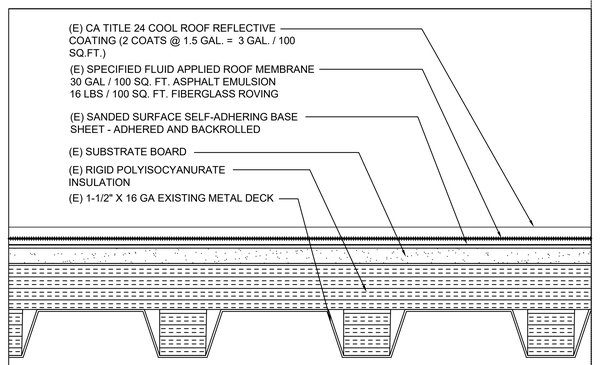
APPROVED BY: Approver
REVIEWED BY: Designer
DRAWN BY: Author
SCALE: As indicated
ISSUE DATE: Issue Date
SHEET NUMBER

AD01

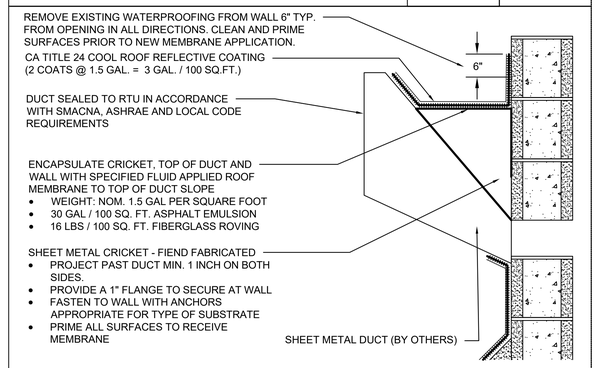
Date Plotted: 1/7/2026 10:24:44 AM
Alan Ines

Project # 2025-131_R26

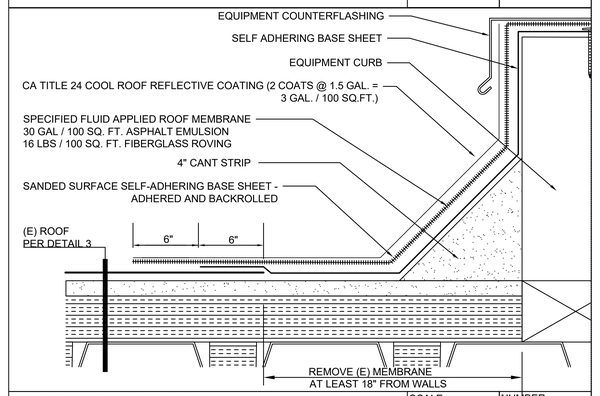
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(E) ROOF SYSTEM LAYOUT	SCALE: NTS	NUMBER: 3



DUCT TERMINATION AT (E) CMU WALL	SCALE: NTS	NUMBER: 2



EQUIPMENT CURB COUNTERFLASHING UNIT 58, 59, 60	SCALE: NTS	NUMBER: 1

JAMES ARCHITECTS
2040 Lomita Blvd, Suite 104
Lomita, CA 90717
Tel: (310) 634-3838

DSA A# 03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 5A (GYM BLDG)
WATERPROOFING DETAILS

APPROVED STAMP

LICENSED ARCHITECT
ALANN BERNARD INES
No. C-37608
REN 07-2027
STATE OF CALIFORNIA

REVISION SCHEDULE

Delta	Description	Issue Date
	DSA Submittal	01/09/26
	DSA Backcheck 1	03/12/26

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SHEET NUMBER

AD02

Date Plotted: 1/7/2026 10:24:44 AM
File Name:

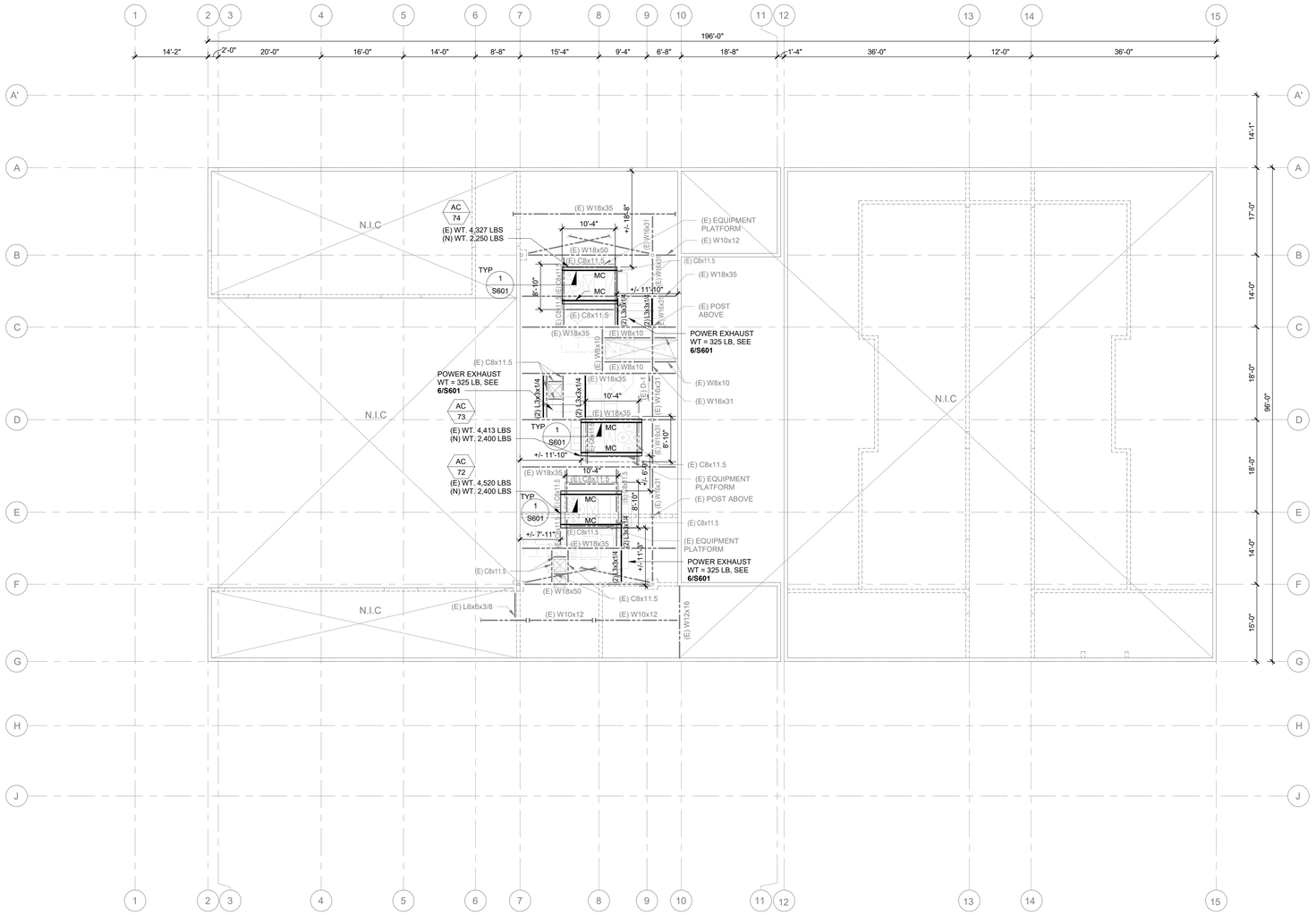
PER APPROVED **1/S8.011** UNDER #03-105745

NOTES:
1. EXISTING DECKING PER AS-BUILTS AS FOLLOWS:

MARK	STEEL DECK TYPE	GAGE	TOTAL THICKNESS (t)	CONC TYPE	REINF EACH WAY	STEEL DECK WELDING PATTERN				MAX UNSHORED SPAN		
						END ①	INT ③X⑥	EDGE	SEAM ②	SINGLE SPAN	DOUBLE SPAN	TRIPLE SPAN
D-1	VERCO W2 FORMLOK	18	5"	f'c=3000 psi LTWT	#4@16"OC EA WAY	3/4"ø PUDDLE WELD@12"OC	3/4"ø PUDDLE WELD@12"OC	3/4"ø PUDDLE WELD@12"OC	BUTTON PUNCH @ 36"OC	9'-0"	10'-0"	11'-0"
D-2	VERCO HSB	16	–	–	–	(7) WELDS PER SHEET	(7) WELDS PER SHEET	3/4"ø PUDDLE WELD@12"OC	TSWR@12"OC	10'-0"	10'-0"	10'-0"
D-3	VERCO HSB	16	–	–	–	(7) WELDS PER SHEET	(7) WELDS PER SHEET	3/4"ø PUDDLE WELD@12"OC	TSWR@12"OC	10'-0"	10'-0"	10'-0"
D-4	VERCO HSB	16	–	–	–	(7) WELDS PER SHEET	(7) WELDS PER SHEET	3/4"ø PUDDLE WELD@12"OC	TSWR@24"OC	10'-0"	10'-0"	10'-0"
D-5	VERCO W3 FORMLOK	18	6 1/2"	f'c=3000 psi LTWT	#4@16"OC EA WAY	3/4"ø PUDDLE WELD@12"OC	3/4"ø PUDDLE WELD@12"OC	3/4"ø PUDDLE WELD@12"OC	BUTTON PUNCH @ 36"OC	8'-6"	9'-6"	10'-0"
D-6	VERCO W2 FORMLOK	18	5"	f'c=3000 psi LTWT	#4@16"OC EA WAY	3/4"ø PUDDLE WELD@12"OC	3/4"ø PUDDLE WELD@12"OC	3/4"ø PUDDLE WELD@12"OC	BUTTON PUNCH @ 36"OC	9'-0"	10'-0"	11'-0"

2. CONTRACTOR TO FIELD VERIFY ALL RELEVANT EXISTING CONDITIONS PRIOR TO PROCEEDING. NOTIFY ENGINEER OF ANY DEVIATION FOR REVIEW AND DIRECTION PRIOR TO PROCEEDING.
3. SEE S5## SERIES DRAWINGS FOR TYPICAL SECTIONS AND DETAILS.

NOTE:
(E) CONDITIONS ARE SHOWN TO THE BEST OF OUR KNOWLEDGE AND BASED ON DRAWINGS NOT PREPARED BY PETRA STRUCTURAL ENGINEERS. THE CONTRACTOR SHOULD VERIFY ALL (E) FIELD CONDITIONS BEFORE COMMENCING WORK. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER IF CONDITIONS ARE DIFFERENT THAN SHOWN.



BUILDING 2A ROOF FRAMING PLAN

DSA APPL. #3-105745

3/32" = 1'-0"

1

N

AGENCY APPROVAL

DSA A# 03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 2A (ADMIN / LIBRARY BLDG) ROOF FRAMING PLAN

PETRA
STRUCTURAL ENGINEERS
17981 Sky Park Circle
Suite O Irvine, CA 92614
Tel: (949) 748-7170

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER PETER R. [illegible] No. 5[illegible] Exp. 6/30/27 STRUCTURAL STATE OF CALIFORNIA

REVISION SCHEDULE

Delta	Description	Issue Date
	DSA Submittal	01/09/26
	DSA Backcheck 1	03/12/26

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ISSUE DATE: Issue Date
SHEET NUMBER

S201

PROJECT NUMBER

Plot Date: 3/10/2026 12:02:25 PM
Project # 2025-131_R26

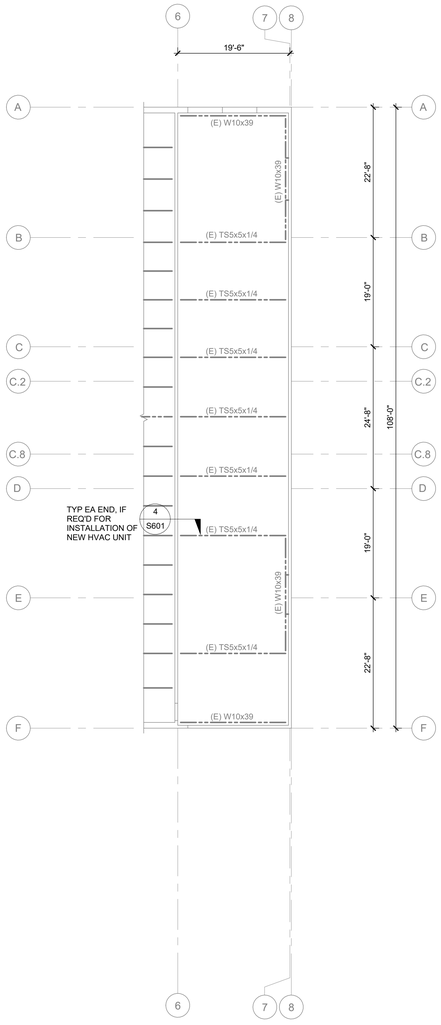
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File Name:

Project # 2025-131_R26

Plot Date: 3/10/2026 12:02:26 PM

NOTES:
1. SEE S2.01

NOTE:
(E) CONDITIONS ARE SHOWN TO THE BEST OF OUR KNOWLEDGE AND BASED ON DRAWINGS NOT PREPARED BY PETRA STRUCTURAL ENGINEERS. THE CONTRACTOR SHOULD VERIFY ALL (E) FIELD CONDITIONS BEFORE COMMENCING WORK. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER IF CONDITIONS ARE DIFFERENT THAN SHOWN.



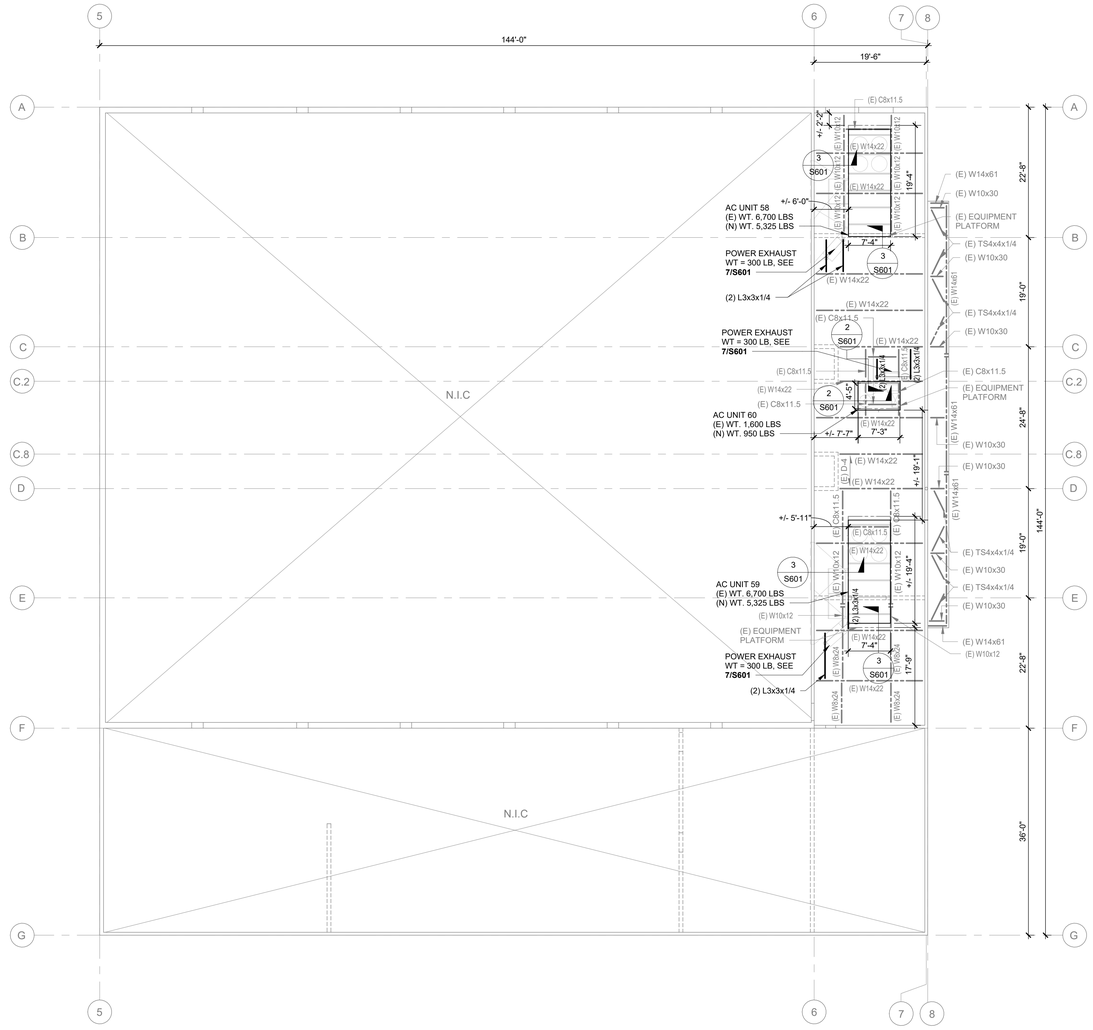
BUILDING 5A HIGH ROOF PARTIAL FRAMING PLAN

DSA APPL. #3-105745

3/32" = 1'-0"

2

N



BUILDING 5A ROOF FRAMING PLAN

DSA APPL. #3-105745

3/32" = 1'-0"

1

N

AGENCY APPROVAL

DSA A# 03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDIG 5A (GYM BLDG) ROOF FRAMING PLAN

PETRA
STRUCTURAL ENGINEERS
17981 Sky Park Circle
Suite O Irvine, CA 92614
Tel: (949) 748-7170

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER PETER ... No. 58... Exp. 6/30/27 STRUCTURAL STATE OF CALIFORNIA

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	DSA Submittal	01/09/26
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ISSUE DATE: Issue Date

SHEET NUMBER

S501

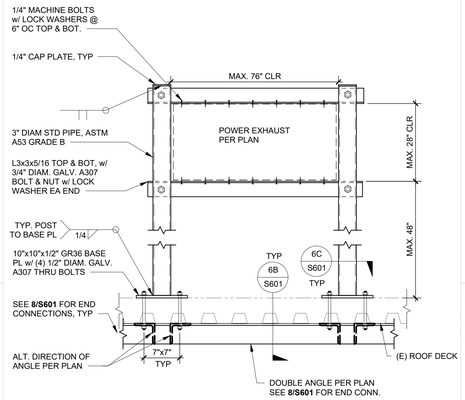
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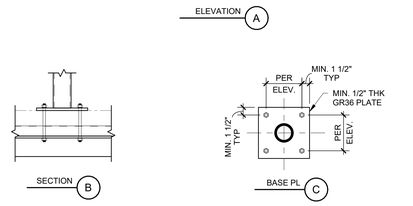
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Plot Date: 3/10/2026 12:02:26 PM

Project # 2025-131_R26

NOTE:
1. REMOVE ROOFING AND REPLACE OVER POST & BASE AFTER INSTALLATION.
2. ALL STEEL TO BE HOT-DIPPED GALVANIZED.
3. WELDING IN THIS DETAIL EXEMPT FROM DSA TESTING & INSPECTION.



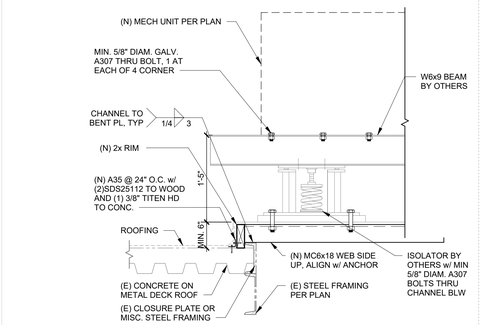


POWER EXHAUST SUPPORT DTL

SCALE: NTS

6

NOTE:
1. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING, NOTIFY ENGINEER OF ANY DEVIATION FOR REVIEW AND DIRECTION.
2. SEE 1/AD-01 AND DIVISION 7 SPECIFICATIONS FOR WATERPROOFING INFORMATION.
3. WELDING IN THIS DETAIL EXEMPT FROM DSA TESTING & INSPECTION.

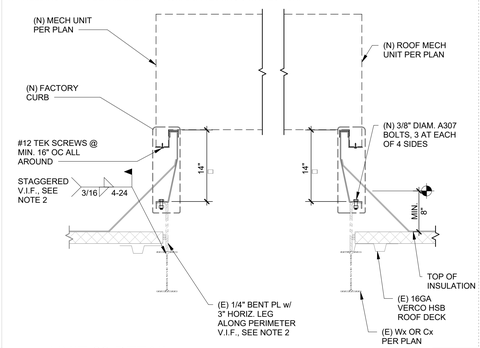


UNIT 72, 73, & 74 DETAIL

SCALE: NTS

1

NOTE:
1. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING, NOTIFY ENGINEER OF ANY DEVIATION FOR REVIEW AND DIRECTION.
2. IF PLATE NOT PRESENT, PROVIDE (N) 3/8" BENT PLATE AND WELDS, ALIGN w/ (N) CURB
3. SEE 1/AD-01 AND DIVISION 7 SPECIFICATIONS FOR WATERPROOFING INFORMATION.
4. WELDING IN THIS DETAIL EXEMPT FROM DSA TESTING & INSPECTION.

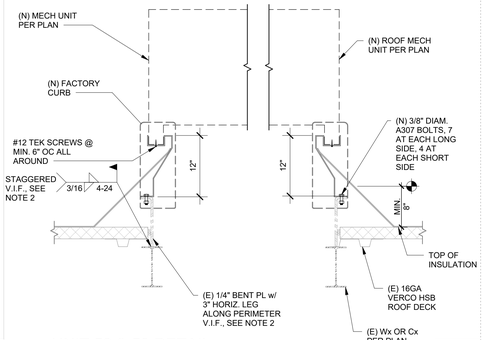


UNIT 60 DETAIL

SCALE: NTS

2

NOTE:
1. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING, NOTIFY ENGINEER OF ANY DEVIATION FOR REVIEW AND DIRECTION.
2. IF PLATE NOT PRESENT, PROVIDE (N) 3/8" BENT PLATE AND WELDS, ALIGN w/ (N) CURB
3. SEE 1/AD-01 AND DIVISION 7 SPECIFICATIONS FOR WATERPROOFING INFORMATION.
4. WELDING IN THIS DETAIL EXEMPT FROM DSA TESTING & INSPECTION.

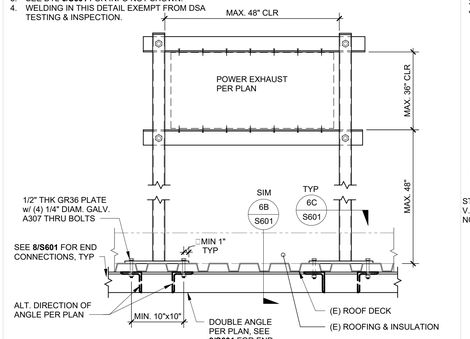


UNIT 58 & 59 DETAIL

SCALE: NTS

3

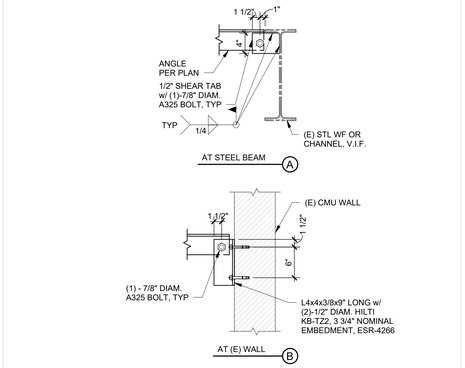
NOTE:
1. REMOVE ROOFING AND REPLACE OVER POST & BASE AFTER INSTALLATION.
2. ALL STEEL TO BE HOT-DIPPED GALVANIZED.
3. SEE DTL **6/S601** FOR INFO NOT SHOWN.
4. WELDING IN THIS DETAIL EXEMPT FROM DSA TESTING & INSPECTION.



POWER EXHAUST SUPPORT DTL

SCALE: NTS

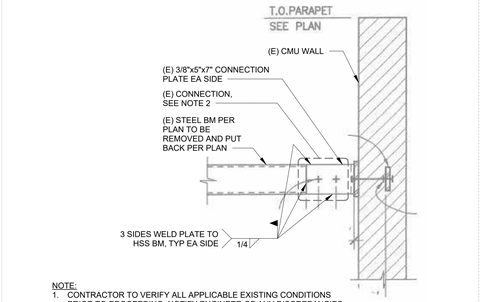
7



TYP STEEL CONNECTION DTL

SCALE: NTS

8



NOTE:
1. CONTRACTOR TO VERIFY ALL APPLICABLE EXISTING CONDITIONS PRIOR TO PROCEEDING, NOTIFY ENGINEER OF ANY DISCREPANCIES FOR REVIEW AND DIRECTION PRIOR TO PROCEEDING.
2. EXISTING CONNECTION IS WELDED BETWEEN THE SHEARTABS AND STEEL BM w/ ERECTION BOLTS. GRIND OFF WELDS, REMOVE ERECTION BOLTS AND TEMPORARILY REMOVE BEAMS FOR HVAC INSTALLATION. PUT BACK BEAM AND REWELD AS SHOWN AFTERWARDS. REPAINT / RECOAT CONNECTION AFTER COMPLETION OF ERECTION.

EXIST. BM DETAIL

SCALE: NTS

4

AGENCY APPROVAL

DSA A# 03-125870

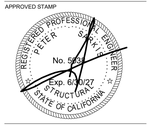
HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD, CA 90262

SHEET TITLE

TYPICAL STEEL DETAILS

PETRA
STRUCTURAL ENGINEERS
17981 Sky Park Circle
Suite O Irvine, CA 92614
Tel: (949) 748-7170

APPROVED STAMP



REVISION SCHEDULE

Delta	Description	Issue Date
	DSA Submittal	01/09/26
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SHEET NUMBER

S601

PROJECT NUMBER

Date Plotted: 3/10/2026 12:02:26 PM
File Name:

Plot Date:

Project # 2025-131_R25

GENERAL NOTES

----- GENERAL NOTES -----

1. ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE 2025 CALIFORNIA MECHANICAL CODE, 2025 CALIFORNIA BUILDING CODE, AND ALL OTHER APPLICABLE CODES AND REGULATIONS, INCLUDING 2025 BUILDING ENERGY EFFICIENCY STANDARDS DIVISION T-24.

2. 2025 CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE INCLUDING THE APPLICABLE MANDATORY MEASURES:

   - 5.201.1 CALIFORNIA ENERGY CODE. FOR THE PURPOSES OF MANDATORY ENERGY EFFICIENCY STANDARDS IN THIS CODE, THE CALIFORNIA ENERGY COMMISSION WILL CONTINUE TO ADOPT MANDATORY STANDARDS.

   - 5.504.3: COVERING OF DUCT OPENINGS AND PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. AT THE TIME OF ROUGH INSTALLATION AND DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING, COOLING AND VENTILATING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST, WATER AND DEBRIS WHICH MAY ENTER THE SYSTEM.

   - 5.504.5.3.1 FILTERS. IN MECHANICALLY VENTILATED BUILDINGS, PROVIDE REGULARLY OCCUPIED AREAS OF THE BUILDING WITH AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY THAT PROVIDES AT LEAST A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 13. MERV 13 FILTERS SHALL BE INSTALLED PRIOR TO OCCUPANCY AND RECOMMENDATIONS FOR MAINTENANCE WITH FILTERS OF THE SAME VALUE SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUAL. EXCEPTIONS:

   -A. EXISTING MECHANICAL EQUIPMENT.

   - 5.506.1 OUTSIDE AIR DELIVERY. FOR MECHANICALLY OR NATURALLY VENTILATED SPACES IN BUILDINGS, MEET THE MINIMUM REQUIREMENTS OF SECTION 121 (REQUIREMENTS FOR VENTILATION) OF THE 2025 CALIFORNIA ENERGY CODE, OR THE APPLICABLE LOCAL CODE, WHICHEVER IS MORE STRINGENT, AND DIVISION 1, CHAPTER 4 OF CCR, TITLE 8.

   - 5.508.1 OZONE DEPLETION AND GREENHOUSE GAS REDUCTIONS. INSTALL HVAC AND REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT SHALL COMPLY WITH 5.508.1.1 AND 5.508.1.2.

   - 5.508.1.1 CHLOROFLUOROCARBONS (CFCS). INSTALL HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT THAT DO NOT CONTAIN CFCS.

   - 5.508.1.2 HALONS. INSTALL HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT THAT DO NOT CONTAIN HALONS.

   - ADHESIVES, SEALANTS AND CAULKS SHALL MEET CALGREEN REQUIREMENTS.

   - INSTALLER AND SPECIAL INSPECTORS SHALL MEET ALL QUALIFICATIONS LISTED IN SECTION 702 OF THE 2025 CALIFORNIA GREEN BUILDING STANDARDS CODE.

3. COORDINATE ENTIRE INSTALLATION OF THE HVAC SYSTEM WITH THE WORK OF ALL OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. PROVIDE ALL FITTINGS, OFFSETS, AND TRANSITIONS AS REQUIRED FOR A COMPLETE WORKABLE INSTALLATION. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ITEMS TO BE PROVIDED BY OTHER TRADES WHERE MENTIONED IN THE CONTRACT DOCUMENTS PRIOR TO BID - NO EXCEPTIONS.

4. COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH THE ARCHITECTURAL REFLECTIVE CEILING PLAN. ELECTRICAL LIGHTING LAYOUT AND ARCHITECTURAL ROOM ELEVATIONS. THE ARCHITECT AND ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY CONFLICTS PRIOR TO FABRICATION AND INSTALLATION.

5. CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER OF CONSTRUCTION PHASING PRIOR TO START OF CONSTRUCTION, REMOVAL, AND/OR REPLACEMENT OF ANY EQUIPMENT. CONTRACTOR SHALL RECEIVE PERMISSION IN WRITING PRIOR TO THE START OF ANY WORK DURING ANY PHASE FOR WORK SHOWN HEREIN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT WORK AND ARRANGE HIS WORK IN A MANNER THAT WILL CAUSE MINIMAL INTERFERENCE WITH DAILY FUNCTIONS WITHIN THE FACILITY. ANY EXPECTED DOWNTIME SHALL BE COORDINATED WITH THE OWNER.

6. ALL EQUIPMENT, DUCTS, PIPING, AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHER-PROOFED AND PAINTED TO MATCH, COORDINATE WITH ARCHITECT PRIOR TO PAINTING.

7. THE OWNER ACKNOWLEDGES THAT THE DESIGN PROFESSIONAL'S PLANS ARE INSTRUMENTS OF PROFESSIONAL SERVICE. NEVERTHELESS, THE PLANS PREPARED UNDER THIS AGREEMENT SHALL BECOME THE PROPERTY OF THE OWNER UPON COMPLETION OF THE WORK. THE OWNER AGREES TO HOLD HARMLESS AND INDEMNIFY THE DESIGN PROFESSIONAL AGAINST ALL DAMAGES, CLAIMS AND LOSSES, INCLUDING DEFENSE COSTS, ARISING OUT OF ANY RESCUE OF THE PLANS WITHOUT THE WRITTEN AUTHORIZATION OF THE DESIGN PROFESSIONAL.

8. ALL DIMENSIONS SHOWN ON THESE PLANS ARE APPROXIMATE AND MUST BE CONFIRMED ON SITE.

9. PRIOR TO OCCUPANCY, THE ENTIRE H.V.A.C. SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH (AABC) ASSOCIATED AIR BALANCE COUNCIL STANDARDS BY AN INDEPENDENT AIR BALANCE CONTRACTOR. CERTIFICATION SHALL BE PROVIDED BY THE CONTRACTOR FOR AIR AS APPLICABLE. SYSTEMS SHALL BE BALANCED AS INDICATED ON PLANS INCLUDING FRESH AIR VENTILATION. WHERE THERE IS A CONFLICT WITH THE MECHANICAL PLANS, THE AIR BALANCE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO BALANCING OF SYSTEM. IF NOT THE AIR BALANCE CONTRACTOR SHALL BEAR ALL COSTS INCURRED FOR WORK THAT MUST BE RE-BALANCED DUE TO CONFLICTS ON CONTRACT DOCUMENTS. CONTRACTOR SHALL PROVIDE THREE COPIES OF THE AIR BALANCE REPORT TO THE ENGINEER FOR APPROVAL.

10. FOR INACCESSIBLE AREAS THE CONTRACTOR SHALL PROVIDE ACCESS PANELS FOR ALL DAMPERS, EQUIPMENT, SMOKE DETECTORS, AND CONTROL DEVICES. THESE PANELS SHALL MATCH THE RATING OF THE WALL AND/OR CEILING THAT THEY ARE LOCATED IN. MINIMUM ACCESS PANEL SIZES SHALL BE AS FOLLOWS:

    1) HAND ACCESS: 12"x12".

    2) BODY ACCESS: 30"x30" MIN. WHERE A LARGER ACCESS SIZE IS REQUIRED DUE TO INSTALLATION CONSTRAINTS, THE CONTRACTOR SHALL DO SO AT NO ADDITIONAL COST AND SHALL NOTIFY THE ARCHITECT AND ENGINEER OF DEVIATIONS PRIOR TO INSTALLATION.

11. ALL EQUIPMENT, ACCESSORIES, AND RELATED PIPING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.

12. MAINTENANCE LABEL SHALL BE AFFIXED TO ALL MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE OWNER'S USE.

13. PROVIDE MERV 13 EFFICIENCY THROWAWAY FILTERS FOR ALL AIR CONDITIONING UNITS. SEE EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR TYPE. SIZES SHALL BE AS RECOMMENDED BY THE MANUFACTURER, UNLESS OTHERWISE SPECIFIED.

14. AIR FILTERS SHALL BE STATE FIRE MARSHAL APPROVED AND LISTED. PREFORMED FILTERS HAVING COMBUSTIBLE FRAMING SHALL BE TESTED AS A COMPLETE ASSEMBLY. AIR FILTERS SHALL BE ACCESSIBLE FOR CLEANING OR REPLACEMENT.

15. ALL EQUIPMENT WITH MOVING PARTS SHALL BE PROVIDED WITH FLEXIBLE DUCT AND PIPE CONNECTIONS.

16. ALL EQUIPMENT SHALL BE LABELED AS TO THE SPACE IT SERVES.

17. ALL HVAC EQUIPMENT SHALL BE CERTIFIED BY THE CALIFORNIA ENERGY COMMISSION TO COMPLY WITH LATEST EFFICIENCY STANDARDS.

18. PROVIDE MANUAL VOLUME DAMPERS AND BACKDRAFT DAMPERS FOR FRESH AIR INTAKES ON ALL AIR HANDLING EQUIPMENT AND SUPPLY AIR FANS SERVING CONDITIONED SPACES.

19. ALL AIR HANDLING EQUIPMENT SERVING CONDITIONED SPACES SHALL PROVIDE CONTINUOUS FRESH AIR TO SPACES IN OCCUPIED MODE.

20. CONTRACTOR SHALL VERIFY ALL CLEARANCES AND INSTALL HVAC UNITS PER MANUFACTURER GUIDELINES.

21. CONTRACTOR TO SUBMIT ALL EQUIPMENT AND OTHER ACCESSORIES TO THE ENGINEER FOR APPROVAL PRIOR TO ANY ORDERING OF SUCH ITEMS.

22. CONTRACTOR SHALL BE RESPONSIBLE FOR COMMISSIONING OF EQUIPMENT.

23. PAINT EXPOSED SURFACES, WHETHER OR NOT COLORS ARE DESIGNATED IN SCHEDULES, EXCEPT WHERE A SURFACE OR MATERIAL IS SPECIFICALLY INDICATED NOT TO BE PAINTED OR IS TO REMAIN NATURAL. WHERE AN ITEM OR SURFACE IS NOT SPECIFICALLY MENTIONED, PAINT THE SAME AS SIMILAR ADJACENT MATERIALS OR SURFACES. IF COLOR OR FINISH IS NOT DESIGNATED, THE OWNER'S REPRESENTATIVE WILL SELECT FROM STANDARD COLORS OR FINISHES AVAILABLE.

    1) PAINTING INCLUDES FIELD PAINTING EXPOSED BARE AND COVERED PIPES AND DUCTS (INCLUDING COLOR CODING), HANGERS, EXPOSED STEEL AND IRON WORK, AND PRIMED METAL SURFACES OF MECHANICAL AND ELECTRICAL EQUIPMENT.

24. ALL MECHANICAL PIPING SYSTEMS, DUCTS, CONTROLS, VALVES, APPARATUS, ETC., EXCEPT THOSE THAT ARE INSTALLED IN INACCESSIBLE LOCATIONS IN PARTITIONS, WALLS, AND FLOORS, AND THOSE BURIED UNDERGROUND, SHALL BE PERMANENTLY MARKED AND IDENTIFIED AS INDICATED IN THE RELATED SPECIFICATIONS.

25. UNLESS SPECIFICALLY SHOWN ON THESE PLANS NO STRUCTURAL MEMBER SHALL BE CUT, DRILLED NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE CITY INSPECTOR.

26. THE HVAC UNITS ARE OWNER-FURNISHED AND CONTRACTOR-INSTALLED (OFCI) AND ARE CURRENTLY STORED AT TWO LOCATIONS:
    - 11300 WRIGHT RD, LYNWOOD, CA 90262
    - 2850 EAST DEL AMO BLVD, CARSON, CA 90221

    THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL HANDLING, LOADING, TRANSPORTATION, DELIVERY, UNLOADING, STAGING, AND INSTALLATION OF THE EQUIPMENT AT THE PROJECT SITE.

----- CONTROLS -----

1. CONTROL SCHEMATICS ARE FOR SEQUENCE ONLY. REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR ALL ELECTRICAL DEVICES REQUIRED.

2. ALL LINE VOLTAGE WIRING SHALL BE INSTALLED IN CONDUIT. ALL LINE VOLTAGE CONDUIT AND WIRING, INCLUDING FINAL CONNECTIONS, SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THE ELECTRICAL DRAWINGS OR SPECIFIED IN THE ELECTRICAL SECTION OF THE SPECIFICATIONS. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS OF ALL GOVERNING BODIES HAVING JURISDICTION THEREOF.

3. ALL LOW VOLTAGE CONDUIT AND WIRING AS APPLICABLE, INCLUDING FINAL CONNECTIONS, SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR AS INDICATED ON THE MECHANICAL DRAWINGS.

    A1) ALL LOW VOLTAGE WIRING SHALL BE INSTALLED IN CONDUIT.

    A2) ALL LOW VOLTAGE WIRING SHALL BE PLENUM - RATED.

    B) WHERE THE CONTROLS CONTRACTOR IS RETAINED BY THE OWNER, THEY SHALL BE RESPONSIBLE FOR THE FOLLOWING:

    1) FURNISH AND INSTALL ALL DEVICES, WIRING, AND TERMINATIONS REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION.

    2) COORDINATE ALL WORK AND REQUIREMENTS WITH OTHER TRADES INCLUDING GENERAL, MECHANICAL, AND ELECTRICAL CONTRACTORS PRIOR TO BID.

    3) CONTRACTOR SHALL FOLLOW ALL SUBMITTAL REQUIREMENTS PER DRAWINGS.

4. ELECTRICAL CONTRACTOR SHALL PROVIDE REQUIRED RELAY ACCESSORIES FOR CONNECTION OF 120 VOLT 1 PHASE VENTILATION EQUIPMENT TO 277 VOLT 1 PHASE LIGHTING AS APPLICABLE.

5. ALL THERMOSTATS SHALL HAVE LOCKABLE COVERS (WHERE INDICATED ON PLANS) AND SHALL BE OF THE ELECTRONIC, PROGRAMMABLE, AUTOMATIC CHANGEOVER TYPE TO SEQUENCE HEATING OR COOLING. SET POINT RANGE SHALL BE 10 DEGREES F. BETWEEN FULL HEATING AND COOLING. THEY SHALL HAVE CAPABILITY OF TERMINATING ALL HEATING AT A TEMPERATURE NO MORE THAN 70 DEGREES F., AND COOLING AT A TEMPERATURE NOT LESS THAN 78 DEGREES F. ADJUSTABLE TEMPERATURE DIFFERENTIAL SHALL BE 1- 1/2 DEGREES F. CONTROL LIMITS SHALL BE FROM 55 DEGREES F. TO 85 DEGREES F. MOUNT AT 48 INCHES ABOVE FLOOR OR AS REQUIRED BY LOCAL AUTHORITIES OR HANDICAP CODES.

    NOTES: 1) THERMOSTATS THAT ARE PART OF AN ENERGY MANAGEMENT SYSTEM SHALL FOLLOW CONTROL SPECIFICATIONS AND DRAWING REQUIREMENTS.

    2) SHOULD THE LOCATION OF THE THERMOSTAT NOT MEET THE ADA HEIGHT REQUIREMENTS DUE TO OBSTRUCTIONS, THEN AN ALTERNATE LOCATION SHALL BE PROPOSED OR REQUESTED BY THE CONTRACTOR THAT SHALL BE APPROVED BY THE ENGINEER AND ARCHITECT.

6. LINE VOLTAGE THERMOSTATS SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

7. CONTROLS CONTRACTOR AND AIR BALANCE CONTRACTOR SHALL COORDINATE WORK AND PERFORM NECESSARY TASKS AS REQUIRED TO OBTAIN AIR AND WATER FLOW QUANTITIES FOR SYSTEMS SHOWN HEREIN.

8. CONTROLS SHALL BE PROVIDED TO PROVIDE THE MINIMUM RATE OF OUTDOOR AIR REQUIRED BY THE STATE ENERGY REGULATIONS.

----- AIR DISTRIBUTION -----

1. ALL DUCTWORK SHALL BE SHEET METAL CONSTRUCTED OR SPIRAL, ERECTED, AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS, CHAPTER 6 OF THE MECHANICAL CODE, OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION.

2. CONTRACTOR SHALL PROVIDE EXTERIOR MANUAL VOLUME DAMPER HANDLES W/ LOCK-DOWN AFTER COMPLETING AIR BALANCE & OBTAIN FINAL APPROVAL FROM ENGINEER.

3. ALL RECTANGULAR DUCT TURNS IN OUTSIDE AIR DUCTS SHALL HAVE SINGLE WALL TURNING VANES WITH TRAILING EDGE, UNLESS OTHERWISE NOTED.

4. MANUAL VOLUME DAMPERS SHALL BE PROVIDED IN ALL DUCT BRANCHES TO INDIVIDUAL FRESH AIR INTAKE DUCTS. DAMPERS SHALL BE LOCATED AT THE BRANCH DUCT LOCATIONS. THE MECHANICAL CONTRACTOR SHALL COORDINATE LOCATIONS OF DAMPERS WITH THE AIR BALANCE CONTRACTOR PRIOR TO BID, SO THEY ARE ACCESSIBLE PRIOR TO INSTALLATION. IN LOCATIONS WHERE THESE DAMPERS ARE INACCESSIBLE, CABLE OPERATED ADJUSTMENT CONTROLS SHALL BE PROVIDED AT NO ADDITIONAL COST. OPPOSED BLADE DAMPERS SHALL NOT BE PERMITTED UNLESS NOTED OTHERWISE.

5. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING EXTERIOR LOUVERS CALLED OUT HEREIN. COORDINATE SIZE(S) AND LOCATION(S) WITH OTHER TRADES AS NECESSARY PRIOR TO BID.

6. ALL FLEXIBLE DUCTWORK SHALL NOT EXCEED FIVE FEET IN LENGTH TO RESPECTIVE DIFFUSERS, GRILLES, AND REGISTERS, OR OTHER AIR DEVICES.

7. ALL DUCT TURNS IN SUPPLY, RETURN, AND EXHAUST DUCTS SHALL HAVE TURNING VANES UNLESS OTHERWISE NOTED.

8. DUCTWORK HANDLING CONDITIONED AIR SHALL BE INSULATED AS INDICATED ON DRAWINGS. SUPPLY AND RETURN DUCT INSULATION SHALL BE MIN. 2" THICK, 3/4 LB./CUBIC FT. DENSITY ANDHAVE A MIN. VALUE OF R-8 WHERE LOCATED IN ONE OR MORE OF THE FOLLOWING SPACES:
   - OUTDOORS, OR
   - IN A SPACE BETWEEN THE ROOF AND AN INSULATED CEILING, OR
   - IN A SPACE DIRECTLY UNDER A ROOF WITH FIXED VENTS OR OPENINGS TO THE OUTSIDE OR UNCONDITIONED SPACES, OR
   - IN AN UNCONDITIONED CRAWLSPACE; OR
   - IN OTHER UNCONDITIONED SPACES

   PER 2025 CEC, OTHERWISE PROVIDE R-4.2 WHEN LOCATED IN CONDITIONED ATTIC SPACES ABOVE CEILINGS . ALL DUCTWORK EXPOSED ON ROOF SHALL BE 2" THICK, 1.5LB./CUBIC FT LINER. DENSITY DUCT INSULATION UNLESS OTHERWISE INDICATED OR SPECIFIED. ALL DUCT SIZES ARE NET CLEAR INSIDE DIMENSIONS. SEALED PER CHAPTER 6 MECHANICAL CODE REQUIREMENTS. PROVIDE PIPING AND DUCT INSULATION IN ACCORDANCE WITH THE LATEST STANDARDS OF THE CALIFORNIA ENERGY COMMISSION.

9. CLEAN AND SANITIZE ALL EXISTING SUPPLY AND RETURN DUCTWORK CONNECTED TO THE REPLACED HVAC EQUIPMENT PRIOR TO SYSTEM STARTUP. CLEANING SHALL BE PER NADCA ACR STANDARD AND SANITIZATION SHALL USE EPA-APPROVED PRODUCTS SUITABLE FOR OCCUPIED SCHOOL FACILITIES.

----- DEMOLITION -----

1. CONTRACTOR TO REMOVE (E) ROOFING AS REQUIRED AND RE-ROOF OVER NEW EQUIPMENT PAD WITH MEMBRANE TO MATCH (E). NEW ROOF MEMBRANE TO TIE INTO (E) MEMBRANE PER DISTRICT AND ARCHITECT. CONTRACTOR TO OBTAIN LATEST ROOFING DATA FROM THE DISTRICT.

LEGEND

SYMBOL	ABBR.	DESCRIPTION
	-	SUPPLY AIR RISER
	-	RETURN AIR RISER
	-	EXHAUST AIR RISER
	SAG	SUPPLY AIR GRILLE
	RAG	RETURN AIR GRILLE
	EAG	EXHAUST AIR GRILLE
	SWR	SIDEWALL REGISTER
	(L)	LINED DUCTWORK
	-	FLEXIBLE CONNECTION
	FC	FLEXIBLE CONNECTION
	-	NEW DUCT (SEE PLAN)
	-	EXISTING DUCT (SEE PLAN)
	-	DEMO DUCT (SEE PLAN)
	MVD	MANUAL VOLUME DAMPER
	BDD	BACKDRAFT DAMPER
SF	SFD	SMOKE / FIRE DAMPER
F	FD	FIRE DAMPER
	DL	DOOR LOUVER
U.C.	UC	UNDERCUT DOOR 3/4"
RS	RS	REFRIGERANT SUCTION LINE
RL	RL	REFRIGERANT LIQUID LINE
CD	CD	CONDENSATE DRAIN
	S.D.	SMOKE DETECTOR
	P.O.C.	POINT OF CONNECTION
	T-STAT	THERMOSTAT
H	H	HUMIDISTAT
TS	TS	TEMPERATURE SENSOR
OS	OS	OVERRIDE SWITCH
PD	PD	PRESSURE DIFFERENTIAL SWITCH
S	S	SWITCH
	O.C.	ON CENTER
	HWR	HOT-WATER RETURN
	HWS	HOT-WATER SUPPLY
	I.D.	INSIDE DIAMETER
	O.D.	OUTSIDE DIAMETER
	W/	WITH
	S/M	SHEET METAL
	S/S	STAINLESS STEEL
	G.C.	GENERAL CONTRACTOR
	VTR	VENT THRU ROOF
	EMS	ENERGY MANAGEMENT SYSTEM
	OBD	OPPOSED BLADE DAMPER
	FSC	FAN SPEED CONTROL
E	E	ITEMS FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR AS SPECIFIED ON THE ELECTRICAL CONTRACT DOCUMENTS
M	M	ITEMS FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR AS SPECIFIED ON THE MECHANICAL CONTRACT DOCUMENTS
EM	EM	ITEMS FURNISHED BY ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR.
ME	ME	ITEMS FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR.
	C.C.	CONTROLS CONTRACTOR
	CBD	COUNTER-BALANCE DAMPER
DS	D.S.	DOOR SWITCH

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5	MD2.1A	BUILDING 2A ENLARGED DEMOLITION UNDERFLOOR PLAN
6	M2.1A	BUILDING 2A ENLARGED CONSTRUCTION UNDERFLOOR PLAN
7	MD2.1B	BUILDING 2A ENLARGED DEMOLITION FIRST FLOOR PLAN
8	M2.1B	BUILDING 2A ENLARGED CONSTRUCTION FIRST FLOOR PLAN
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11	MD2.2A	BUILDING 2A ENALRGED DEMOLITION SECOND FLOOR PLAN
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13	MD2.3	BUILDING 5A DEMOLITION FLOOR PLAN
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15	MD3.1	BUILDING 2A DEMOLITION ROOF PLAN
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18	M3.2	BUILDING 5A CONSTRUCTION ROOF PLAN
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20	M4.2	MECHANICAL DETAILS
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22	M5.2	MECHANICAL CONTROLS
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SHOP DRAWINGS NOTES

CONTRACTOR SHALL SUBMIT A COMPLETE SET OF SHOP DRAWINGS 14 DAYS AFTER OFFICIAL PROJECT START DATE. INCLUSIVE OF ALL TRADE (MECHANICAL, PLUMBING, ELECTRICAL, ETC.) TO SCALE (MIN. 1/4"=1'-0") PRIOR TO FABRICATION AND OR INSTALLATION OF ANY AND OR ALL HVAC COMPONENTS, SYSTEM AND EQUIPMENT. SHOP DRAWINGS SHALL BE SUBMITTED AS A SINGLE ALL INCLUSIVE PACKAGE DIGITALLY (AUTOCAD 2014). AT A MINIMUM 4 HARD COPY SETS ARE TO BE SUBMITTED TO THE ENGINEER FOR REVIEW. INCOMPLETE AND UNCOORDINATED SUBMITTALS SHALL BE REJECTED UPON RECEIPT.

APPLICABLE CODES

2025 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1 TITLE 24 C.C.R.
2025 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
2025 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R. (2014 NEC)
2025 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
2025 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
2025 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 C.C.R.
2025 CALIFORNIA FIRE CODE , PART 9, TITLE 24 C.C.R.
2025 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.
2025 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 C.C.R.

TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.
AMERICAN WITH DISABILITY ACT.

PARTIAL LIST OF APPLICABLE STANDARDS.

NFPA 13	AUTOMATIC SPRINKLER SYSTEM. 2025 EDITION.
NFPA 24	PRIVATE FIRE MAINS 2019 EDITION.
NFPA 72	NATIONAL FIRE ALARM CODE (CALIFORNIA AMENDED) 2025 EDITION. (NOTE: SEE UL STANDARD 1971 FOR "VISUAL DEVICES")

REFERENCE CODE SECTION FOR NFPA STANDARDS - 2025 CBC (SFM) CHPT. 35

SEISMIC NOTES

MEP Component Anchorage Note

All mechanical, plumbing, and electrical components shall be anchored and installed per the details on the DSA-approved construction documents. The following components shall be anchored or braced to meet the force and displacement requirements prescribed in the 2025 CBC Sections 1617A.1.18 through 1617A.1.26 and ASCE 7-16 Chapters 13, 26, and 30:

1. All permanent equipment and components.
2. Temporary, movable or mobile equipment that is permanently attached (e.g. hard wired) to the building utility services such as electricity, gas or water. "Permanently attached" shall include all electrical connections except plugs for 110/220 volt receptacles having a flexible cable.
3. Temporary, movable or mobile equipment which is heavier than 400 pounds or has a center of mass located 4 feet or more above the adjacent floor or roof level that directly support the component is required to be restrained in a manner approved by DSA.

The following mechanical and electrical components shall be positively attached to the structure but need not demonstrate design compliance with the references noted above. These components shall have flexible connections provided between the component and associated ductwork, piping, and conduit. Flexible connections must allow movement in both transverse and longitudinal directions:

A. Components weighing less than 400 pounds and having a center of mass located 4 feet or less above the adjacent floor or roof level that directly support the component.

B. Components weighing less than 20 pounds, or in the case of distributed systems, less than 5 pounds per foot, which are suspended from a roof or floor or hung from a wall.

The anchorage of all mechanical, electrical and plumbing components shall be subject to the approval of the design professional in general responsible charge or structural engineer delegated responsibility and acceptance by DSA. The project inspector will verify that all components and equipment have been anchored in accordance with the above requirements.

Piping, Ductwork, and Electrical Distribution System Bracing Note

Piping, ductwork, and electrical distribution systems shall be braced to comply with the forces and displacements prescribed in ASCE 7-16 Section 13.3 as defined in ASCE 7-16 Sections 13.6.5, 13.6.6, 13.6.7, 13.6.8; and 2025 CBC, Sections 1617A.1.24, 1617A.1.25 and 1617A.1.26.

The method of showing bracing and attachments to the structure for the identified distribution system are as noted below. When bracing and attachments are based on a preapproved installation guide (e.g., OSHPD OPM for 2013 CBC or later), copies of the bracing system installation guide or manual shall be available on the jobsite prior to the start of and during the hanging and bracing of the distribution systems. The Structural Engineer of Record shall verify the adequacy of the structure to support the hanger and brace loads.

Mechanical Piping (MP), Mechanical Ducts (MD), Plumbing Piping (PP), Electrical Distribution Systems (E):

MP☒ MD☒ PP☐ E☐ Option 1: Detailed on the approved drawings with project specific notes and details.

MP☐ MD☐ PP☐ E☐ Option 2: Shall comply with the applicable OSHPD Pre-Approval (OPM #) #_____.

Date Plotted:
File Name:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
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SHEET TITLE

MECHANICAL GENERAL NOTES AND LEGENDS

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Consulting Engineers
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Anaheim, CA 92807
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APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BANEGAS
No. M29252
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE

Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver
REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER:

M0.1

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25

PACKAGED ROOF TOP UNIT SCHEDULE - BUILDINGS 2A AND 5A

SYM	MFR & MODEL #	AREA SERVICED	COOLING CAPACITY (MBH)		HEATING CAPACITY	GAS INPUT	EFFICIENCY	IEER-SEER/EER	CFM	OSA CFM	DCV CFM	ESP	FAN BHP	ELECTRICAL FLA					POWER EXHAUST ELECTRICAL							OPERATING WEIGHT	CURB WEIGHT	ECON/ PE WEIGHT	TOTAL MAX OPERATING WEIGHT	CONTROLS	ANCHORAGE	REMARKS
			TOTAL	SENSIBLE										V	PH	HZ	MCA	MOCP	V	PH	HZ	FLA	MCA	MOCP	HP						
AC 58	CARRIER 48K4AG50-5-6A0B0A0	BUILDING 5	576.0	463.2	324.0	400.0	81.0	13.0/ 9.8	20,000	7,300	4,000	1.0	32.42	460	3	60	130	150	460	3	60	31.5	31.5	44.6	4	5325	375	300	6000	6 M-5.1	3 S601	2,3,4,5,6,7
AC 59	CARRIER 48K4AG50-5-6A0B0A0	BUILDING 5	576.0	463.2	324.0	400.0	81.0	13.0/ 9.8	20,000	7,300	4,000	1.0	32.42	460	3	60	130	150	460	3	60	31.5	31.5	44.6	4	5325	375	300	6000	6 M-5.1	3 S601	2,3,4,5,6,7
AC 60	CARRIER 48FCDM12A3M6-3A0A0	BUILDING 5	125.8	96.2	148.0	180.0	-	15.0/ 11.0	4,000	540	965	0.5	1.41	460	3	60	25	30	460	3	60	4.5	5.6	10.1	2	950	260	260	1470	5 M-5.1	2 S601	1,2,3,4,5,6,7
AC 72	CARRIER 48FCDM28AJM6-3U0A0	BUILDING 2A	295.9	220.5	178.0	220.0	81.0	14.0/ 9.8	10,000	1850	905	0.5	6.27	460	3	60	56.7	70	460	3	60	14.3	17.9	32.2	6	2400	1100	325	3825	4 M-5.1	1 S601	1,2,3,4,5,6,7,8
AC 73	CARRIER 48FCDM28AJM6-3U0A0	BUILDING 2A	295.9	220.5	178.0	220.0	81.0	14.0/ 9.8	10,000	1700	165	0.5	6.27	460	3	60	56.7	70	460	3	60	14.3	17.9	32.2	6	2400	1100	325	3825	5 M-5.1	1 S601	1,2,3,4,5,6,7
AC 74	CARRIER 48FCDM24AJM6-3U0A0	BUILDING 2A	256.1	184.9	178.0	220.0	81.0	14.5/ 10.0	8,000	2265	1,175	0.5	3.81	460	3	60	50.8	60	460	3	60	10.5	13.1	23.6	4	2250	1100	325	3675	4 M-5.1	1 S601	1,2,3,4,5,6,7,8

REMARKS:
1. PROVIDE HAIL GUARD
2. PROVIDE 2" MERV 13 FILTER.
3. PROVIDE T-24 COMPLAINT THERMOSTAT (CARRIER OR APPROVED EQUAL)
4. PROVIDE T-24 COMPLIANT MICROMETL LOW LEAK DRY BULB ECONOMIZER WITH MODULATING POWER EXHAUST. PROVIDE SEPARATE POWER FOR POWER EXHAUST. PROVIDE FDD (FAULT DETECTION DIAGNOSTICS) FOR ECONOMIZER.
5. DEMAND CONTROL VENTILATION.
6. PROVIDE NEW SMOKE DETECTOR TO SHUT DOWN THE UNIT UPON SMOKE DETECTION AND SEND SIGNAL TO FIRE ALARM PANEL PER CMC 609.1. SEE THE ASSOCIATED FLOOR PLAN FOR ADDITIONAL DETAILS.
7. LOW GAS HEAT.
8. PROVIDE VVT CONTROLS.

NOTE:
- INSTALL UNITS AND PROVIDE ALL ACCESSORIES AS PER MANUFACTURER GUIDELINES.
- AC-58 AND PE, AC-59 AND PE, AC-60, AC-72 AND PE, AC-73 AND PE, AND AC-74 AND PE PREPURCHASED BY DISTRICT.
- AC-60 VERTICAL PE TO BE PURCHASED BY MECHANICAL CONTRACTOR.
- ALL AC UNITS LISTED ABOVE ARE PRE-PURCHASED BY THE DISTRICT AND CURRENTLY STORED AT DISTRICT FACILITIES. COORDINATE ALL EQUIPMENT WITH DISTRICT PRIOR TO INSTALLATION.

VVT TERMINAL UNIT SCHEDULE - BUILDING 2 FIRST FLOOR

SYM	MFR & MODEL #	CFM		SIZE	VOLTAGE	WEIGHT
		MAX	MIN			
ZD 49	VVT DAMPER	380	95	12"Ø	24	15
ZD 51	VVT DAMPER	355	90	12"Ø	24	15
ZD 52	VVT DAMPER	670	170	12"Ø	24	15
ZD 54	VVT DAMPER	440	110	12"Ø	24	15
ZD 55	VVT DAMPER	150	40	8"Ø	24	15
ZD 56	VVT DAMPER	100	25	8"Ø	24	15
ZD 57	VVT DAMPER	60	15	6"Ø	24	15
ZD 58	VVT DAMPER	60	15	6"Ø	24	15
ZD 59	VVT DAMPER	820	205	12"Ø	24	15
ZD 61	VVT DAMPER	730	185	14"Ø	24	15
ZD 62	VVT DAMPER	630	160	14"Ø	24	15
ZD 65	VVT DAMPER	580	145	12"Ø	24	15
ZD 67	VVT DAMPER	155	40	8"Ø	24	15
ZD 68	VVT DAMPER	65	15	8"Ø	24	15
ZD 70	VVT DAMPER	140	35	8"Ø	24	15
ZD 71	VVT DAMPER	210	55	10"Ø	24	15
ZD 72	VVT DAMPER	140	35	8"Ø	24	15
ZD 73	VVT DAMPER	175	45	8"Ø	24	15
ZD 74	VVT DAMPER	355	90	12"Ø	24	15
ZD 75	VVT DAMPER	270	70	8"Ø	24	15
ZD 76	VVT DAMPER	385	95	12"Ø	24	15
ZD 78	VVT DAMPER	690	175	12"Ø	24	15
ZD 79	VVT DAMPER	120	30	8"Ø	24	15

VVT TERMINAL UNIT SCHEDULE - BUILDING 2 SECOND FLOOR

SYM	MFR & MODEL #	CFM		SIZE	VOLTAGE	WEIGHT
		MAX	MIN			
BD 1	CARRIER SR-500	3990	1000	M (28x16)	24	25
BD 2	CARRIER SR-500	5270	1320	N (30x20)	24	25
ZD 45	VVT DAMPER	350	90	12"Ø	24	15
ZD 46	VVT DAMPER	260	65	12"Ø	24	15
ZD 48	VVT DAMPER	630	160	12"Ø	24	15
ZD 49	VVT DAMPER	470	120	12"Ø	24	15
ZD 51	VVT DAMPER	1800	450	J (18x14)	24	15
ZD 52	VVT DAMPER	155	40	8"Ø	24	15
ZD 53	VVT DAMPER	550	140	12"Ø	24	15
ZD 54	VVT DAMPER	190	50	8"Ø	24	15
ZD 55	VVT DAMPER	1180	295	16"Ø	24	15
ZD 58	VVT DAMPER	160	40	8"Ø	24	15
ZD 59	VVT DAMPER	630	140	12"Ø	24	15
ZD 61	VVT DAMPER	255	65	12"Ø	24	15
ZD 62	VVT DAMPER	140	35	8"Ø	24	15
ZD 63	VVT DAMPER	800	200	12"Ø	24	15
ZD 69	VVT DAMPER	420	150	12"Ø	24	15

Date Plotted:
Plot By:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
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SHEET TITLE

MECHANICAL SCHEDULES

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APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BANEGAS
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STATE OF CALIFORNIA

REVISION SCHEDULE

Delta	Description	Issue Date
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	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

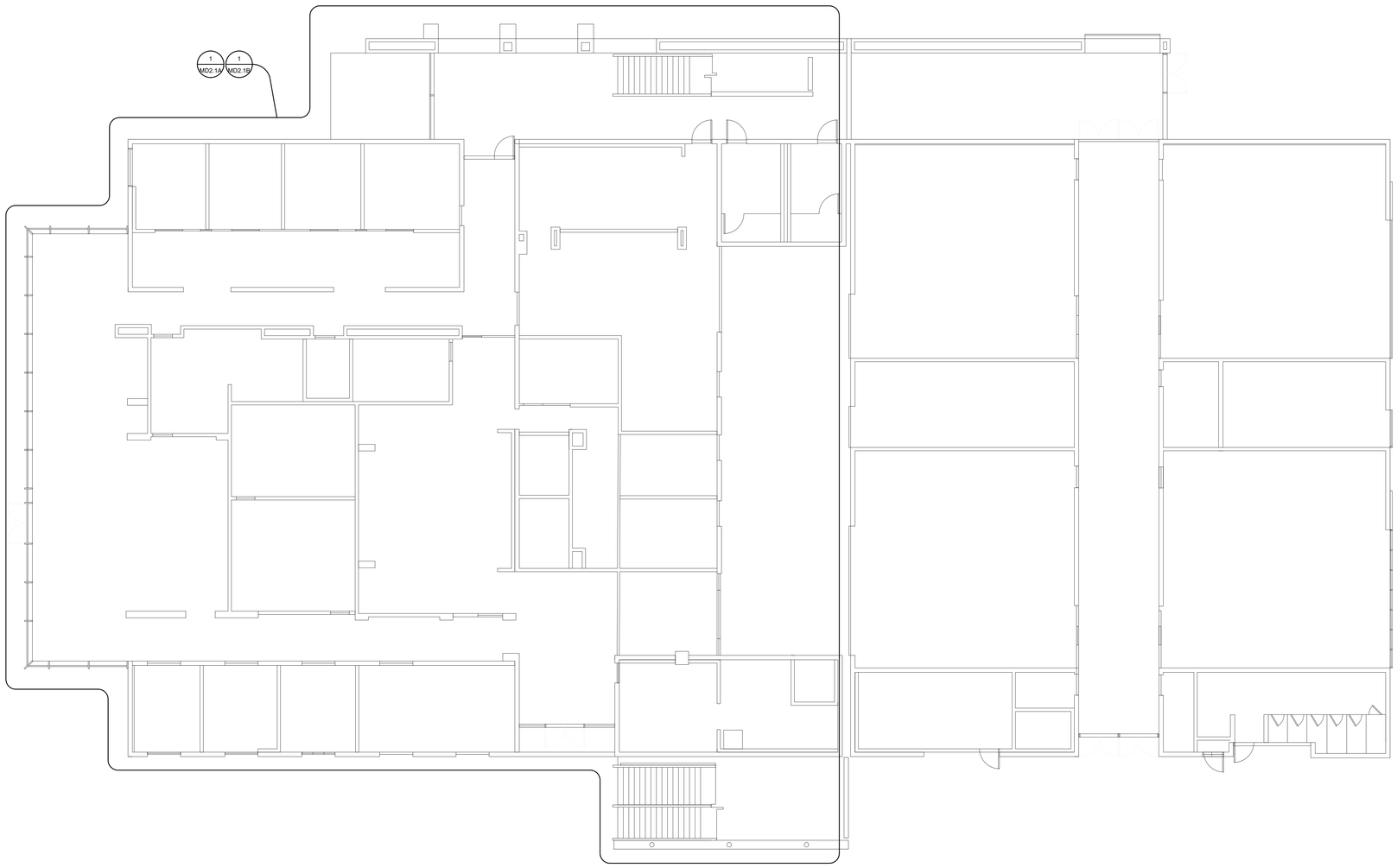
APPROVED BY: Approver
REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER:

M0.2

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



N

BUILDING 2A DEMOLITION FIRST FLOOR PLAN | 1/8" = 1'-0" | 1

Date Plotted:
File Name:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
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CA 90262

SHEET TITLE

BUILDING 2A DEMOLITION
FIRST FLOOR PLAN

optimum energy design
Consulting Engineers
3200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BAERWALD
No. M29253
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
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	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

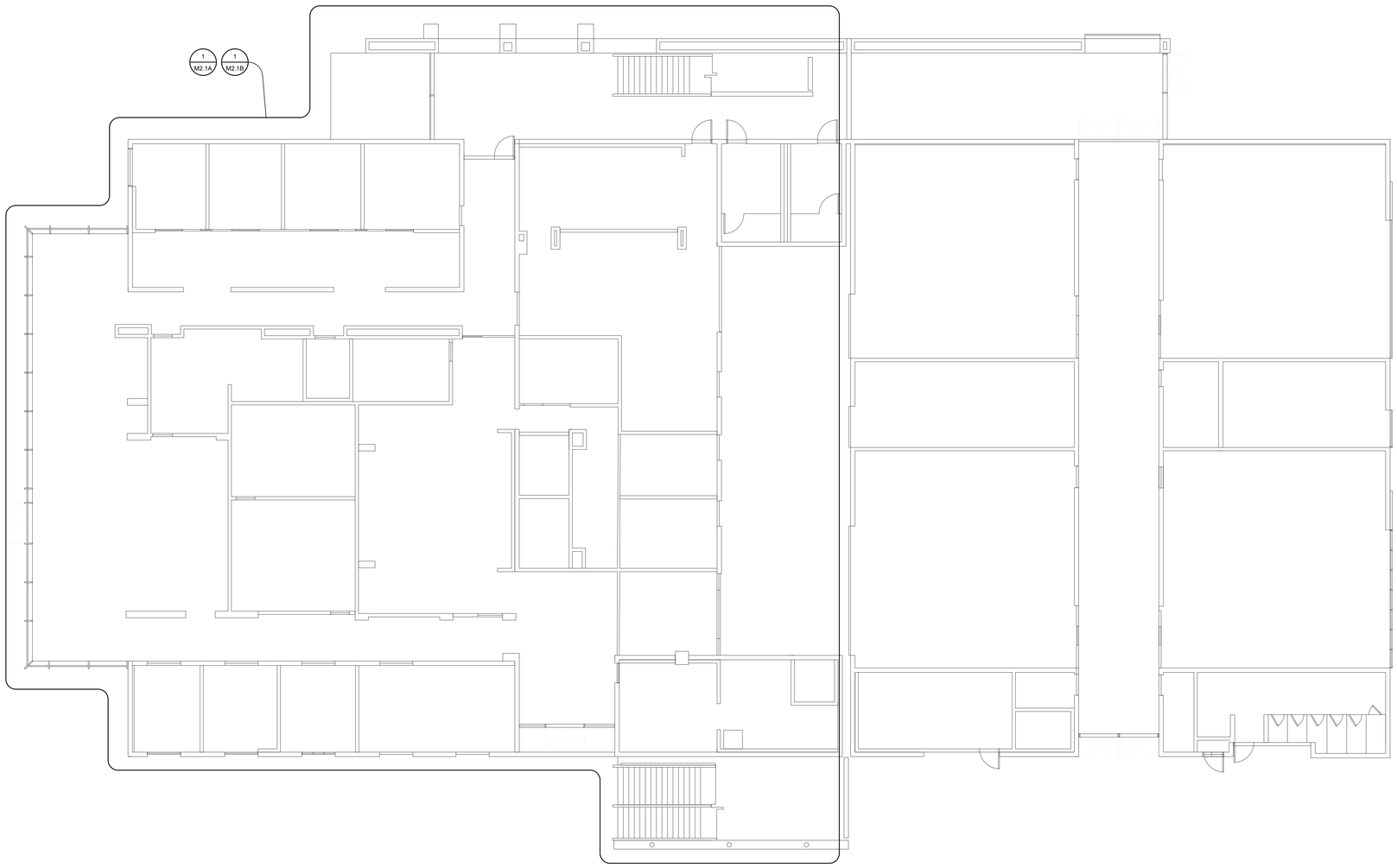
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REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER

MD2.1

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



N

BUILDING 2A CONSTRUCTION FIRST FLOOR PLAN | 1/8" = 1'-0" | 1

Date Plotted:
File Name:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 2A
CONSTRUCTION
FIRST FLOOR PLAN

optimum energy design
Consulting Engineers
3200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BAERWALD
No. M29253
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

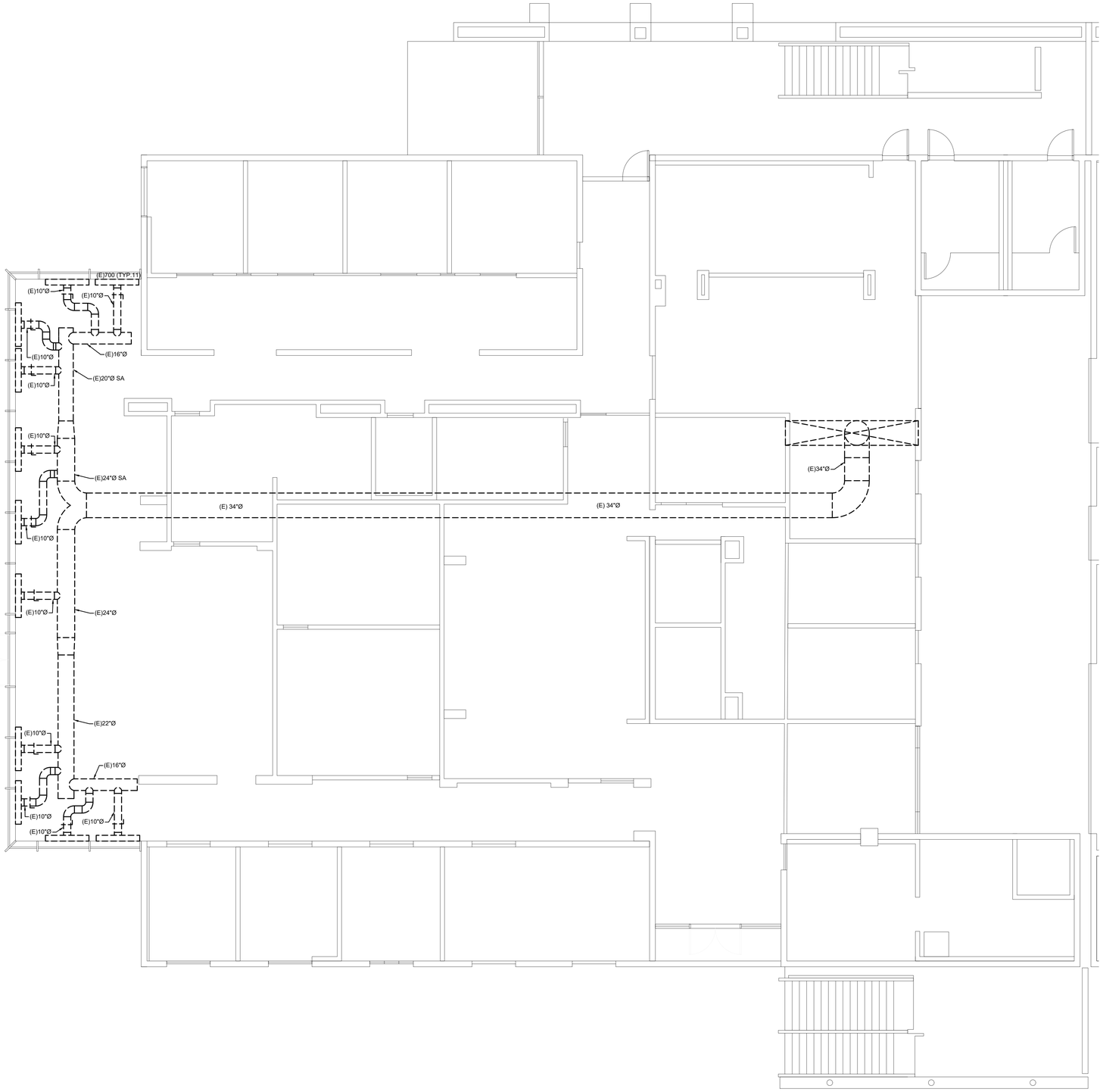
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SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER

M2.1

PROJECT NUMBER

Project # 2025-131_R25

Plot Date:



N

BUILDING 2A ENLARGED DEMOLITION UNDERFLOOR PLAN | 3/16" = 1'-0" | 1

Date Plotted:
File Name:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 2A ENLARGED
DEMOLITION
UNDERFLOOR PLAN

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BANEZUELA
No. M29253
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
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	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

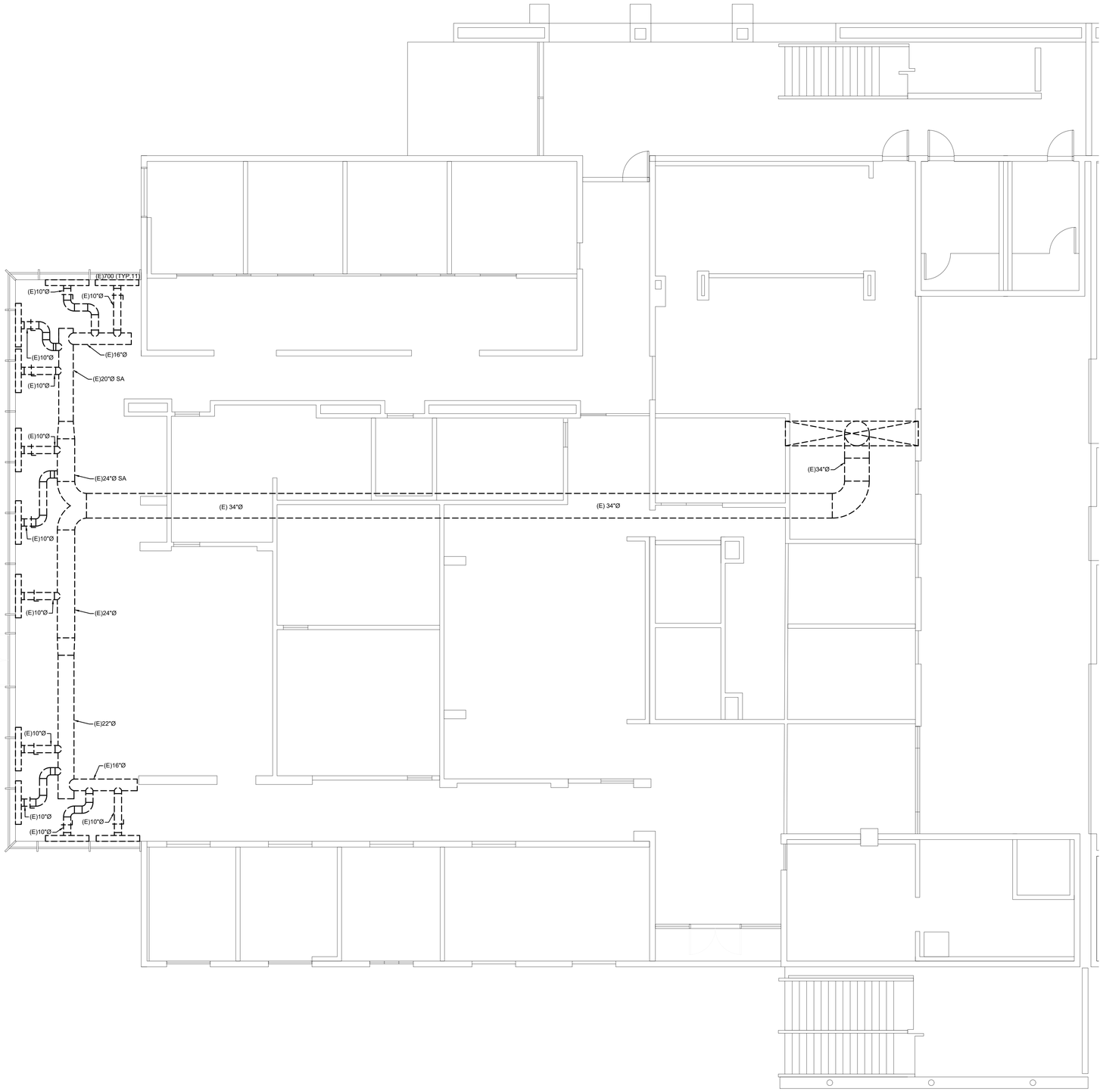
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DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER

MD2.1A

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



N

BUILDING 2A ENLARGED CONSTRUCTION UNDERFLOOR PLAN | 3/16" = 1'-0" | 1

CONSTRUCTION KEY NOTES:

1. PROVIDE NEW THERMOSTAT. INSTALL PER DETAIL 1/M4.1.
2. PROVIDE NEW ZONE DAMPER, DUCT CONNECTIONS, AND CONTROLS.

GENERAL CONSTRUCTION NOTES :

1. CONTRACTOR SHALL REMOVE (E) CEILING GRID AND TILES AS REQUIRED TO INSTALL NEW ZONE DAMPER. RE-INSTALL GRID AND TILES AFTER NEW WORK HAS BEEN COMPLETED. CONTRACTOR SHALL REPLACE ANY DAMAGED GRIDS AND TILES TO MATCH EXISTING CEILING CONDITION AND COLOR.

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 2A ENLARGED CONSTRUCTION UNDERFLOOR PLAN

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BANEZUELA
No. M29253
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE

Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver
REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER:

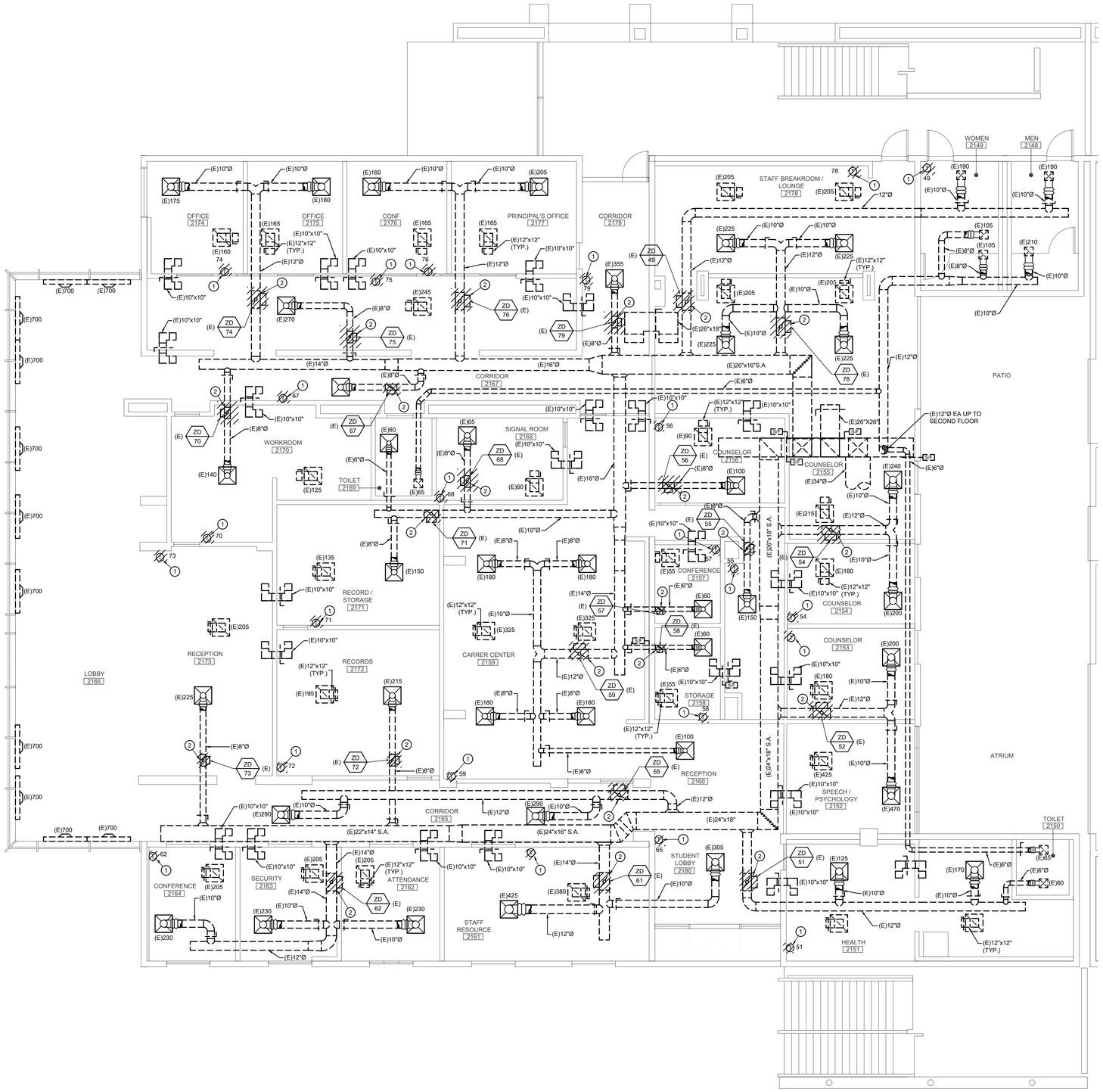
M2.1A

PROJECT NUMBER

Date Plotted:
File Name

Plot Date:

Project # 2025-131_R25



N

DEMOLITION KEY NOTES:

1. DEMO AND REMOVE EXISTING THERMOSTAT.
2. DEMO AND REMOVE EXISTING ZONE DAMPER, DUCT CONNECTIONS, AND CONTROLS.

GENERAL DEMOLITION NOTES :

1. CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY THE SCOPE OF DEMOLITION WORK
2. DEMOLITION IS INDICATED AS A CONVENIENCE FOR THE CONTRACTOR AND MAY NOT INDICATE THE FULL SCOPE OF DEMOLITION REQUIRED TO COMPLETE THE NEW WORK.
3. PATH AND REPAIR EXISTING SURFACES AS REQUIRED TO COMPLETE THE NEW WORK.
4. ALL NEW WORK SHALL MATCH EXISTING IN KIND, QUALITY AND FINISH U.O.N.
5. CONTRACTOR SHALL INCLUDE IN THE SCOPE OF WORK ALL WORK REQUIRED TO PATCH, FINISH, MATCH, AND BLEND NEW SURFACES TO EXISTING AS IMPACTED BY THE AREAS OF NEW WORK.
6. NO DEMOLITION TO BEGIN UNTIL PLANS SHOWING DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

BUILDING 2A ENLARGED DEMOLITION FIRST FLOOR PLAN | 3/16" = 1'-0" | 1

Date Plotted:
File Name:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD, CA 90262

SHEET TITLE

BUILDING 2A ENLARGED DEMOLITION FIRST FLOOR PLAN

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BANERJEE
No. M29253
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
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	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

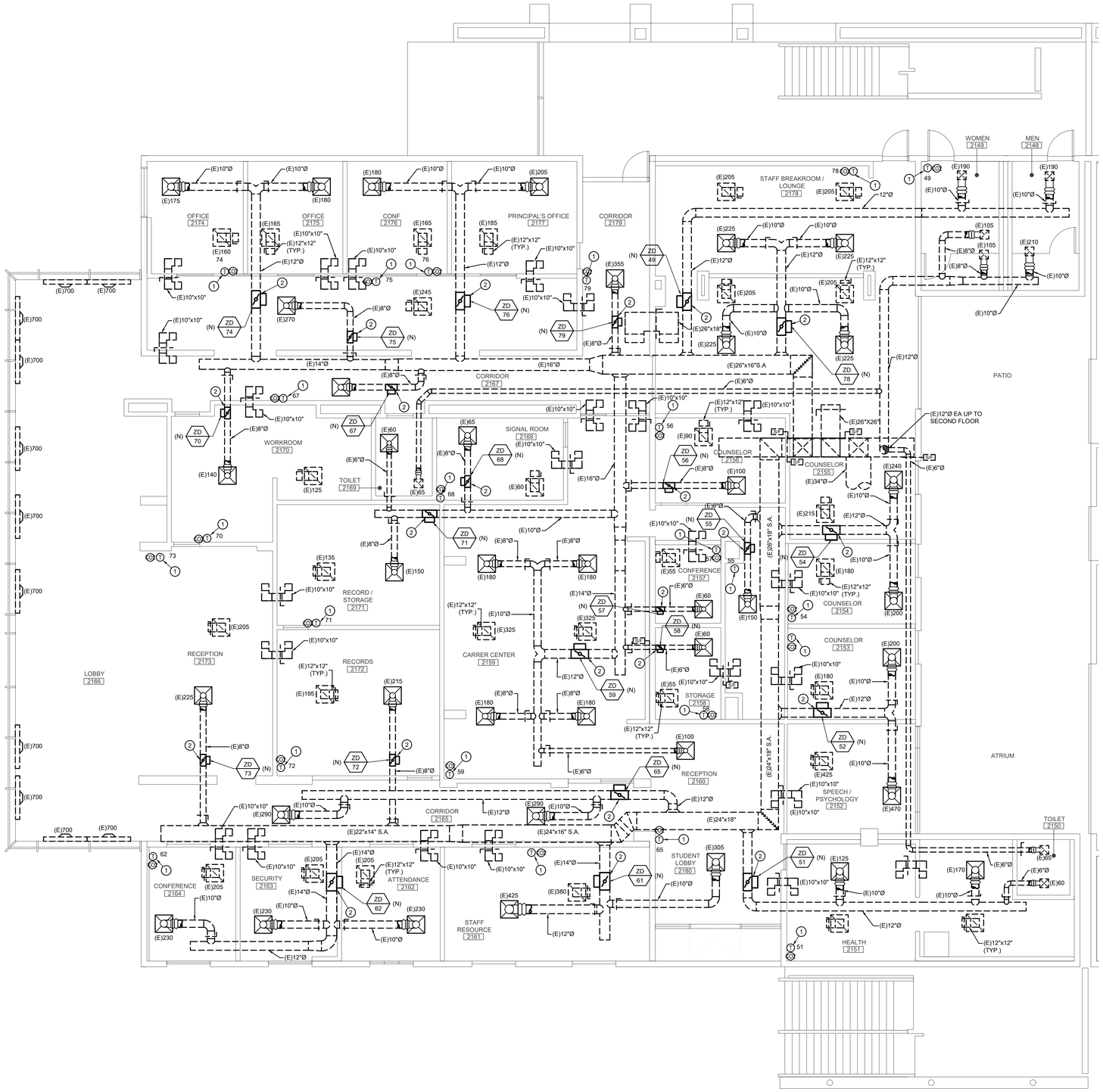
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REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER

MD2.1B

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



CONSTRUCTION KEY NOTES:

1. PROVIDE NEW THERMOSTAT. INSTALL PER DETAIL 1/M4.1.
2. PROVIDE NEW ZONE DAMPER, DUCT CONNECTIONS, AND CONTROLS. PROVIDE ALL REQUIRED DUCT FITTINGS.

GENERAL CONSTRUCTION NOTES :

1. CONTRACTOR SHALL REMOVE (E) CEILING GRID AND TILES AS REQUIRED TO INSTALL NEW ZONE DAMPER. RE-INSTALL GRID AND TILES AFTER NEW WORK HAS BEEN COMPLETED. CONTRACTOR SHALL REPLACE ANY DAMAGED GRIDS AND TILES TO MATCH EXISTING CEILING CONDITION AND COLOR.
2. CONTRACTOR SHALL TEST AND BALANCE ALL AIR DIFFUSERS TO ORIGINAL DESIGN CONDITION.

N

BUILDING 2A ENLARGED CONSTRUCTION FIRST FLOOR PLAN | 3/16" = 1'-0" | 1

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD, CA 90262

SHEET TITLE

BUILDING 2A ENLARGED CONSTRUCTION FIRST FLOOR PLAN

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
Robert Bandle
No. M29252
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE

Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver
REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
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SHEET NUMBER

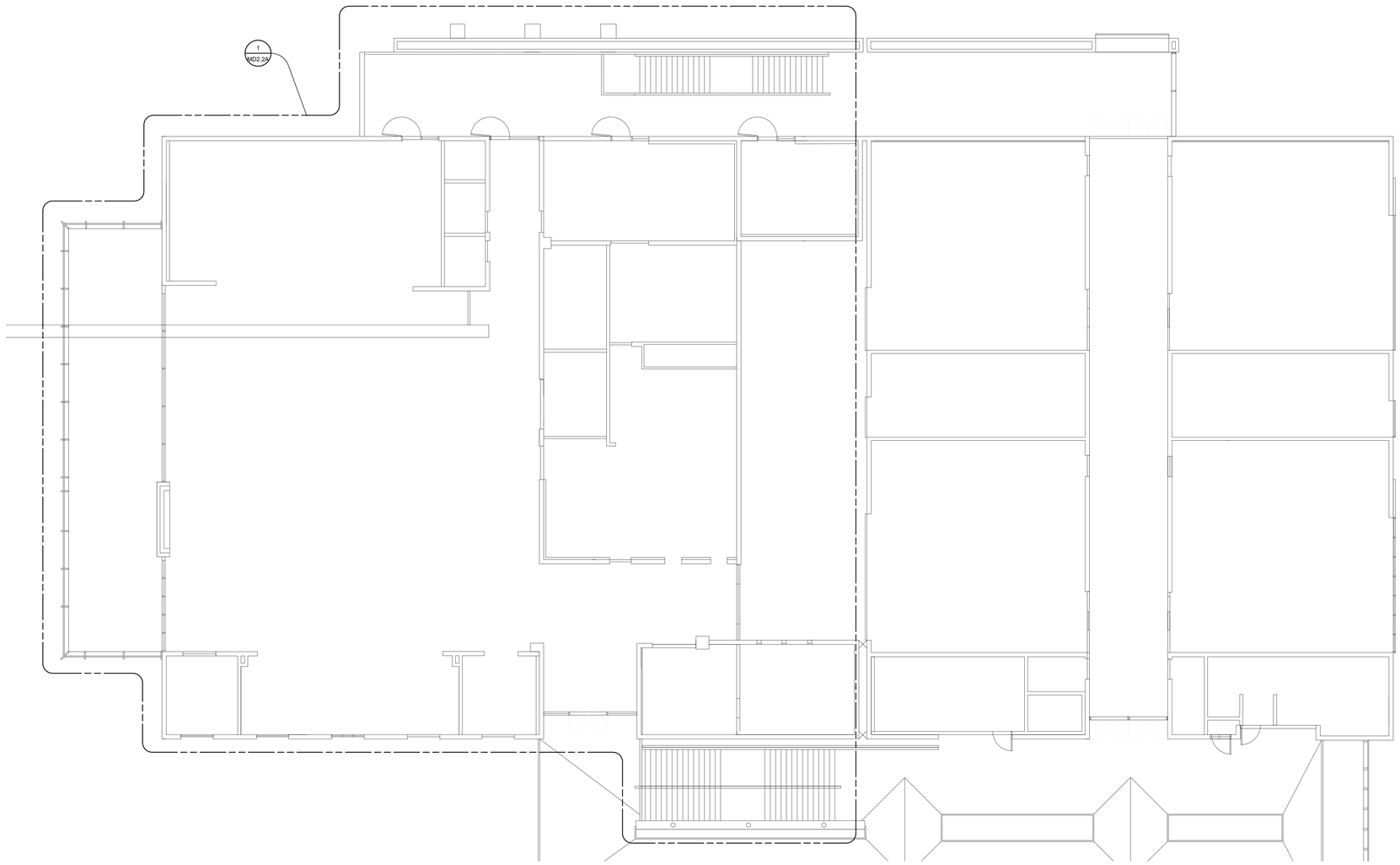
M2.1B

PROJECT NUMBER

Date Plotted:
File Name:

Project # 2025-131_R25

Plot Date:



N

BUILDING 2A DEMOLITION SECOND FLOOR PLAN

1/8" = 1'-0"

1

Date Plotted:
File Name:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 2A DEMOLITION SECOND FLOOR PLAN

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BANEZADEH
No. M29225
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
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	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver

REVIEWED BY:

DRAWN BY:

SCALE: As Indicated

ISSUE DATE: Issue Date

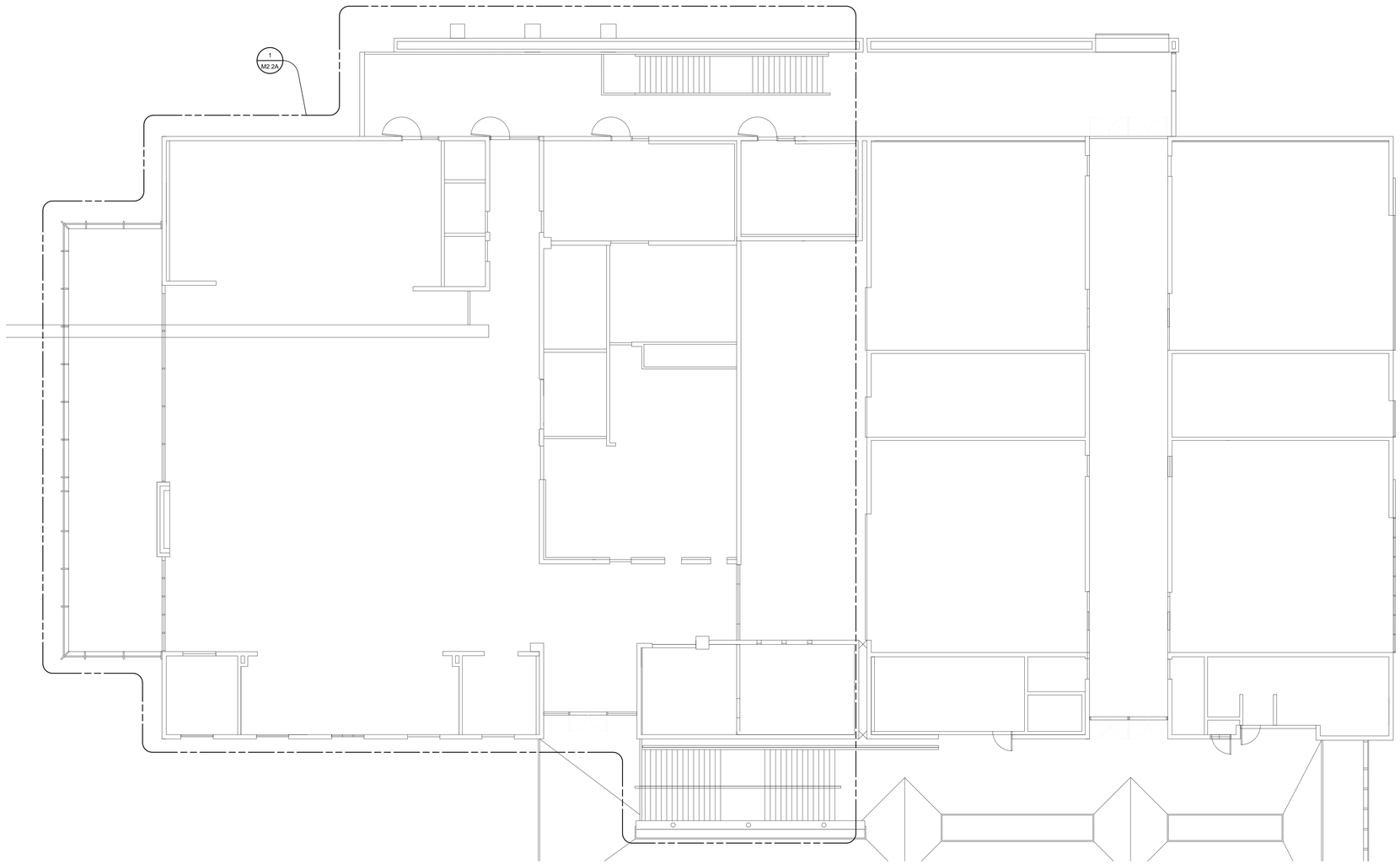
SHEET NUMBER

MD2.2

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



N

BUILDING 2A CONSTRUCTION SECOND FLOOR PLAN | 1/8" = 1'-0" | 1

Date Plotted:
File Name:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 2A
CONSTRUCTION
SECOND FLOOR
PLAN

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BANEGAS
No. M29225
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE

Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
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	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

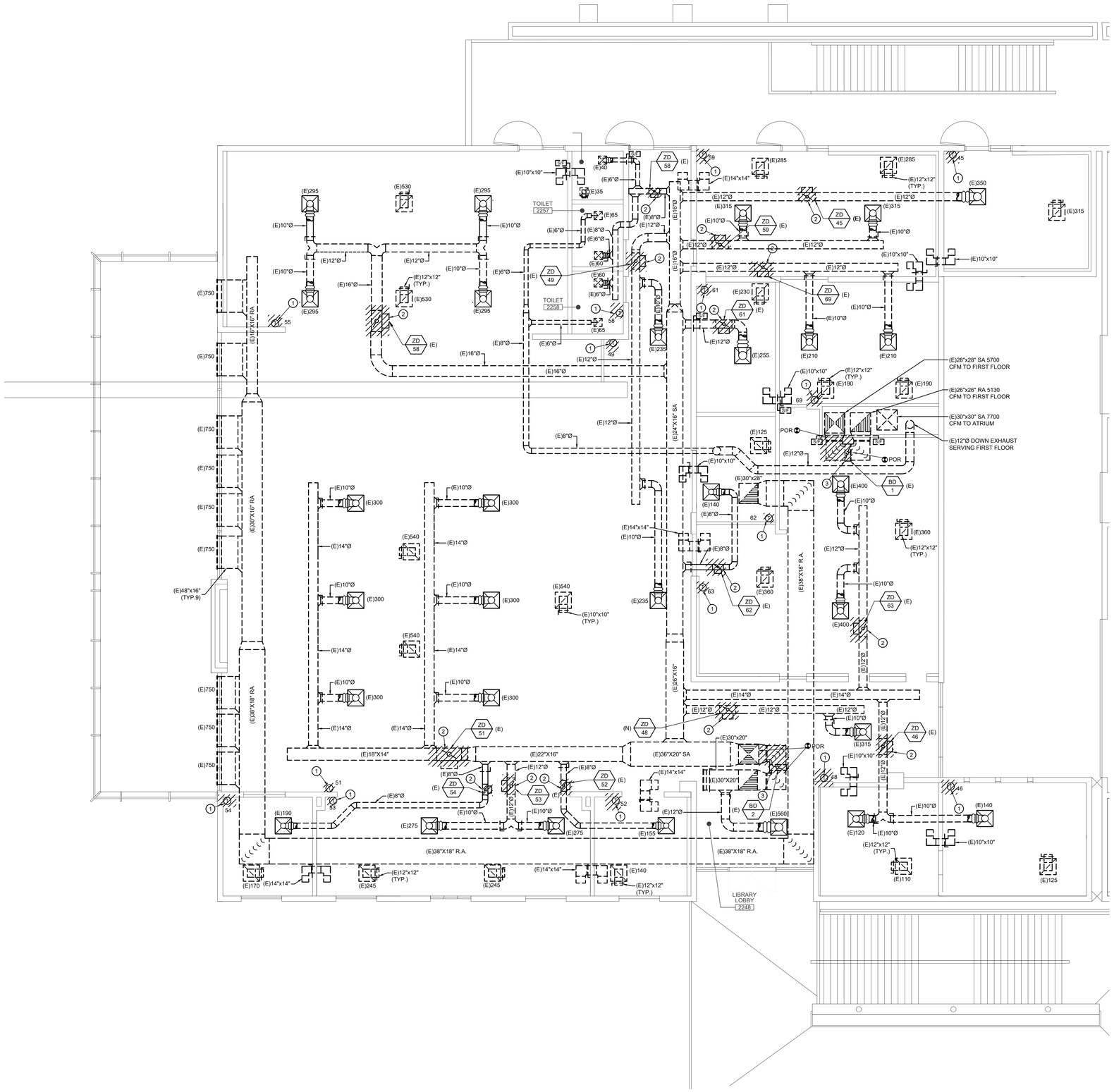
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REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER:

M2.2

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



DEMOLITION KEY NOTES:

1. DEMO AND REMOVE EXISTING THERMOSTAT.
2. DEMO AND REMOVE EXISTING ZONE DAMPER, DUCT CONNECTIONS, AND CONTROLS.
3. DEMO AND REMOVE EXISTING BYPASS DAMPER, DUCT CONNECTIONS, AND CONTROLS.

GENERAL DEMOLITION NOTES :

1. CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY THE SCOPE OF DEMOLITION WORK
2. DEMOLITION IS INDICATED AS A CONVENIENCE FOR THE CONTRACTOR AND MAY NOT INDICATE THE FULL SCOPE OF DEMOLITION REQUIRED TO COMPLETE THE NEW WORK.
3. PATH AND REPAIR EXISTING SURFACES AS REQUIRED TO COMPLETE THE NEW WORK.
4. ALL NEW WORK SHALL MATCH EXISTING IN KIND, QUALITY AND FINISH U.O.N.
5. CONTRACTOR SHALL INCLUDE IN THE SCOPE OF WORK ALL WORK REQUIRED TO PATCH, FINISH, MATCH, AND BLEND NEW SURFACES TO EXISTING AS IMPACTED BY THE AREAS OF NEW WORK.
6. NO DEMOLITION TO BEGIN UNTIL PLANS SHOWING DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

N

BUILDING 2A ENLARGED DEMOLITION SECOND FLOOR PLAN | 3/16" = 1'-0" | 1

Date Plotted:
Plotted By:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 2A ENLARGED DEMOLITION SECOND FLOOR PLAN

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER ROBERT BAKERMAN No. M29253 Exp. 6/30/27 MECHANICAL STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
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	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

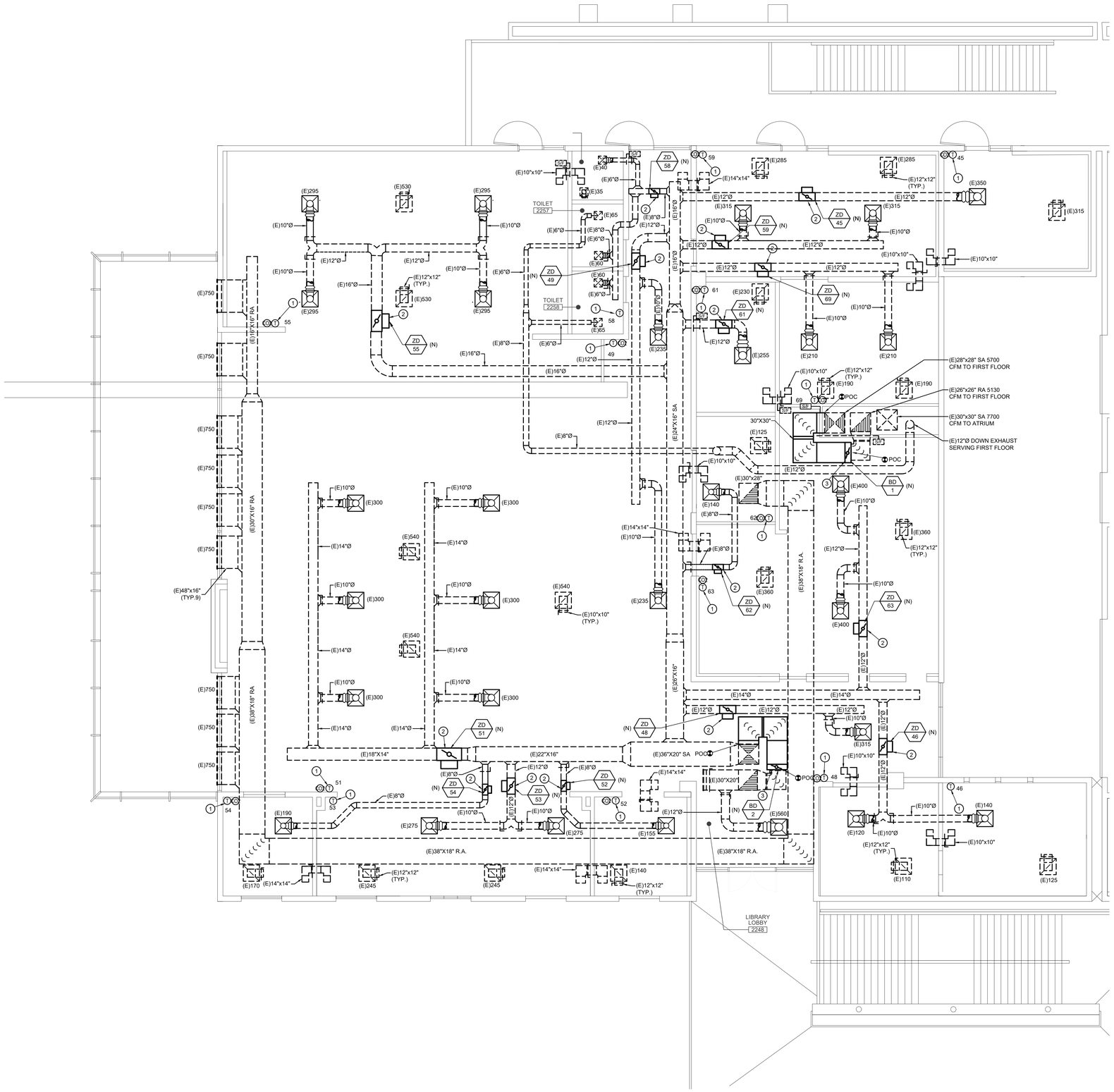
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SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER

MD2.2A

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



N

BUILDING 2A ENLARGED CONSTRUCTION SECOND FLOOR PLAN | 3/16" = 1'-0" | 1

Date Plotted:
File Name:

CONSTRUCTION KEY NOTES:

1. PROVIDE NEW THERMOSTAT AND CO2 SENSOR. INSTALL PER DETAIL 1/M4.1.
2. PROVIDE NEW ZONE DAMPER, DUCT CONNECTIONS, AND CONTROLS. PROVIDE ALL REQUIRED DUCT FITTINGS.
3. PROVIDE NEW BYPASS DAMPER, DUCT CONNECTIONS, AND CONTROLS.

GENERAL CONSTRUCTION NOTES :

1. CONTRACTOR SHALL REMOVE (E) CEILING GRID AND TILES AS REQUIRED TO INSTALL NEW ZONE DAMPER. RE-INSTALL GRID AND TILES AFTER NEW WORK HAS BEEN COMPLETED. CONTRACTOR SHALL REPLACE ANY DAMAGED GRIDS AND TILES TO MATCH EXISTING CEILING CONDITION AND COLOR.
2. CONTRACTOR SHALL TEST AND BALANCE ALL AIR DIFFUSERS TO ORIGINAL DESIGN CONDITION.

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD, CA 90262

SHEET TITLE

BUILDING 2A ENLARGED CONSTRUCTION SECOND FLOOR PLAN

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

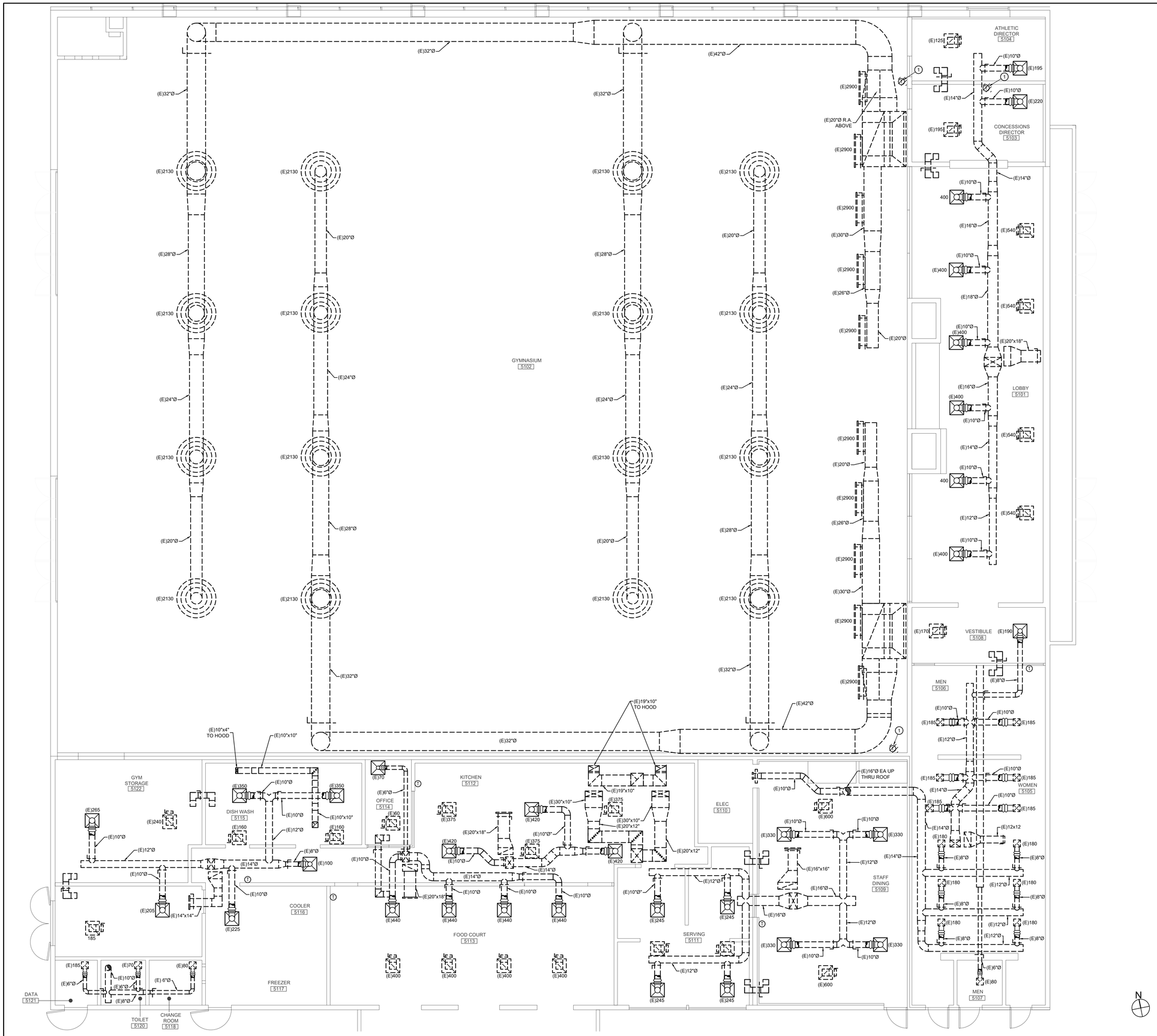
REGISTERED ABBY BANEZ PROFESSIONAL ENGINEER
No. M29252
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver
REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER: M2.2A
PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



DEMOLITION KEY NOTES:

1. DEMO AND REMOVE EXISTING THERMOSTAT.

GENERAL DEMOLITION NOTES :

1. CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY THE SCOPE OF DEMOLITION WORK
2. DEMOLITION IS INDICATED AS A CONVENIENCE FOR THE CONTRACTOR AND MAY NOT INDICATE THE FULL SCOPE OF DEMOLITION REQUIRED TO COMPLETE THE NEW WORK.
3. PATH AND REPAIR EXISTING SURFACES AS REQUIRED TO COMPLETE THE NEW WORK.
4. ALL NEW WORK SHALL MATCH EXISTING IN KIND, QUALITY AND FINISH U.O.N.
5. CONTRACTOR SHALL INCLUDE IN THE SCOPE OF WORK ALL WORK REQUIRED TO PATCH, FINISH, MATCH, AND BLEND NEW SURFACES TO EXISTING AS IMPACTED BY THE AREAS OF NEW WORK.
6. NO DEMOLITION TO BEGIN UNTIL PLANS SHOWING DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

BUILDING 5A DEMOLITION FLOOR PLAN | 3/16" = 1'-0" | 1

Date Plotted: 3/4/2026

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 5A DEMOLITION FLOOR PLAN

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
No. M29253
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver

REVIEWED BY:

DRAWN BY:

SCALE: As Indicated

ISSUE DATE: Issue Date

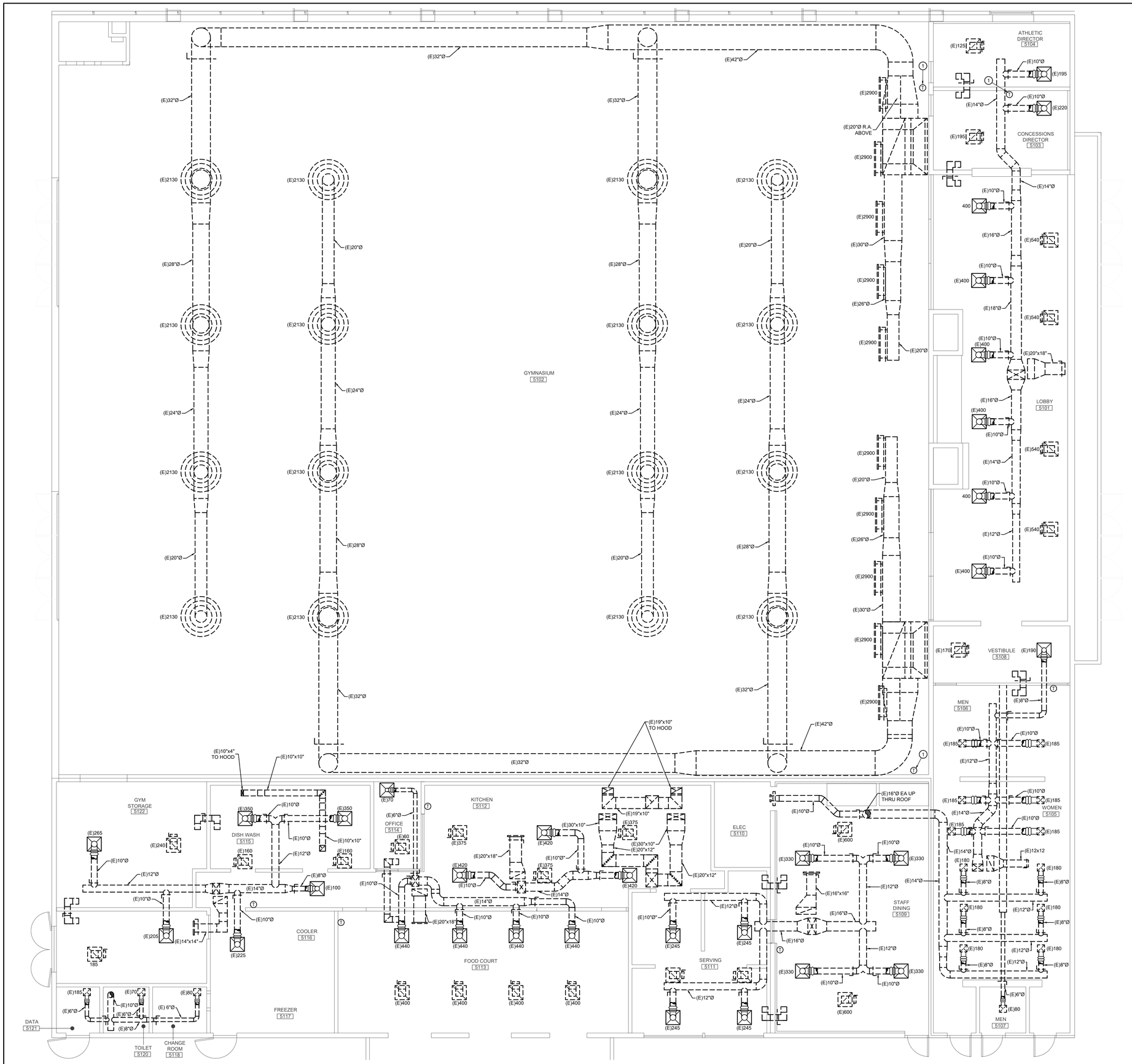
SHEET NUMBER:

MD2.3

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



CONSTRUCTION KEY NOTES:

1. PROVIDE NEW THERMOSTAT. INSTALL PER DETAIL 1/M4.1.

GENERAL CONSTRUCTION NOTES :

1. CONTRACTOR SHALL REMOVE (E) CEILING GRID AND TILES AS REQUIRED TO INSTALL NEW ZONE DAMPER. RE-INSTALL GRID AND TILES AFTER NEW WORK HAS BEEN COMPLETED. CONTRACTOR SHALL REPLACE ANY DAMAGED GRIDS AND TILES TO MATCH EXISTING CEILING CONDITION AND COLOR.
2. CONTRACTOR SHALL TEST AND BALANCE ALL AIR DIFFUSERS TO ORIGINAL DESIGN CONDITION.

BUILDING 5A CONSTRUCTION FLOOR PLAN | 3/16" = 1'-0" | 1

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD, CA 90262

SHEET TITLE

BUILDING 5A CONSTRUCTION FLOOR PLAN

oed optimum energy design
Consulting Engineers
3200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER ROBT. BANEVICH No. M29253 Exp. 6/30/27 MECHANICAL STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver
REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER

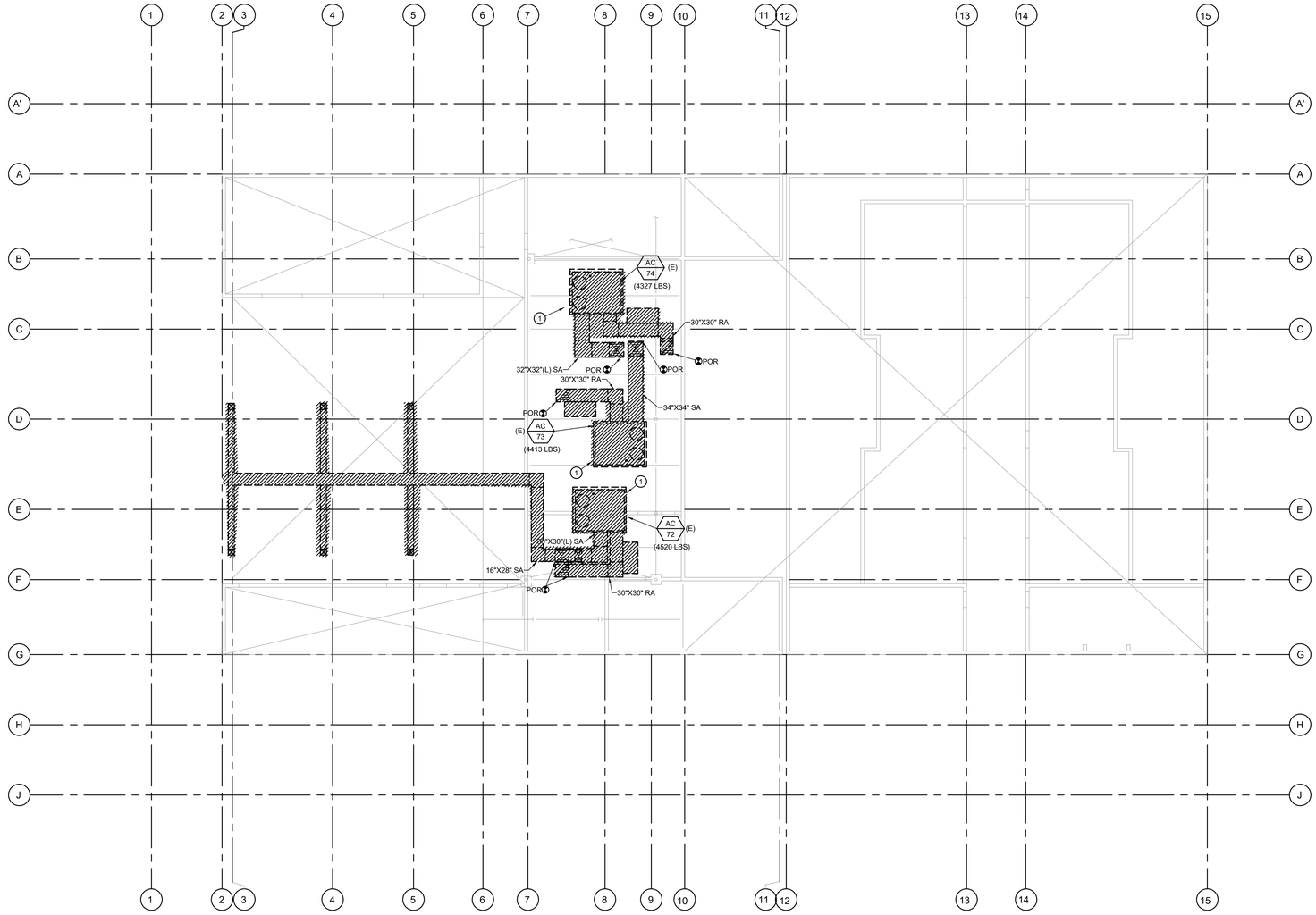
M2.3

PROJECT NUMBER

Date Plotted:
Plot Name:

Plot Date:

Project # 2025-131_R25



N

BUILDING 2A DEMOLITION ROOF PLAN | 3/32" = 1'-0" | 1

DEMOLITION KEY NOTES:

(1) EXISTING PACKAGE UNIT AND POWER EXHAUST AND RELATED APPURTENANCES TO BE REMOVED. REMOVE EXISTING DUCT CONNECTIONS AND MODIFY AS NECESSARY TO FIT NEW CONNECTIONS.

GENERAL DEMOLITION NOTES :

1. ALL DEMOLISHED MATERIALS BY CONTRACTOR SHALL BE DISPOSE OF PER FEDERAL, STATE AND LOCAL AUTHORITY HAVING JURISDICTION. ALL ITEMS TO BE RETURNED TO DISTRICT SHALL BE REMOVED INTACT AND FULLY FUNCTIONAL BY CONTRACTOR. DISTRICT SHALL HAVE FIRST RIGHT OF REFUSAL FOR ANY DEMOLITION EQUIPMENT OR COMPONENTS TO BE REMOVED.
2. ELECTRICAL CONTRACTOR SHALL DISCONNECT POWER FROM MECHANICAL EQUIPMENT TO BE REMOVED, RELOCATED, RE-USED AND/OR REPLACED AS REQUIRED. CONTRACTOR SHALL RECONNECT POWER TO ALL MECHANICAL EQUIPMENT BEING RE-USED AND/OR RELOCATED REQUIRED.
3. PLUMBING CONTRACTOR SHALL DISCONNECT EXISTING GAS PIPES FROM MECHANICAL EQUIPMENT TO BE REMOVED AND/OR REPLACED - AS REQUIRED.
4. GENERAL CONTRACTOR SHALL PATCH ALL OPENINGS IN WALLS, ROOF, ETC.THAT WILL NOT BE REUSED FOR FUTURE WORK. COORDINATE AS NECESSARY WITH OTHER TRADES.
5. PRIOR TO ANY WORK BEING DONE CONTRACTOR SHALL MAKE A CAREFUL EVALUATION OF THE EXISTING CONDITIONS AND VERIFY ALL METHODS OF REMOVAL AND INSTALLATION OF MECHANICAL EQUIPMENT.
6. CONTRACTOR SHALL COORDINATE ALL DEMOLITION WORK WITH THE WORK OF ALL OTHER TRADES.
7. CONTRACTOR SHALL CLEAN ALL AIR DEVICES TO REMAIN PER SPECIFICATIONS.
8. CONTRACTOR SHALL CLEAN ALL EXISTING DUCTWORK INCLUDING LINED DUCTWORK SPECIFICATIONS. PRIOR TO BID AND BEFORE COMMENCEMENT OF ANY WORK ALL EXISTING DUCTWORK TO REMAIN SHALL BE CONFIRMED ON SITE.
9. CONTRACTOR TO DO PREREAD TAB AIR BALANCE AT MAIN SUPPLY, RETURN, AIR DISTRIBUTION, OSA & PROVIDE REPORT TO DISTRICT & ENGINEER
10. CONTRACTOR SHALL PROVIDE TEMPORARY PROTECTION, BARRICADES, DUST CONTROL, AND DEBRIS CONTAINMENT TO PROTECT STUDENTS, STAFF, AND FACILITIES.
11. ALL UTILITY SHUTDOWNS SHALL BE COORDINATED, APPROVED, AND SCHEDULED IN ADVANCE WITH THE DISTRICT.

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 2A DEMOLITION ROOF PLAN

oed optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BANEVICZ
No. M29253
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver
REVIEWED BY: RW
DRAWN BY: BO
SCALE: As Indicated
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SHEET NUMBER

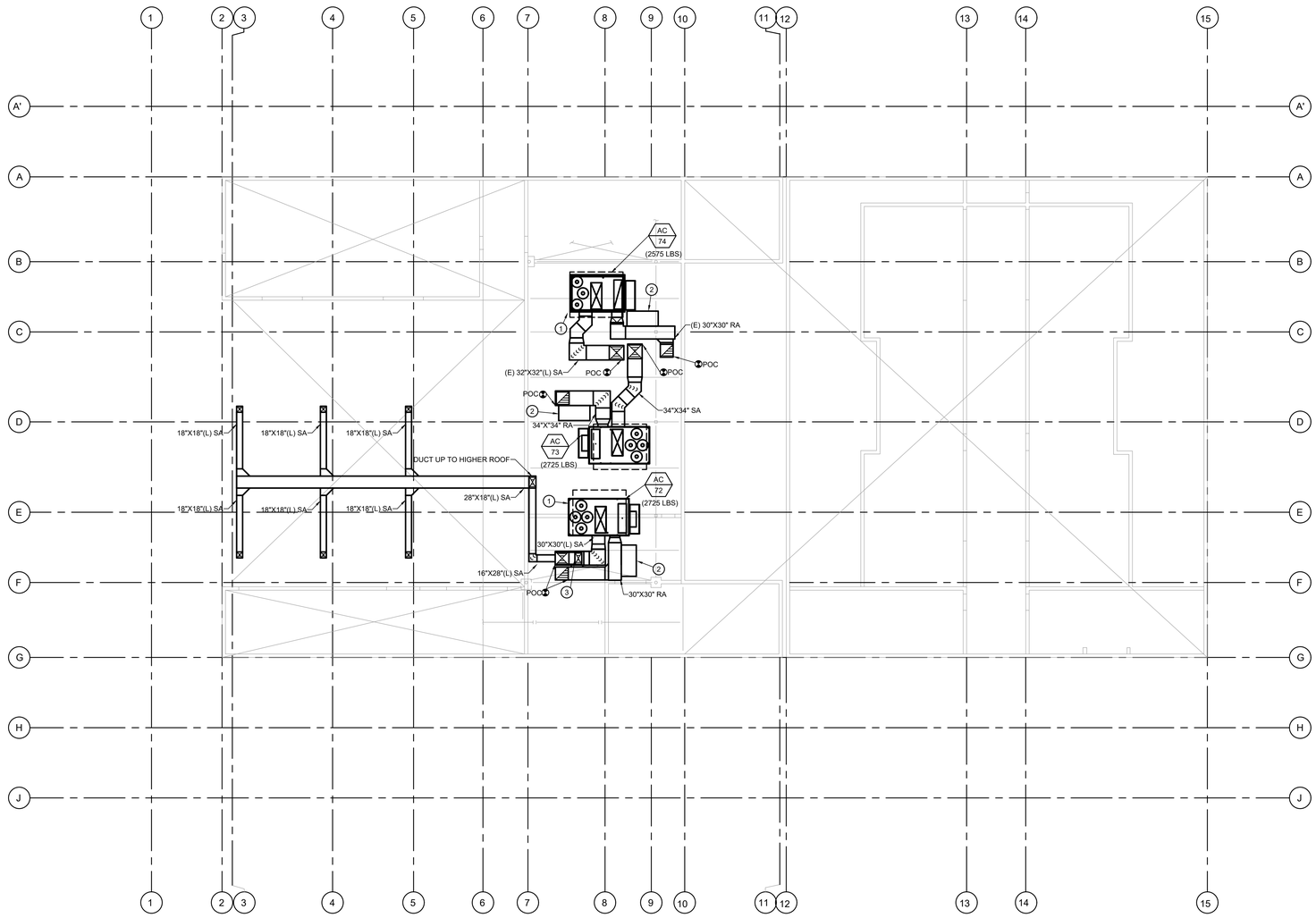
MD3.1

PROJECT NUMBER

Date Plotted:
File Name:

Plot Date:

Project # 2025-131_R25



N

BUILDING 2A CONSTRUCTION ROOF PLAN | 3/32" = 1'-0" | 1

CONSTRUCTION KEY NOTES:

1. INSTALL NEW PACKAGE UNIT PER MANUFACTURER RECOMMENDATIONS. RECONNECT NEW DUCT TO EXISTING DUCT.
2. PROVIDE DUCT MOUNTED POWER EXHAUST.
3. PROVIDE BYPASS WITH CONTROL DAMPER.

GENERAL CONSTRUCTION NOTES :

1. THE CONTRACTOR SHALL FULLY EXAMINE THE PREMISES, EXISTING EQUIPMENT AND SERVICES. THE CONTRACTOR SHALL DETERMINE IN ADVANCE, THE METHODS OF INSTALLATION INCLUDING: CONNECTIONS OF NEW EQUIPMENT, DUCTWORK, AND PIPING. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL NEW EQUIPMENT INSTALLATION REQUIREMENTS, RESTRICTIONS, AND ALL MEANS (TO BE PROVIDED) FOR GETTING THE EQUIPMENT, PIPING, AND MATERIALS INTO PLACES. SUCCESSFUL CONTRACTOR SHALL FURNISH NECESSARY MATERIALS TO COMPLETE THE WORK IN ACCORDANCE WITH THE INTENDED DESIGNS. THIS PROCEDURE SHALL BE PERFORMED WITHOUT ADDITIONAL COST TO THE OWNER.
2. BEFORE COMMENCEMENT OF WORK, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS AND DIMENSIONS OF ALL EXISTING EQUIPMENT AND ELECTRICAL SERVICES IN THE AREA OF CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES AS NECESSARY PRIOR TO INSTALLATION.
4. CONTRACTOR SHALL PROVIDE INSULATION TO ALL REFRIGERANT PIPING AND PROVIDE WEATHER JACKETING FOR ALL EXPOSED REFRIGERANT PIPING.
5. PATCH AND REPAIR EXISTING SURFACES AS REQUIRED TO FACILITATE DEMOLITION AND/OR PERFORMANCES OF THE NEW WORK. ALL NEW WORK SHALL MATCH IN KIND, QUALITY AND FINISH UNLESS OTHERWISE NOTED.
6. FRESH AIR INTAKES SHALL BE 10'-0" MIN. AWAY FROM ALL EXHAUST OUTLETS, PLUMBING VENTS, AND FLUES.
7. CONTRACTOR TO PROVIDE POST AIR BALANCE FOR NEW SYSTEM AND AIR DISTRIBUTION.
8. CONTRACTOR SHALL INSPECT & PATCH/SEAL ALL EXISTING DUCTWORK, INCLUDING ROOF MOUNTED DUCT INSIDE AND OUTSIDE OF MECHANICAL WELL.
9. PROVIDED DUCT DIMENSIONS ARE PRELIMINARY. FILED VERIFY ALL DUCT SIZES AS REQUIRED TO MATCH EXISTING.

AGENCY APPROVAL

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oed optimum energy design
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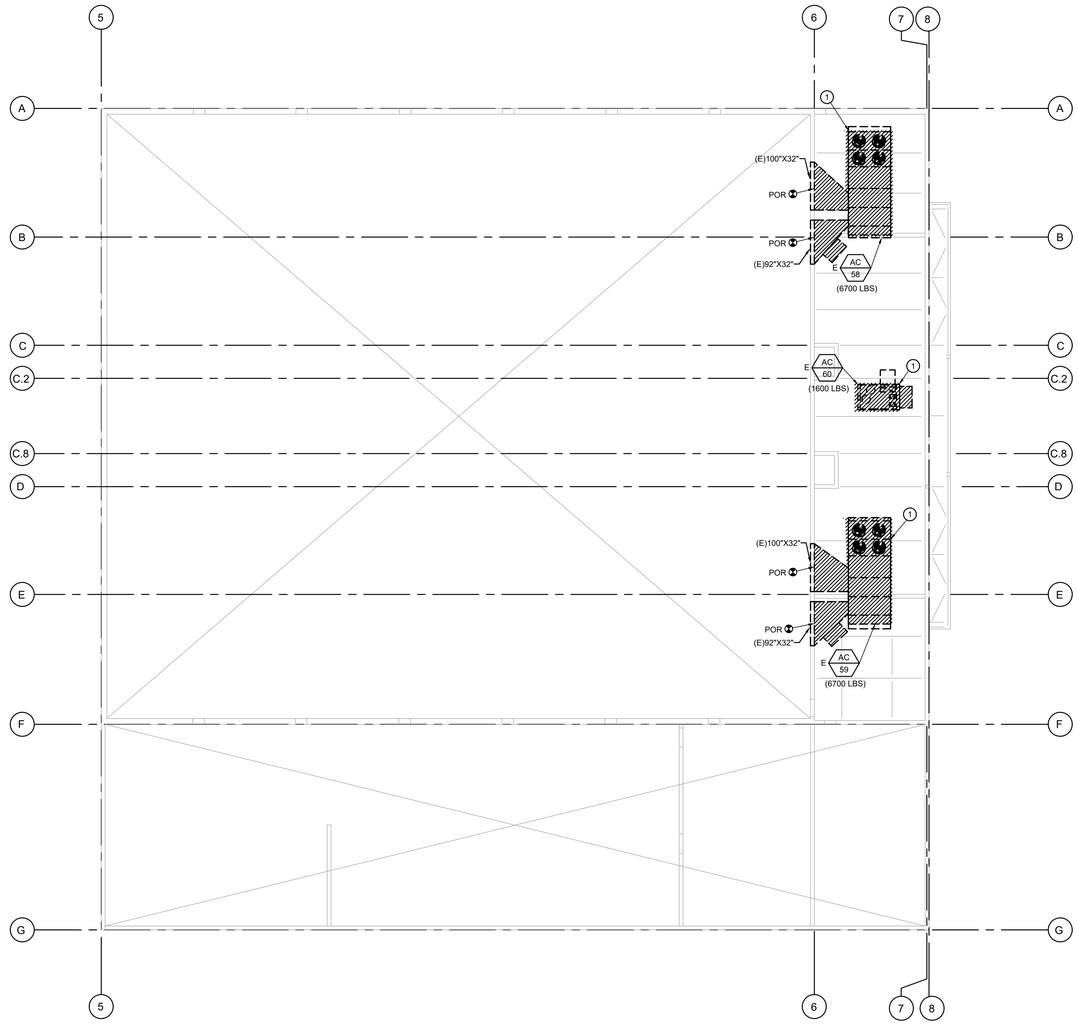
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PROJECT NUMBER

Date Plotted:
Drawing:

Plot Date:

Project # 2025-131_R25



N

BUILDING 5A DEMOLITION ROOF PLAN | 3/32" = 1'-0" | 1

Date Plotted:
File Name:

DEMOLITION KEY NOTES:

1. EXISTING PACKAGE UNIT, POWER EXHAUST, AND RELATED APPURTENANCES TO BE REMOVED. REMOVE EXISTING DUCT CONNECTIONS AND MODIFY AS NECESSARY TO FIT NEW CONNECTIONS.

GENERAL DEMOLITION NOTES :

1. ALL DEMOLISHED MATERIALS BY CONTRACTOR SHALL BE DISPOSE OF PER FEDERAL, STATE AND LOCAL AUTHORITY HAVING JURISDICTION. ALL ITEMS TO BE RETURNED TO DISTRICT SHALL BE REMOVED INTACT AND FULLY FUNCTIONAL BY CONTRACTOR. DISTRICT SHALL HAVE FIRST RIGHT OF REFUSAL FOR ANY DEMOLITION EQUIPMENT OR COMPONENTS TO BE REMOVED.
2. ELECTRICAL CONTRACTOR SHALL DISCONNECT POWER FROM MECHANICAL EQUIPMENT TO BE REMOVED, RELOCATED, RE-USED AND/OR REPLACED AS REQUIRED. CONTRACTOR SHALL RECONNECT POWER TO ALL MECHANICAL EQUIPMENT BEING RE-USED AND/OR RELOCATED REQUIRED.
3. PLUMBING CONTRACTOR SHALL DISCONNECT EXISTING GAS PIPES FROM MECHANICAL EQUIPMENT TO BE REMOVED AND/OR REPLACED - AS REQUIRED.
4. GENERAL CONTRACTOR SHALL PATCH ALL OPENINGS IN WALLS, ROOF, ETC.THAT WILL NOT BE REUSED FOR FUTURE WORK. COORDINATE AS NECESSARY WITH OTHER TRADES.
5. PRIOR TO ANY WORK BEING DONE CONTRACTOR SHALL MAKE A CAREFUL EVALUATION OF THE EXISTING CONDITIONS AND VERIFY ALL METHODS OF REMOVAL AND INSTALLATION OF MECHANICAL EQUIPMENT.
6. CONTRACTOR SHALL COORDINATE ALL DEMOLITION WORK WITH THE WORK OF ALL OTHER TRADES.
7. CONTRACTOR SHALL CLEAN ALL AIR DEVICES TO REMAIN PER SPECIFICATIONS.
8. CONTRACTOR SHALL CLEAN ALL EXISTING DUCTWORK INCLUDING LINED DUCTWORK SPECIFICATIONS. PRIOR TO BID AND BEFORE COMMENCEMENT OF ANY WORK ALL EXISTING DUCTWORK TO REMAIN SHALL BE CONFIRMED ON SITE.
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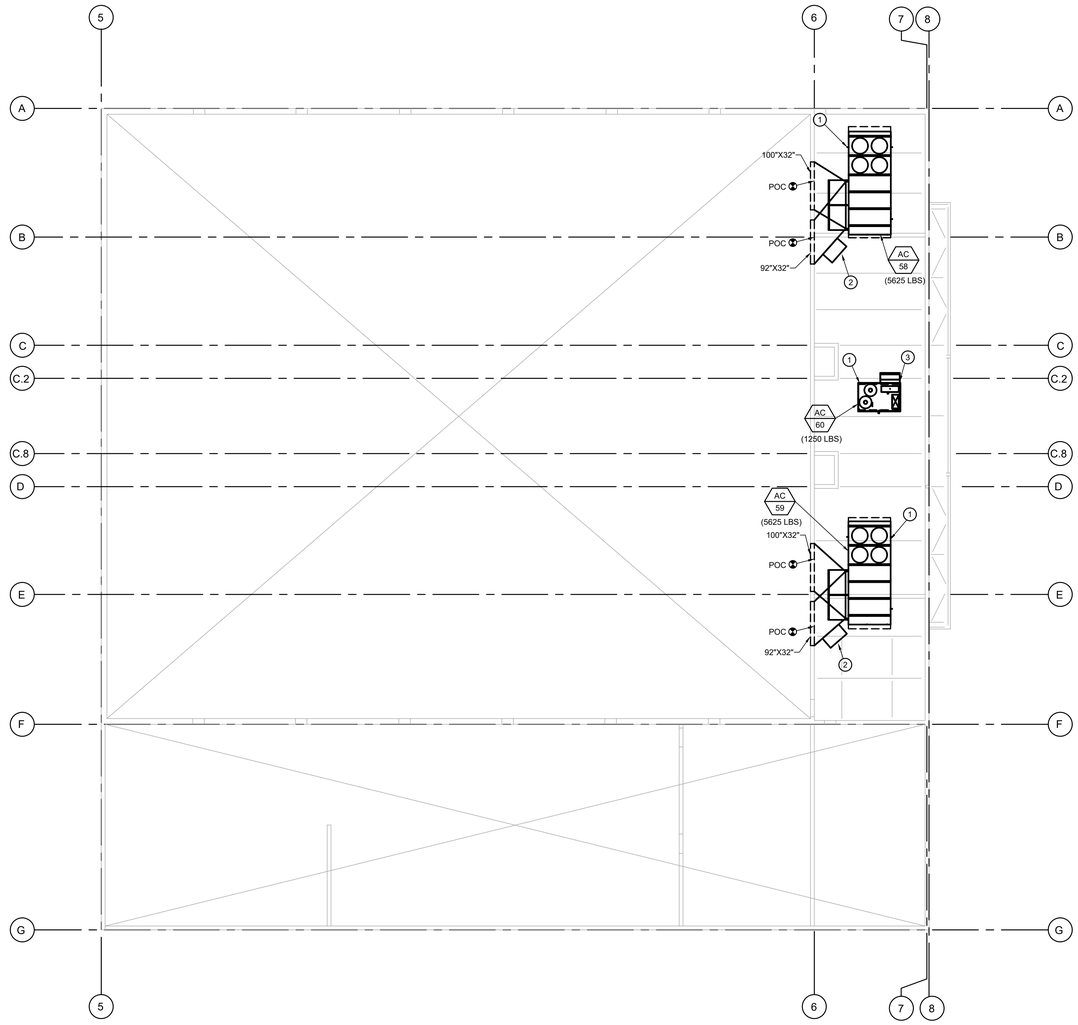
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REVIEWED BY: RW
DRAWN BY: BO
SCALE: As Indicated
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SHEET NUMBER

MD3.2

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



N

BUILDING 5A CONSTRUCTION ROOF PLAN | 3/32" = 1'-0" | 1

Date Plotted:
File Name:

CONSTRUCTION KEY NOTES:

1. INSTALL NEW PACKAGE UNIT PER MANUFACTURER RECOMMENDATIONS. RECONNECT NEW DUCT TO EXISTING DUCT.
2. PROVIDE DUCT MOUNTED POWER EXHAUST.
3. PROVIDE UNIT MOUNTED POWER EXHAUST.

GENERAL CONSTRUCTION NOTES :

1. THE CONTRACTOR SHALL FULLY EXAMINE THE PREMISES, EXISTING EQUIPMENT AND SERVICES. THE CONTRACTOR SHALL DETERMINE IN ADVANCE, THE METHODS OF INSTALLATION INCLUDING: CONNECTIONS OF NEW EQUIPMENT, DUCTWORK, AND PIPING. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL NEW EQUIPMENT INSTALLATION REQUIREMENTS, RESTRICTIONS, AND ALL MEANS (TO BE PROVIDED) FOR GETTING THE EQUIPMENT, PIPING, AND MATERIALS INTO PLACES. SUCCESSFUL CONTRACTOR SHALL FURNISH NECESSARY MATERIALS TO COMPLETE THE WORK IN ACCORDANCE WITH THE INTENDED DESIGNS. THIS PROCEDURE SHALL BE PERFORMED WITHOUT ADDITIONAL COST TO THE OWNER.
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6. FRESH AIR INTAKES SHALL BE 10'-0" MIN. AWAY FROM ALL EXHAUST OUTLETS, PLUMBING VENTS, AND FLUES.
7. CONTRACTOR TO PROVIDE POST AIR BALANCE FOR NEW SYSTEM AND AIR DISTRIBUTION.

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
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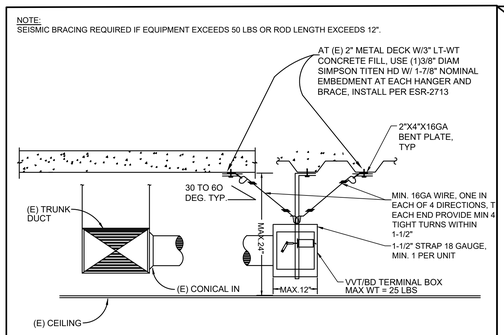
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PROJECT NUMBER

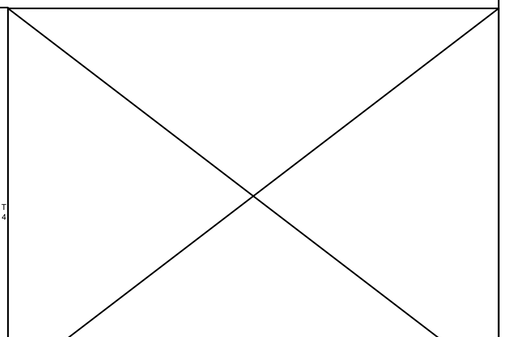
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Project # 2025-131_R25

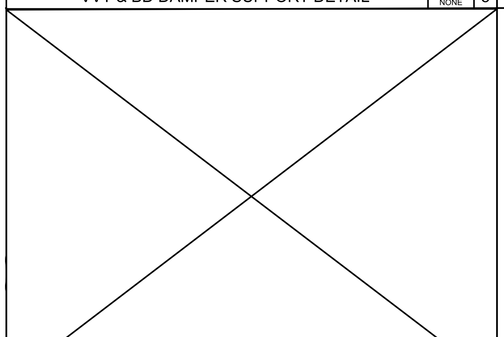
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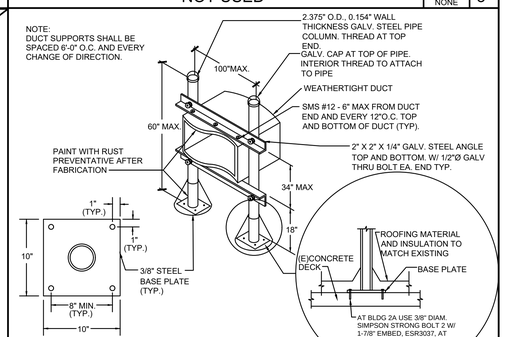
VVT & BD DAMPER SUPPORT DETAIL | SCALE NONE | 5



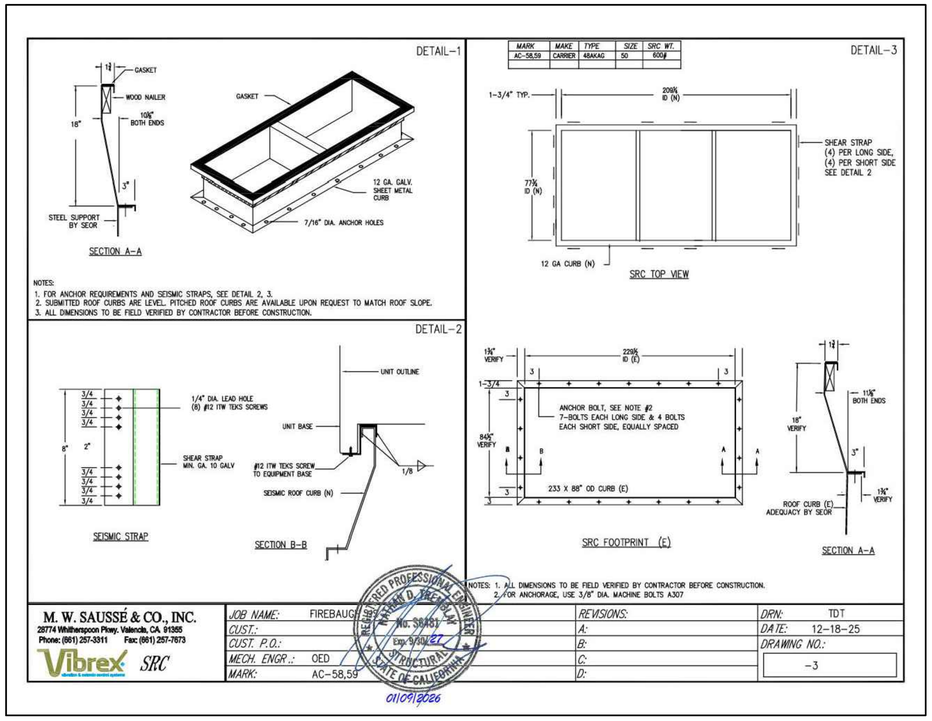
NOT USED | SCALE NONE | 3



NOT USED | SCALE NONE | 4



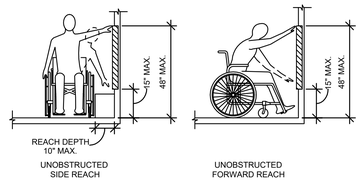
SUPPORT FOR RECTANGULAR DUCT ON ROOF | SCALE NONE | 2



AC-58 AND AC-59 CURB DETAIL | SCALE NONE | 6

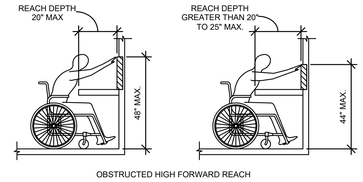
REACH RANGE NOTES
FORWARD REACH TO WALL MOUNTED OBJECTS W/O OBSTRUCTIONS
- 30"x48" CLEAR FLOOR SPACE FOR FORWARD APPROAC IS PROVIDED TO OBJECT.
- ONE FULL UNOBSTRUCTED SIDE OF THE CLEAR FLOOR SPACE ADJOINS AN ACCESIBLE ROUTE OR ADJOINTS ANOTHER WHEELCHAIR CLEAR FLOOR SPACE

SIDE REACH - WALL MOUNTED OBJECTS W/O OBSTRUCTIONS
- 30"x48" CLEAR FLOOR SPACE FOR PARALLEL APPROACH IS PROVIDED AT OBJECT.
- ONE FULL UNOBSTRUCTED SIDE OF THE CLEAR FLOOR SPACE ADJOINS AN ACCESIBLE ROUTE OR ADJOINTS ANOTHER WHEELCHAIR CLEAR FLOOR SPACE

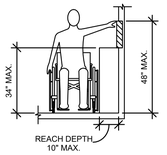


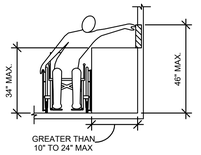
UNOBSTRUCTED SIDE REACH

UNOBSTRUCTED FORWARD REACH

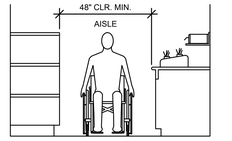


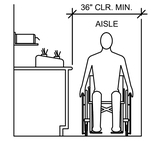
OBSTRUCTED HIGH FORWARD REACH

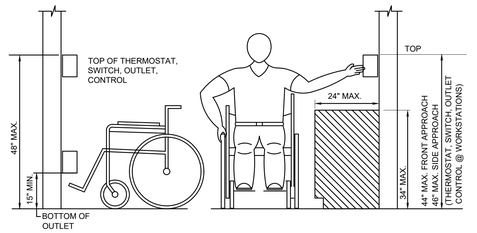




OBSTRUCTED HIGH SIDE REACH







CONTROL DEVICE MOUNTING DETAIL | SCALE NONE | 1

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
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REGISTERED PROFESSIONAL ENGINEER ROBERT BANEGAS No. M29253 Exp. 6/30/27 MECHANICAL STATE OF CALIFORNIA

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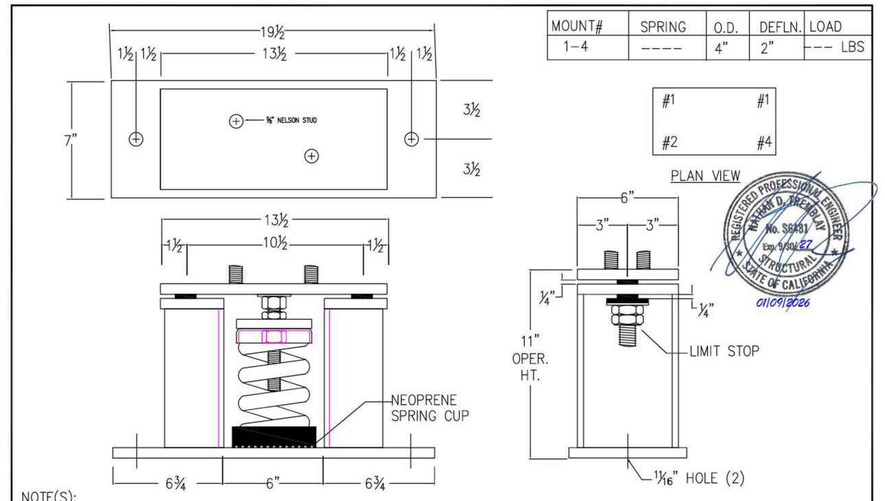
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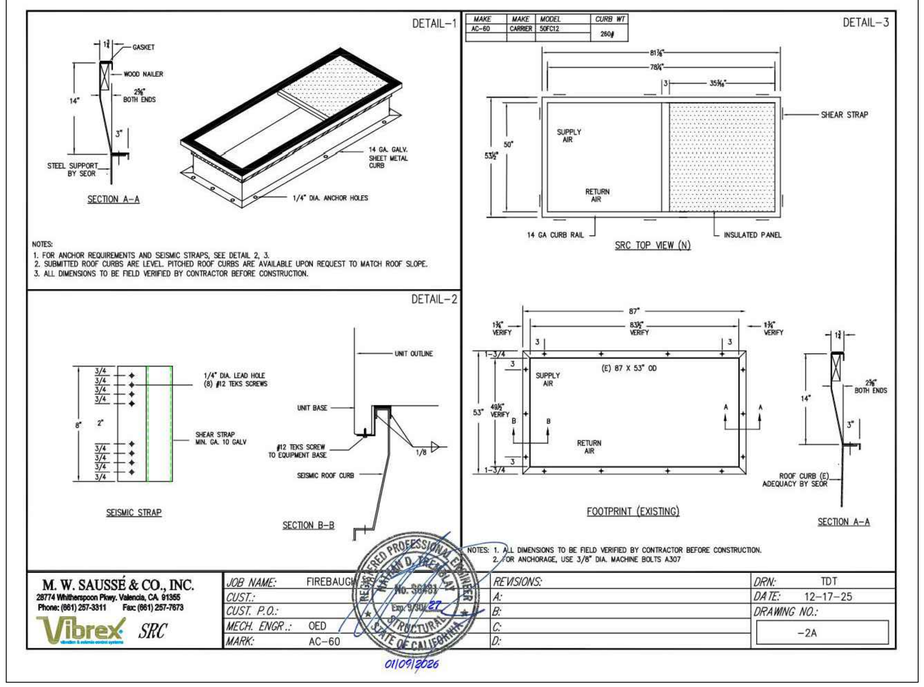
Plot Date:

Project # 2025-131_R25



NOTE(S):
1. ANCHORAGE, USE 5/8" DIA. MB A307
2. STEEL IS FINISHED WITH INDUSTRIAL GRADE PRIMER.
3. APPROXIMATE INDIVIDUAL ISOLATOR WEIGHT: 100 LBS.

M. W. SAUSSÉ & CO., INC. 28744 Witherspoon Pkwy, Valencia, CA 91355 PHONE: (661) 257-3311 FAX: (661) 257-7673 Vibrex RMLS-EQ-4	JOB NAME: FIREBAUGH HS CUST: CUST. P.O.: MECH. ENGR.: OPTIMUM AC - 72, 73, 74	REVISIONS: A: B: C:	DRN: TDT DATE: 01-06-25 DRAWING NO.: -1.1	ENG: –



NOTES:
1. FOR ANCHOR REQUIREMENTS AND SEISMIC STRAPS, SEE DETAIL 2, 3.
2. SUBMITTED ROOF CURBS ARE LEVEL, PITCHED ROOF CURBS ARE AVAILABLE UPON REQUEST TO MATCH ROOF SLOPE.
3. ALL DIMENSIONS TO BE FIELD VERIFIED BY CONTRACTOR BEFORE CONSTRUCTION.

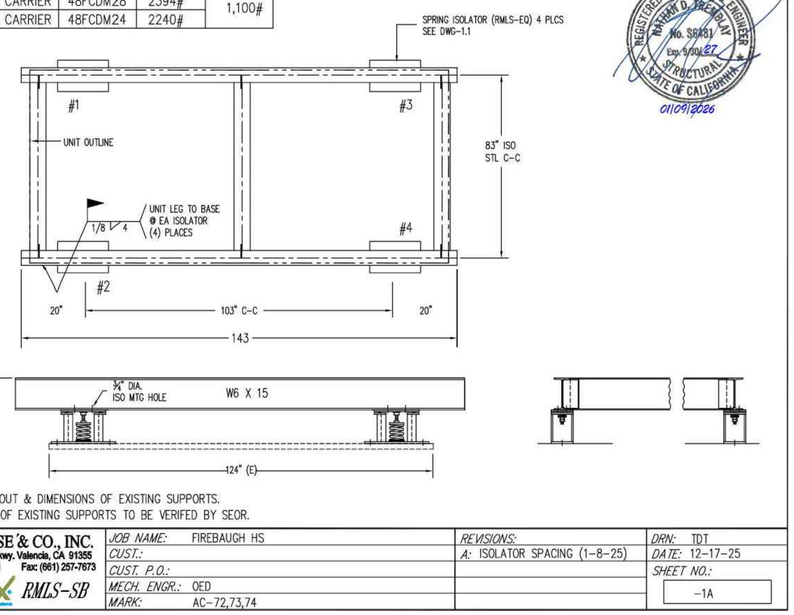
NOTES: 1. ALL DIMENSIONS TO BE FIELD VERIFIED BY CONTRACTOR BEFORE CONSTRUCTION.
2. OR ANCHORAGE, USE 3/8" DIA. MACHINE BOLTS A307

M. W. SAUSSÉ & CO., INC. 28774 Witherspoon Pkwy, Valencia, CA 91355 Phone: (661) 257-3311 Fax: (661) 257-7673 Vibrex SRC	JOB NAME: FIREBAUGH CUST.: CUST. P.O.: MECH. ENGR.: OED MARK: AC-60	REVISIONS: A: B: C: D:	DRN: TDT DATE: 12-17-25 DRAWING NO.: -2A	

REGISTERED PROFESSIONAL ENGINEER No. 36191 Exp. 9/30/27 STRUCTURAL STATE OF CALIFORNIA
01/09/2026

AC-60 ANCHORAGE | SCALE NONE | 2

MARK	MAKE	MODEL	UNIT WT	WF BASE
AC–72,73	CARRIER	48FCDM28	2394#	1,100#
AC–74	CARRIER	48FCDM24	2240#	



NOTES:
1. VERIFY LAYOUT & DIMENSIONS OF EXISTING SUPPORTS.
2. ADEQUACY OF EXISTING SUPPORTS TO BE VERIFED BY SEOR.

REGISTERED PROFESSIONAL ENGINEER No. S6191 Exp. 9/30/27 STRUCTURAL STATE OF CALIFORNIA
01/09/2026

M. W. SAUSSE & CO., INC. 28774 Whitherspoon Pkwy, Valencia, CA 91355 Phone: (661) 257-3311 Fax: (661) 257-7673 Vibrex RMLS–SB	JOB NAME: FIREBAUGH HS CUST.: CUST. P.O.: MECH. ENGR.: OED MARK: AC–72,73,74	REVISIONS: A: ISOLATOR SPACING (1–8–25)	DRN: TDT DATE: 12–17–25 SHEET NO.: –1A	

AC-72,AC-73, AND AC-74 ANCHORAGE | SCALE NONE | 1

AGENCY APPROVAL

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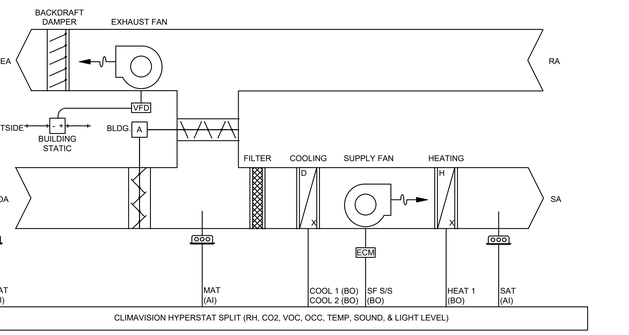
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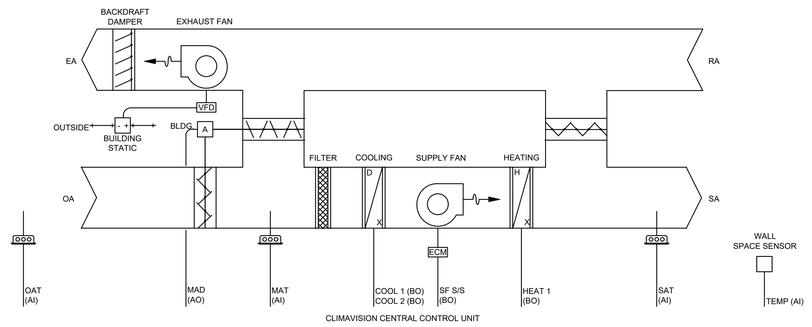
Plot Date:

Project # 2025-131_R25

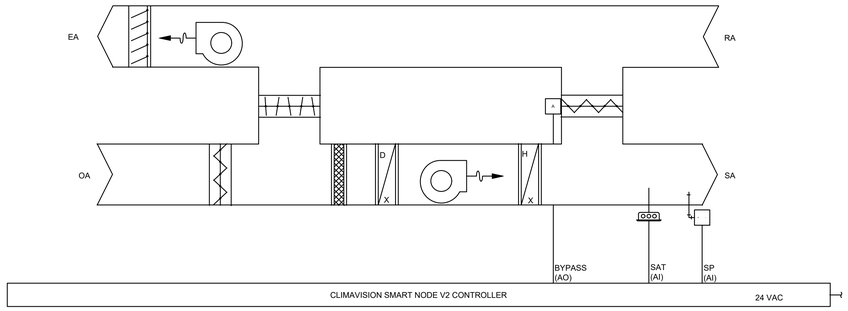


ROOFTOP UNIT (AC-58 AND AC-59) — SCALE NONE — 6

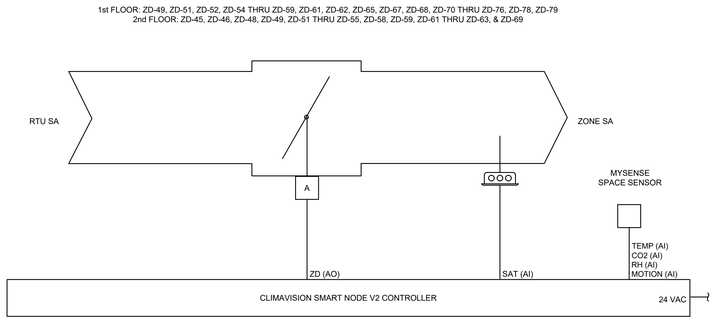
ROOFTOP UNIT (AC-60 AND AC-73) — SCALE NONE — 5



VVT ROOFTOP UNIT (AC-72 AND AC-74) — SCALE NONE — 4



BYPASS CONTROLLER DETAIL (BD-1 AND BD-2) — SCALE NONE — 3



VVT ZONE CONTROL — SCALE NONE — 2

COMMON ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AC	AIR CONDITIONING
ACU	AIR CONDITIONING UNIT
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AUTO	AUTOMATIC
AUX	AUXILIARY
BAI	BACNET ANALOG INPUT
BAO	BACNET ANALOG OUTPUT
BBI	BACNET BINARY INPUT
BBO	BACNET BINARY OUTPUT
BI	BINARY INPUT
BO	BINARY OUTPUT
C	COMMON
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
COND	CONDENSER
CW	CONDENSER WATER
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DA	DISCHARGE AIR
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
EA	EXHAUST AIR
EF	EXHAUST FAN
EVAP	EVAPORATOR
F	FAHRENHEIT
FCU	FAN COIL UNIT
HOA	HAND/OFF/AUTO
HP	HEAT PUMP
HRU	HEAT RECOVERY UNIT
HTEX	HEAT EXCHANGER
HW	HOT WATER
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTDOOR AIR
RA	RETURN AIR
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SF	SUPPLY FAN
SP	STATIC PRESSURE
TEMP	TEMPERATURE
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME
VAVTU	VARIABLE AIR VOLUME TERMINAL UNIT
VVT	VARIABLE VOLUME & TEMPERATURE
W/	WITH
W/O	WITHOUT
WSHP	WATER SOURCE HEAT PUMP

SYMBOL LEGEND

GENERAL INFORMATION

COMMUNICATION BUS SPECIFICATION
1. A 24 AWG 2-conductor-shielded-stranded cable (plenum rated as required) must be daisy chained from controller to controller. It should be color coded (red, black, white).
2. The communication cable operates at up to 5 VDC. Verify with the local code authority and specs regarding conduit requirements.
3. No "T" tap or "star" type connections are permitted.
4. Terminate the shields on the designated terminal at each device.
5. 30 controller's maximum per communication bus segment. 60 controller's maximum per network router.
6. A repeater is required every 2000 ft. or 30 devices. Maximum of 4 repeaters per bus for a total of 10,000 ft.

POWER TO VVT DAMPER ACTUATORS/CONTROLLERS
1. Each zone requires a 24 VAC, 40 VA transformer (more in some cases depending on the valve or electric heater requirements)

2. It is recommended that each zone have its own transformer, however zones may be grouped up to 100 VA and still remain in UL Class 2 conformance.
3. Be careful of voltage drop. The damper will operate in a power range of 22 to 26 VAC. The damper will not operate at voltages less than 22 vac.

GENERAL NOTES
1. The 2 conductor communication cable and sensor cables must always be in a separate jacket from one another. Never run the se cables in the same conduit as, or bundle them with, AC power wiring of any voltage. Do not strap these cables along any conduits that contain AC power wiring of any voltage.
Do not run these cables in rings or conduit with fire, life, safety, security, network, telephone, power, or other wiring. When running communication and sensor wiring parallel to other cabling or conduit maintain a 12 in. distance.
2. Ethernet and/or Internet connection to i-Vu are supplied and maintained by building owner/operator.

INSTALLATION COORDINATION NOTES
1. Installer shall coordinate all power and data connection requirements with the GC onsite.
2. Install all components in accordance with the specification, applicable codes and manufacturer 's literature

CONTROL GENERAL NOTES, LEGEND, AND SYMBOLS — SCALE NONE — 1

Date Plotted:
Plot Time:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

MECHANICAL CONTROLS

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER — ABBY BANEGAS — No. M29253 Exp. 6/30/27 — MECHANICAL — STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

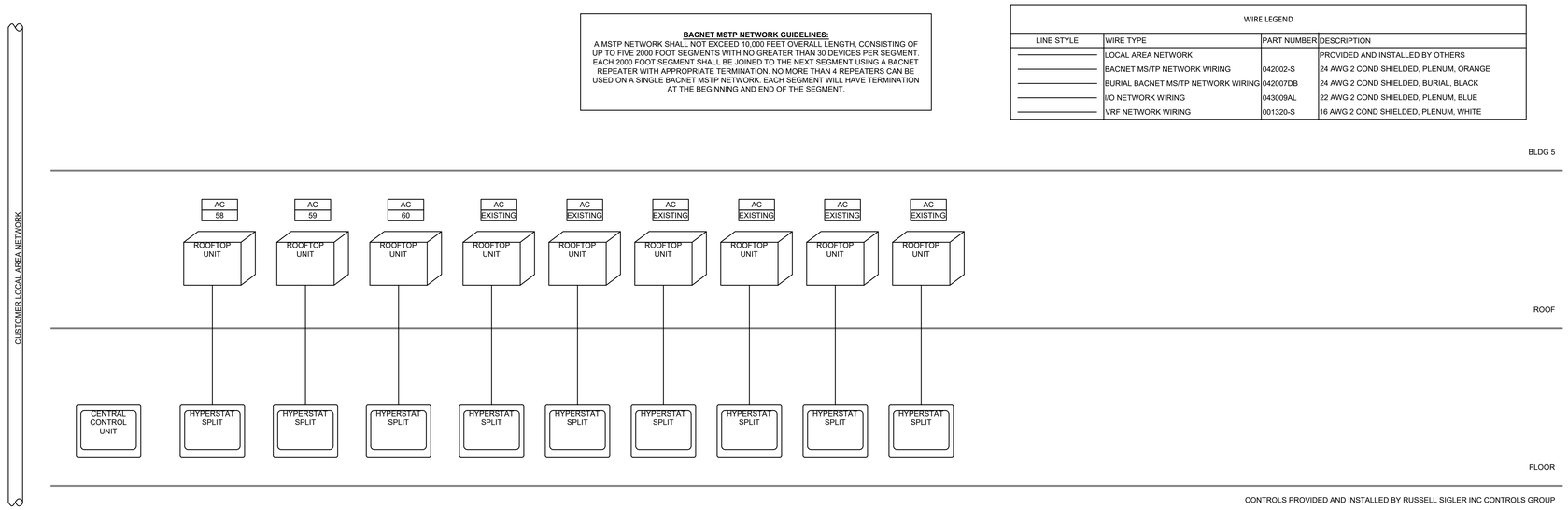
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REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER

M5.1

PROJECT NUMBER

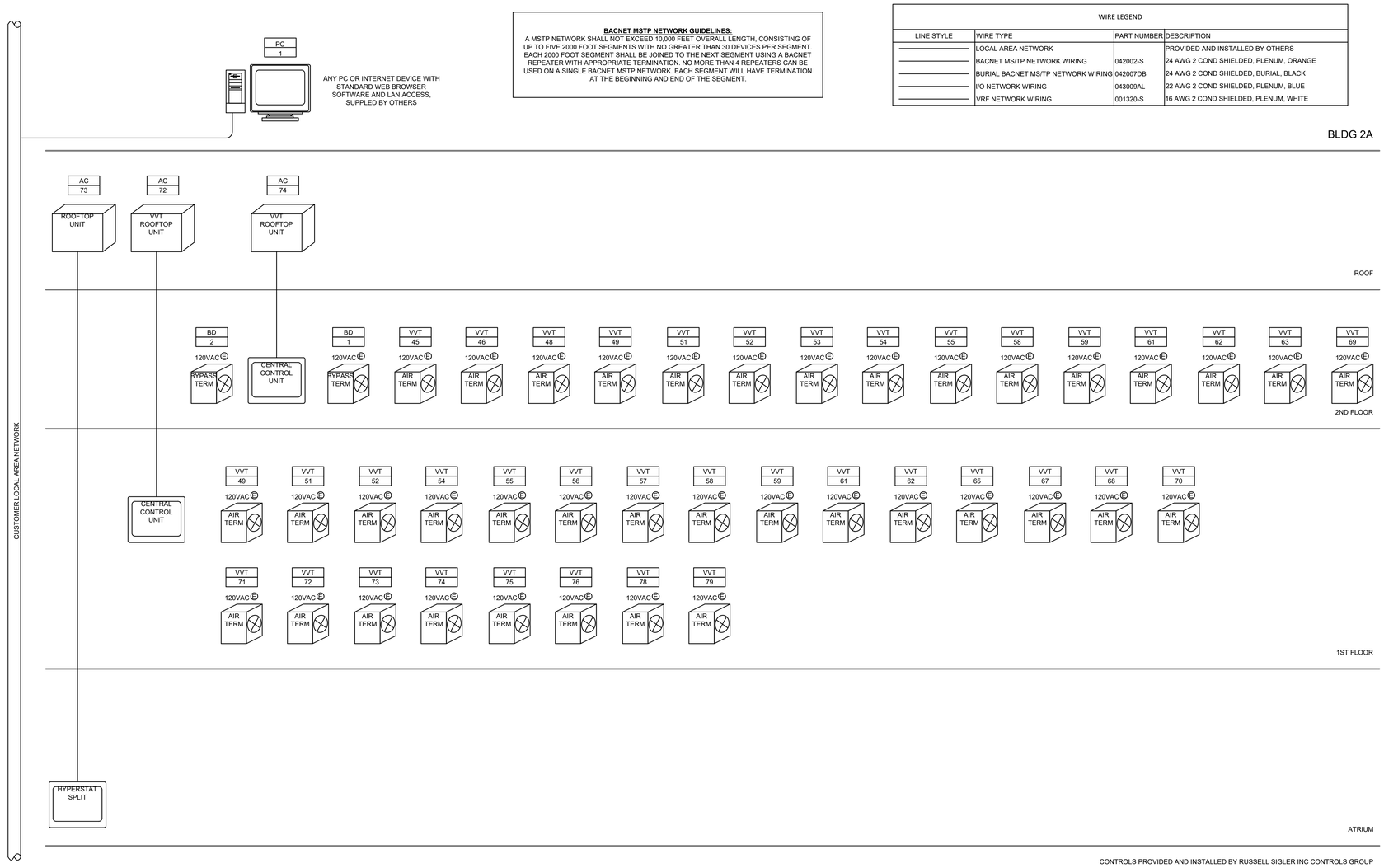
Plot Date:

Project # 2025-131_R25



BACS RISER DIAGRAM (BUILDING 5)

SCALE NONE 2



BACS RISER DIAGRAM (BUILDING 2A)

SCALE NONE 1

Date Plotted:
Drawn By:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

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APPROVED STAMP:

REGISTERED PROFESSIONAL ENGINEER
ROBERT BAKERJIAN
No. M29253
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE

Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver
REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER

M5.2

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-E
Project Name: Firebaugh High School - Building 2A	Report Page: (Page 1 of 18)
Project Address: 5246 Martin Luter King Jr Blvd	Date Prepared: 1/8/2026

This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.4, or §141.0(b)2 for alterations.

A. GENERAL INFORMATION

01	Project Location (city)	Lynwood	04	Total Conditioned Floor Area	14936
02	Climate Zone	8	05	Total Unconditioned Floor Area	0
03	Occupancy Types Within Project:		06	# of Stories (Habitable Above Grade)	1

♦ Classroom ✦ All Other Occupancies

B. PROJECT SCOPE

This table includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.4, §170.2(b) or §141.0(b)2 and §180.2(b)2 for alterations.

01	02	03
Air System(s)	Wet System Components	Dry System Components
☒ Heating Air System	☐ Water Economizer	☒ Air Economizer
☒ Cooling Air System	☐ Pumps	☐ Electric Resistance Heat
☒ Ventilation (including DOAS, ERV, HRV systems)	☐ System Piping	☒ Fan Systems
Mechanical Controls	☐ Cooling Towers	☒ Ductwork (existing to remain, altered or new)
	☐ Chillers	
☒ Mechanical Controls (existing to remain, altered or new)	☐ Boilers	☐ Zonal Systems/ Terminal Boxes

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STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-E
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C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D., or the table indicated as not compliant for guidance.

01		02		03		04		05		06		07		08	09
System Summary §110.1, §110.2, §140.4, §170.2(c), §141.0(b), §180.2(b)2	AND	Pumps §140.4(k), §170.2(c)4I	AND	Fans/Econo mizers §140.4(c), §140.4(e), §140.4(k), §170.2(c)	AND	System Controls § 110.2, § 120.2, §140.4(f), §140.4(n), §170.2(c)	AND	Ventilation §120.1, §160.2	AND	Terminal Box Controls §140.4(d), §170.2(c)4B	AND	Distribution §120.3, §140.4(l), §160.2, §160.3, §141.0(b)2D, §180.2(b)2B-1	AND	Cooling Towers §110.2(e)2	Compliance Results
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)	
Yes	AND		AND	Yes	AND	Yes	AND	No	AND		AND	Yes	AND		COMPLIES
Mandatory Measures Compliance (See Table Q for Details)												COMPLIES			

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with unealtable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
AC-72	1	Multi-zone	New	All Other Occupancies	☐
AC-73	1	Multi-zone	New	All Other Occupancies	☐
AC-74	1	Multi-zone	New	All Other Occupancies	☐

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Sizing (Includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Equipment Category per Tables 110.2, §140.4(a)2 and 170.2(c)1tab		Smallest Size Available [1] §140.4(a) and §170.2(c)1i	Equipment Sizing per Mechanical Schedule (kBtu/h) §140.4(a4kb), §170.2(c)1 & §170.2(c)2						
				Heating Output [2,3]		Cooling Output [2,3]		Load Calculations [2,3]		
				Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
AC-72	Furnace + AC (split or packaged)	AC, air cooled, single phg + warm-air central furnace, gas-fired	Yes	142	142	0	247.89	220.47	130.9	246.34
AC-73	Furnace + AC (split or packaged)	AC, air cooled, single phg + warm-air central furnace, gas-fired	Yes	142	142	0	240.85	220.47	-1.26	56.74
AC-74	Furnace + AC (split or packaged)	AC, air cooled, single phg + warm-air central furnace, gas-fired	NA: Load Controls	142	142	0	212.61	184.89	147.88	265.07

[1] FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per §140.4(a) and §170.2(c)1. Healthcare facilities are excepted.
[2] It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.
[3] If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.
[4] Authority Having Jurisdiction may ask for load calculations used for compliance per §140.4(b) and §170.2(c).

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09	10
Name or Item Tag	Size Category (Btu/h)	Heating Mode				Cooling Mode			
		Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Refrigerant Loop Heat Recovery	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
AC-72	>=240,000		AFUE	0.8	0.81	Not Required	EER	9.8	9.8
							IEER	13	14

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CERTIFICATE OF COMPLIANCE	NRCC-MCH-E
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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09	10
Name or Item Tag	Size Category (Btu/h)	Heating Mode				Cooling Mode			
		Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Refrigerant Loop Heat Recovery	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
AC-73	>=240,000		AFUE	0.8	0.81	Not Required	EER	9.8	9.8
							IEER	13	14
AC-74	>=240,000		AFUE	0.8	0.81	Not Required	EER	9.8	10
							IEER	13	14.5

Mechanical Heat Recovery§140.4(s)

01	02	03	04	05	06	07
Name or Item Tag	Coincident Peak Cooling Load of All High Load Spaces (kBtu/h)	Design Capacity of All Mechanical Cooling Systems[1] (kBtu/h)	Design Capacity of All Service Water Heating Systems[1] (kBtu/h)	Design Capacity for all space heating systems (kBtu/h)	Simultaneous Mechanical Heat Recovery	

[1] FOOTNOTES: Excluding systems expected to operate less than 5 hours per week.
[2] FOOTNOTES: If the design includes capacity for future cooling systems, then assume 20% of future systems serve high load spaces.

G. PUMPS

This section does not apply to this project.

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Project Name: Firebaugh High School - Building 2A	Report Page: (Page 5 of 18)
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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	AC-72	Quantity	1	Fan System Status	New	System Zoning	Multi-zone VAV system	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	10,000	Site Elevation	88	Economizer	Differential Temperature
01	02	03		04		05	06	07		08		09		10	11
						Allowance				Design					
Fan Name or Item Tag	Fan Type	Qty	Component		Airflow through Component (%)	Water Gauge (w.g)	Component Allowance (watt/cfm)	Fan Allowance (watt/cfm $)^1$	Design Electrical Input Power Method		Motor Nameplate Horsepower		Fan Electrical Input Power (kW)	
SF	Supply	1	BaseAllowanceCTSFloors		100		0.45	Manufacturer provided						5.26
			MERV 13-16 Filter upstream of thermal conditioning equipment		100		0.13							
			Gas heat		100		0.06							
			Hydronic/DX cooling coil or heat pump coil		100		0.11							
			Economizer Return Damper		100		0.04							
Supply Fan Base Allowance (watt/cfm)		0.78	Exhaust/Return/Relief/Transfer Fan Base Allowance(watt/cfm)		0	Fan System Allowance (kW) ^{2}		7.76	Fan System Electrical Input Power (kW)						5.26

[1] FOOTNOTES: Fans serving spaces with design background noise goals below NC35
[2] Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.
[3] Fan system allowance includes fan system base allowance.
[4] Filter pressure loss can only be counted once per fan system.
[5] Complex fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.
[6] Computer room economizers must meet requirements of §140.9(b) and will be documented on the NRCC-PRC-E document..

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	AC-73	Quantity	1	Fan System Status	New	System Zoning	Multi-zone VAV system	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	10,000	Site Elevation	88	Economizer	Differential Temperature
01	02	03		04		05	06	07		08		09		10	11
						Allowance				Design					
Fan Name or Item Tag	Fan Type	Qty	Component		Airflow through Component (%)	Water Gauge (w.g)	Component Allowance (watt/cfm)	Fan Allowance (watt/cfm $)^1$	Design Electrical Input Power Method		Motor Nameplate Horsepower		Fan Electrical Input Power (kW)	
SF	Supply	1	BaseAllowanceCTSFloors		100		0.45	Manufacturer provided						5.26
			MERV 13-16 Filter upstream of thermal conditioning equipment		100		0.13							
			Gas heat		100		0.06							
			Hydronic/DX cooling coil or heat pump coil		100		0.11							
			Economizer Return Damper		100		0.04							
Supply Fan Base Allowance (watt/cfm)		0.78	Exhaust/Return/Relief/Transfer Fan Base Allowance(watt/cfm)		0	Fan System Allowance (kW) ^{2}		7.76	Fan System Electrical Input Power (kW)						5.26

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	AC-74	Quantity	1	Fan System Status	New	System Zoning	Multi-zone VAV system	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	10,000	Site Elevation	88	Economizer	Differential Temperature
01	02	03		04		05	06	07		08		09		10	11
						Allowance				Design					
Fan Name or Item Tag	Fan Type	Qty	Component		Airflow through Component (%)	Water Gauge (w.g)	Component Allowance (watt/cfm)	Fan Allowance (watt/cfm $)^1$	Design Electrical Input Power Method		Motor Nameplate Horsepower		Fan Electrical Input Power (kW)	
SF	Supply	1	BaseAllowanceCTSFloors		100		0.45	Manufacturer provided						5.26
			MERV 13-16 Filter upstream of thermal conditioning equipment		100		0.13							
			Gas heat		100		0.06							
			Hydronic/DX cooling coil or heat pump coil		100		0.11							
			Economizer Return Damper		100		0.04							
Supply Fan Base Allowance (watt/cfm)		0.78	Exhaust/Return/Relief/Transfer Fan Base Allowance(watt/cfm)		0	Fan System Allowance (kW) ^{2}		7.76	Fan System Electrical Input Power (kW)						5.26

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STATE OF CALIFORNIA
Mechanical Systems
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CERTIFICATE OF COMPLIANCE	NRCC-MCH-E
Project Name: Firebaugh High School - Building 2A	Report Page: (Page 8 of 18)
	Date Prepared: 1/8/2026

H. FAN SYSTEMS & AIR ECONOMIZERS

[1] Indoor fans meeting the requirements of 140.4(s)3D shall turn off when there is no demand for heating or cooling in the space. At 66% air flow the power draw shall be no more than 51% of the fan power at full fan speed and at 33% airflow the power draw shall be no more than 12% of the fan power at full fan speed.

H. EXHAUST AIR HEAT RECOVERY 140.4(s), 170.2(c)4O

01	02	03	04	05	06	07	08	09	10	11
Fan System Name	Qty	Hours of Operation per Year	Design Supply Airflow Rate	Outdoor Airflow	% Outdoor Air at Full Design Airflow	Exemptions to Exhaust Air Heat Recovery Requirement §140.4(s) & §170.2(c)4O	Exhaust Air Heat Recovery §140.4(s) & §170.2(c)4O	Type Of Heat Recovery Rating	Required Recovery Ratio	Energy Recovery Bypass

Fan Energy Index (FEI)

01	02	03
Name or Item Tag	FEI Exception	FEI
AC-72	None Applies	1
AC-73	None Applies	1
AC-74	None Applies	1

[2] FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

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I. SYSTEM CONTROLS

This table is used to demonstrate compliance with mandatory controls in §110.2 and §120.2 and prescriptive controls in §140.4(f) and (n), §170.2(c)4D §170.2(c)4L or requirements in §141.0(b)2E §180.2(b)2 for altered space conditioning systems.

01	02	03	04	05	06	07	08	09	10	11
System Name	System Zoning	Condition ed Floor Area being Served (ft²)	Thermostats §110.2(b) & (c)², §120.2(a) §160.3(a)2A or §160.3(b)8 or §141.0(b)2E & §180.2(b)2	Shut-Off Controls §120.2(e) & §160.3(a) 2D	Isolation Zone Controls §120.2(g)	Demand Response §110.12 §120.2(h) & §160.3(a)2E	Supply Air Temp. Reset §140.4(f) 4D, §170.2(c)4D	Window Interlocks per §140.4(n) & §170.2(c)4D	Direct Digital Control (DDC) per §120.2	Heat Pump Defrost per §160.3(b)7
AC-72	Multi-zone w/ DDC to zone	<= 25,000 ft²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Supply air reset configure d per Guideline 36	NA: No operable windows	DDC controller logic using ASHRAE Guideline 36	NA: No Heat Pump
AC-73	Multi-zone w/ DDC to zone	<= 25,000 ft²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Supply air reset configure d per Guideline 36	NA: No operable windows	DDC controller logic using ASHRAE Guideline 36	NA: No Heat Pump
AC-74	Multi-zone w/ DDC to zone	<= 25,000 ft²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Supply air reset configure d per Guideline 36	NA: No operable windows	DDC controller logic using ASHRAE Guideline 36	NA: No Heat Pump

[1] FOOTNOTES: Economizers shall meet requirements of §140.4(e) and will be documented on the NRCC-PRC-E document..

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STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-E
Project Name: Firebaugh High School - Building 2A	Report Page: (Page 10 of 18)
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J. VENTILATION AND INDOOR AIR QUALITY

This table is used to demonstrate compliance with mandatory ventilation requirements in §120.1 § 120.2(c)§18 § 140.4(p) and § 140.4(q) for all nonresidential and hotel/motel and §124hrshvshe/160.2, §160.3(a)3D, §170.2(a)4H, 170.2(b)4D for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.

01	☐	Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.
02	☒	Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces
03	☐	Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per §120.1(c)2.

Nonresidential and Hotel/ Motel Multifamily Common Use Ventilation Systems

04		05				06	07
System Name	AC-72	System Design OA CFM Airflow[1]	2262	System Design Transfer Air CFM	0	Air Filtration per §120.1(c) §141.0(b)2 and §160.2(c)1 [2] Provided	
08	09	10	11	12	13	14	15
Space Name or Item Tag	Mechanical Ventilation Required per §120.1(c)3[3] & §160.2(c)3					Exh. Vent per §120.1(c)4 & §160.2(c)4	DCV or Sensor Controls per §120.1(d)3, §120.1(d)5, and §120.1(c)3[4] §160.2(c)5D §160.2(c)5E §160.2(c)5D
	Occupancy Type[4]	Conditioned Floor Area (ft²)	# of Shower/ heads/ toilets	# of people [5]	Required Min OA CFM	Provided per Design CFM	
Lobby	Main Entry Lobby	1098			549	0	0
17	Total System Required Min OA CFM				549	18	Ventilation for this System Complies?
04		05			06		07
System Name	AC-74	System Design OA CFM Airflow[1]	2967	System Design Transfer Air CFM	0	Air Filtration per §120.1(c) §141.0(b)2 and §160.2(c)1 [2] Provided	
08	09	10	11	12	13	14	15
Space Name or Item Tag	Mechanical Ventilation Required per §120.1(c)3[3] & §160.2(c)3					Exh. Vent per §120.1(c)4 & §160.2(c)4	DCV or Sensor Controls per §120.1(d)3, §120.1(d)5, and §120.1(c)3[4] §160.2(c)5D §160.2(c)5E §160.2(c)5D
	Occupancy Type[4]	Conditioned Floor Area (ft²)	# of Shower/ heads/ toilets	# of people [5]	Required Min OA CFM	Provided per Design CFM	
First Floor Classrooms	Classroom (ages 5-18)	7807			2,966.7	0	0
17	Total System Required Min OA CFM				2967	18	Ventilation for this System Complies?

[1] FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system
[2] Air filtration requirements apply to the following three system types per §120.1(c)1A. space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.
[3] Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.

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J. VENTILATION AND INDOOR AIR QUALITY

[4] See Standards Tables 120.1-A and 120.1-B.
[5] For kitchen halls with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code.
[6] §120.2(e)3 requires systems serving multiple zones that are required by §120.1(c)1 to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250ft² or smaller, multipurpose rooms less than 1,000 ft², classrooms, conference rooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by §130.1(c).

K. TERMINAL BOX CONTROLS

This section does not apply to this project.

L. DISTRIBUTION (DUCTWORK and PIPING)

This table is used to show compliance with mandatory pipe insulation requirements found in §120.3 and mandatory requirements found in §120.4(g) for duct sealing.

01	☐	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed.

Duct Leakage Testing

The answers to the questions below apply to the following duct systems:	AC-72	NR/ Common Use: Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.9.2 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	No	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft² of conditioned floor area.	
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17	Yes	All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22		Ductwork Existing To Remain	
23		Duct System Connected To Altered Space Conditioning System	

The answers to the questions below apply to the following duct systems:	AC-73	NR/ Common Use: Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.9.2 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	No	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft² of conditioned floor area.	
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17	Yes	All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22		Ductwork Existing To Remain	
23		Duct System Connected To Altered Space Conditioning System	

The answers to the questions below apply to the following duct systems:	AC-74	NR/ Common Use: Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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CERTIFICATE OF COMPLIANCE	NRCC-MCH-E
Project Name: Firebaugh High School - Building 2A	Report Page: (Page 14 of 18)
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L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.9.2 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	No	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	No	The space conditioning system serves less than 5,000 ft² of conditioned floor area.	
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17	Yes	All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22		Ductwork Existing To Remain	
23		Duct System Connected To Altered Space Conditioning System	

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M. COOLING TOWERS

This section does not apply to this project.

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CA Building Energy Efficiency Standards - 2

Plot Date:

Project # 2025-131_R25

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — NRCC-PRF-E

Nonresidential Performance Compliance Method — [Page 1 of 14]

Project Name: Firebaugh High School - Building 5 — **Date Prepared:** 2026-01-08

A. General Information

1	Project Name	Firebaugh High School - Building 5			
2	Run Title	Title 24 Analysis			
3	Project Location	1245 Martin Luther King Jr Blvd			
4	City	Lynwood	5	Standards Version	Compliance 2025
6	Zip code	90262	7	Compliance Software (version)	EnergyPro 10.0
8	Climate Zone	9	9	Building Orientation (deg)	0
10	Building Type(s)	+ Nonresidential	11	Weather File	CA_Title24_2025_CZ06_FULLERTON.epw
12	Project Scope	+ Existing addition and alteration	13	Number of Dwelling Units	0
14	Total Conditioned Floor Area in Scope (ft²)	18963	15	Total # of hotel/motel rooms	0
16	Total Unconditioned Floor Area (ft²)	0	17	Fuel Type	Natural gas
18	Is Natural Gas Available per 150.0(n)1A?	Yes	19	Nonresidential Conditioned Floor Area	18963
20	Total # of Stories (Habitable Above Grade)	1	21	Residential Conditioned Floor Area	0

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CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — NRCC-PRF-E

Nonresidential Performance Compliance Method — [Page 2 of 14]

B. PROJECT SUMMARY

Table B shows which building components are included in the performance calculations. If indicated as not included, the project must show compliance prescriptively if within the permit application.

Building Components Complying via Performance				Building Components Complying Prescriptively			
Envelope (See Table G)	Norres.	Performance	Solar Thermal Water Heating (See Table G)	☐	Performance	The following building components are listed eligible for prescriptive compliance. Prescriptive requirements are mandatory and should be documented on the permit application (i.e. compliance will not be shown on the NRCC-PRF-E).	
	Multifam	Not Included		☒	Not Included		
Mechanical (See Table H)	Norres.	Performance	Covered Process: Commercial Efficiency (See Table J)	☐	Performance	Indoor Lighting (Unconditioned) 140.6 & 170.2(e)	NRCC-LTI-E is required
	Multifam.	Not Included		☒	Not Included	Outdoor Lighting 140.7 & 170.2(e)	NRCC-LTO-E is required
Domestic Hot Water (See Table I)	Norres.	Not Included	Covered Process: Laboratory Exhaust (see Table J)	☐	Performance	Sign Lighting 140.8 & 170.2(e)	NRCC-LTS-E is required
	Multifam	Not Included		☒	Not Included	**Building Components Complying with Mandatory Measures**	
Lighting (Indoor Conditioned see Table K)	Norres.	Performance	Photovoltaics (see Table F)	☐	Performance	The following building components are listed eligible for mandatory compliance. Prescriptive requirements are mandatory and should be documented on the NRCC form listed if applicable (i.e. compliance will not be shown on the NRCC-PRF-E).	
	Multifam.	Not Included		☒	Not Included	Electrical Power Distribution 110.11	NRCC-ELC-E is required
			Battery (see Table F)	☐	Performance	Commissioning 120.8	NRCC-CXR-E is required
				☒	Not Included	Solar and Battery 110.10	NRCC-SAB-E is required

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Nonresidential Performance Compliance Method — [Page 3 of 14]

C1. COMPLIANCE SUMMARY

COMPLIES	Long-term System Cost (LSC)*		Source Energy Use	
	Efficiency† ($/ft².yr)	Total† ($/ft².yr)	Efficiency† (kBtu/ft².yr)	Total† (kBtu/ft².yr)
Standard Design	34.4	n/a	n/a	n/a
Proposed Design	34.16	n/a	n/a	n/a
Compliance Margins	**0.24**	**n/a**	**n/a**	**n/a**
		Pass	**n/a**	**n/a**

*Long-term System Cost (LSC) is a 30-year present value cost to California's energy system. LSC is not a predicted utility bill.
†Efficiency measures include energy efficiency improvements such as better building envelope and more efficient mechanical equipment
‡ Total includes efficiency, PV, battery, and demand flexibility.
* New Construction: Building complies when Proposed Design is equal to or less than Standard Design in all compliance categories and unmet load hour limits are not exceeded. Complete Addition Scope and Existing, Addition and Alteration Scope: Building complies when efficiency compliance margin is greater than or equal to zero and unmet load hour limits are not exceeded.

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CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — NRCC-PRF-E

Nonresidential Performance Compliance Method — [Page 4 of 14]

C2. LSC ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual LSC Energy Use, $/ft².yr)

Energy Component	Standard Design (LSC)	Proposed Design (LSC)	Compliance Margin (LSC)*
Space Heating	3.74	3.73	0.01
Space Cooling	13.24	12.91	0.33
Indoor Fans	3.67	3.77	-0.1
Heat Rejection	0	0	0
Pumps & Misc.	0	0	0
Domestic Hot Water	5.58	5.58	0
Indoor Lighting	8.17	8.17	0
Flexibility	—	—	—
EFFICIENCY COMPLIANCE TOTAL	**34.4**	**34.16**	**0.24 (0.7%)**
Photovoltaics	—	—	—
Batteries	—	—	—
TOTAL COMPLIANCE	**34.4**	**34.16**	**0.24 (0.7%)**

*Notes: This number in parenthesis followsing the Compliance Margin is column 4, represents the Percent Better than Standard.

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Nonresidential Performance Compliance Method — [Page 5 of 14]

C3. LSC ENERGY RESULTS FOR NON-REGULATED COMPONENTS†

Non-Regulated Energy Component	Standard Design (LSC)	Proposed Design (LSC)	Compliance Margin (LSC)*
Receptacle	8.56	8.56	—
Process	—	—	—
Other Ltg	—	—	—
Process Motors	—	—	—
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**42.96**	**42.72**	**0.24 (0.6%)**

*Notes: This table is not used for Energy Code Compliance.
* Notes: This number in parenthesis followsing the Compliance Margin is column 4, represents the Percent Better than Standard.

C4. NATIVE CODE QUALIFICATIONS

☐ This project is pursuing Calgreen Tier 1 ☐ This project is pursuing Calgreen Tier 2

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Nonresidential Performance Compliance Method — [Page 6 of 14]

C7. ENERGY USE SUMMARY

Energy Component	Standard Design Site (kWh/y)	Proposed Design Site (kWh/y)	Margin (kWh/y)	Standard Design Site (kBtu/y)	Proposed Design Site (kBtu/y)	Margin (kBtu/y)
Space Heating	32.2	32.2	0	24.5	23.4	1.1
Space Cooling	173.8	169.4	4.4	—	—	—
Indoor Fans	43.2	44.4	-1.2	—	—	—
Heat Rejection	—	—	—	—	—	—
Pumps & Misc.	—	—	—	—	—	—
Domestic Hot Water	5.8	5.8	0	554.9	554.9	0
Indoor Lighting	99.6	99.6	0	—	—	—
Flexibility	—	—	—	—	—	—
EFFICIENCY TOTAL	**354.6**	**351.4**	**3.2**	**579.4**	**578.3**	**1.1**
Photovoltaics	—	—	—	—	—	—
Batteries	—	—	—	—	—	—
ENERGY USE SUBTOTAL	**354.6**	**351.4**	**3.2**	**579.4**	**578.3**	**1.1**
Receptacle	104.7	104.7	0	—	—	—
Process	—	—	—	—	—	—
Other Ltg	—	—	—	—	—	—
Process Motors	—	—	—	—	—	—
ENERGY USE TOTAL	**459.3**	**456.1**	**3.2**	**579.4**	**578.3**	**1.1**

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CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — NRCC-PRF-E

Nonresidential Performance Compliance Method — [Page 7 of 14]

C8. ENERGY USE INTENSITY (EUI)

	Standard Design (kBtu/ft² / yr)	Proposed Design (kBtu/ft² / yr)	Margin (kBtu/ft² / yr)	Margin Percentage
GROSS EUI*	36.4	36.2	0.2	0.55
NET EUI†	36.4	36.2	0.2	0.55

*Notes: Gross EUI is Energy Use Total (not including PV) Total Building Area. Net EUI is Energy Use Total (including PV) Total Building Area.

D1. EXCEPTIONAL CONDITIONS

• The building does not include service water heating. Verify that service water heating is not required and is not included in the design.
• The proposed building includes space(s) that are modeled with unknown HVAC system(s). Verify that the spaces modeled with unknown HVAC system(s) are either part of core and shell analysis which will be permitted for mechanical compliance in the future, or the spaces have an existing HVAC system not modeled for compliance, or the spaces are unconditioned in the proposed design.
• The user model includes space(s) that are designed to be served by mechanical cooling systems, but the cooling systems were not included in the simulation model. A cooling system has been modeled for both the proposed and standard cases.
• The user model includes space(s) without sufficient cooling equipment. Cooling equipment has been added to the model to meet cooling loads.
• Verify project meets the requirements for Vestibules as per Section 120.7(e).

E1. ENVELOPE GENERAL INFORMATION (conditioned spaces only)

01	02	03	04
Opaque Surfaces & Orientation	**Total Gross Surface Area (ft²)**	**Total Fenestration Area (ft²)**	**Window to Wall Ratio (%)**
North-Facing*	7196	0	0
East-Facing†	5541	0	0
South-Facing‡	0	0	0

Notes:
*North-Facing is oriented to within 45 degrees of true north, including 45(00'00" east of north (NE), but excluding 45(00'00" west of north (NW).
†East-Facing is oriented to within 45 degrees of true east, including 45(00'00" south of east (SE), but excluding 45(00'00" north of east (NE).
‡South-Facing is oriented to within 45 degrees of true south, including 45(00'00" west of south (SW), but excluding 45(00'00" east of south (SE).
§West-Facing is oriented to within 45 degrees of true west, including 45(00'00" north of west (NW), but excluding 45(00'00" south of west (SW).

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Nonresidential Performance Compliance Method — [Page 8 of 14]

E1. ENVELOPE GENERAL INFORMATION (conditioned spaces only)

01	02	03	04
Opaque Surfaces & Orientation	**Total Gross Surface Area (ft²)**	**Total Fenestration Area (ft²)**	**Window to Wall Ratio (%)**
Wall-Facing*	3478	0	0
Total	**18189**	**0**	**0**
Roof	58963	0	0

Notes:
*North-Facing is oriented to within 45 degrees of true north, including 45(00'00" east of north (NE), but excluding 45(00'00" west of north (NW).
†East-Facing is oriented to within 45 degrees of true east, including 45(00'00" south of east (SE), but excluding 45(00'00" north of east (NE).
‡South-Facing is oriented to within 45 degrees of true south, including 45(00'00" west of south (SW), but excluding 45(00'00" east of south (SE).
§West-Facing is oriented to within 45 degrees of true west, including 45(00'00" north of west (NW), but excluding 45(00'00" south of west (SW).

E4. NONRESIDENTIAL AIR BARRIER

01	02
Building Story Name	**Air Barrier**
Com-Utility	No air barrier
Com-Lobby	No air barrier

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E2. OPAQUE SURFACE ASSEMBLY SUMMARY

01	02	03	04	05	06	07	08	09	10
Surface Name	**Construction Type**	**Area (ft²)**	**Framing Type**	**Cavity R-Value**	**Continuous R-Value**		**Units**	**Value**	**Description of Assembly Layers**
					Interior	**Exterior**			
Default Roof (478-10)(1R)	Roof	58,963	Wood	19	N/A	N/A	U-factor	0.0552	Asphalt/shingles: 2in Vapor permeable felt - 1/8 in. Plywood - 1/2 in. Cavity - Wood Roof Ceiling - 4 in. or more Composite-1 Gypsum Board - 5/2 in.
Default Wall (978 to 1991B	Exterior Wall	16,185	Wood	11	N/A	N/A	U-factor	0.1098	Stucco - 7/8 in. Vapor permeable felt - 1/8 in. Composite-2 Gypsum Board - 1/2 in.
Slab On Grade11	Underground Floor	58,963	N/A	0	N/A	N/A	F-factor	0.73	Insulation Orientation - slab on grade Insulation Orientation - Horiz Insulation R Value -none
R-0 Wall20	Interior Wall	1,646	N/A	0	N/A	N/A	U-factor	0.5367	Stucco - 7/8 in. Vapor permeable felt - 1/8 in. Cavity - Wall Roof Ceiling - 4 in. or more Gypsum Board - 1/2 in.

11	12
Status†	
E	
E	
E	
E	

†Status: N - New, A - Altered, E - Existing

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H2. DXV SYSTEM EQUIPMENT (FURNACES, AIR HANDLING UNITS, HEAT PUMPS, VRF, ECONOMIZERS) (TC)

01	02	03	04	05	06	07	08	09	10	11	12
			Heating				**Cooling**				
Equipment Name	**Equipment Type**	**Qty**	**Total Heating Capacity (kBtu/h)**	**Supp Heat Output (kBtu/h)**	**Efficiency: HSPF**	**Efficiency**	**Total Cooling Capacity (kBtu/h)**	**Efficiency: SEER**	**Efficiency**	**Evaporative Type (if present)**	**Status†**
AC - 60	Single Zone Air Conditioner (SZAC) Air System	1	168	0	AFUE	81	120.74	EER	11	Fixed DB	N

†Status: N - New, A - Altered, E - Existing

H3. NONRESIDENTIAL / COMMON USE AREA FAN SYSTEMS SUMMARY

01	02	03	04	05	06	07	08	09	10	11	12	13
			Supply Fan					**Return / Relief Fan**				
Name or Item Tag	**Qty**	**Design CFM**	**CFM**	**Power**	**Power Units**	**Control**	**Fan Type**	**CFM**	**Power**	**Power Units**	**Control**	**Status†**
AC - 60	1	3187.3	4,000	1.41	BHP	Constant Volt	N/A	N/A	N/A	N/A	N/A	E

01	14	15	16	17	18	19
	Supply Fan				**Return / Relief Fan**	
Name or Item Tag	**Modeling Method**	**Fan Efficiency**	**Motor Efficiency**	**Modeling Method**	**Fan Efficiency**	**Motor Efficiency**
AC - 60	Brake Horse Power	0.65	0.87	N/A	N/A	N/A

†Status: N - New, A - Altered, E - Existing

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H6. SYSTEM SPECIAL FEATURES

01	02	03	04
System Name	**Equipment Type**	**Interlocks per 140.4(k)***	**Other Special Features and Controls**
AC - 60	Single Zone Air Conditioner (SZAC) Air System	N/A	Zone(s): WIN: CO2 Sensor Mnt. Control Fixed DB

Notes: This table includes controls related to the performance path only. For projects using the prescriptive path, mandatory and prescriptive controls requirements are also overlaid on the NRCC-MCH-E.
* No = Interlocks are provided, Yes = Interlocks are not provided, NA means no operable openings.

H8. NONRESIDENTIAL / COMMON USE AREA & HOTEL/MOTEL VENTILATION

01	02	03	04	05	06	07
		Mechanical Ventilation				**DCV or Occupant Sensor Controls, or Both**
Zone Name	**Ventilation Function**	**# of People**	**Supply Std CFM**	**Exhaust CFM**	**Conditioned Area (sf)**	
2-Lobby 51013103 &1104	Assembly - Lobbies	212.49	3187.3	0	6439	DCV

H11. ZONAL SYSTEM AND TERMINAL UNIT SUMMARY

01	02	03	04	05	06	07	08	09	10	11	12
			Rated Capacity (kBtu/h)			**Airflow (cfm)**			**Fan Control**		
System ID	**System Type**	**Qty**	**Heating**	**Cooling**	**Design**	**Min. Ratio**	**Power**	**Power Units**	**Cycles**	**VSD**
2-Lobby 51013103 &1104 Trm	Uncontrolled	1	N/A	N/A	4,000	N/A	0	N/A	N/A	☐
BaseVAV/AuxHeatTrmUnit	Variable Air Volume No Reheat Box	2	N/A	N/A	32,365.9	16,183	0.5	N/A	N/A	N/A	☐

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K1. INDOOR CONDITIONED LIGHTING GENERAL INFO

01	02	03	04	05	06
				Additional (Custom) Allowance	
Occupancy Type*	**Conditioned Floor Area† (ft²)**	**Installed Lighting Power (Watts)**	**Lighting Control Credits (Watts)**	**Area Category Footnotes (Watts)**	**Area Category Footnotes (Watts)**
Corrections and Atrns Area	6459	3865.4	0	0	0
Building Totals	**6459**	**3865.4**	**0**	**0**	**0**

See Section 140.6(a)2
See NRCI-LTI-E for unconditioned spaces
Lighting information for existing spaces modeled is not included in this table

K4. INDOOR CONDITIONED LIGHTING MANDATORY LIGHTING CONTROL

See NRCI-ELC-E for mandatory controls

K. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections made by Documentation Author indicate which Certificates of Installation must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online

Building Component	Form/Title
Mechanical	NRCI-MCH-E - For all buildings with Mechanical Systems

G. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections made by Documentation Author indicate which Certificates of Acceptance must be submitted for the features to be recognized for compliance. These documents must be provided to the building inspector during construction. Lighting controls and mechanical NRCAs must be completed through an Acceptance Test Technician Certification Provider (ATTCP).

Building Component	Form/Title & System Name(s)
Mechanical	NRCA-MCH-03-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: NRCA-ELC-02-A can be performed in conjunction with NRCA-MCH-03-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap
Mechanical	NRCA-MCH-04-A - Economizer Controls
Mechanical	NRCA-MCH-05-A Demand Control Ventilation Systems must be submitted for all systems required to employ demand controlled ventilation (refer to) can vary outside ventilation flow rates based on maintaining interior carbon dioxide (CO2) concentration setpoints.
Mechanical	NRCA-MCH-12-A FDD for Packaged Direct Expansion Units.

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G. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections made by Documentation Author indicate which Certificates of Acceptance must be submitted for the features to be recognized for compliance. These documents must be provided to the building inspector during construction. Lighting controls and mechanical NRCAs must be completed through an Acceptance Test Technician Certification Provider (ATTCP).

Building Component†	Form/Title & System Name(s)
Mechanical	NRCA-MCH-03-A - Constant Volume Single Zone HVAC
	AC - 60
Mechanical	NRCA-MCH-04-A - Air Economizer Controls
	AC - 60
Mechanical	NRCA-MCH-05-A Demand Control Ventilation Systems must be submitted for all systems required to employ demand controlled ventilation (refer to) can vary outside ventilation flow rates based on maintaining interior carbon dioxide (CO2) concentration setpoints.
	AC - 60
Mechanical	NRCA-MCH-12-A FDD for Packaged Direct Expansion Units.
	AC - 60

Refer to other prescriptive NRCI forms applicable to the project for additional NRCA tests required that are not included in the NRCC-PRF-E form

R. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

Selections made by Documentation Author indicate which Certificates of Verification must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online

There are no certificates applicable to this project

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Documentation Author's Declaration Statement

I, I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Cole Condon	Documentation Author Signature: CC
Company: Optimum Energy Design	Signature Date: 2026-02-08
Address: 5200 E La Palma Avenue	CEA/ANSI/ICC Certification Identification (if applicable):
City/State/Zip: Anaheim, CA 92807	Phone: 714-693-2277

Responsible Person's Declaration statement

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The building design or system design features specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I understand that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building and shall be made available to the enforcement agency for all applicable inspections. I will take the necessary steps to fulfill this requirement.
6. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy. I will take the necessary steps to fulfill this requirement.

Responsible Designer Name: Cole Condon	Responsible Designer Signature: CC
Company: Optimum Energy Design	Date Signed: 2026-01-08
Address: 5200 E La Palma Avenue	License #:
City/State/Zip: Anaheim, CA 92807	Title: Scope:
Phone: 7146932277	
Responsible Designer Name: Aleks Banerjee	Responsible Designer Signature:
Company: Optimum Energy Design	Date Signed: 2026-01-08
Address: 5200 E La Palma Avenue	License #: M29253
City/State/Zip: Anaheim, CA 92807	Title: Scope:
Phone: 7146932277	

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Date Plotted:
As Noted

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

MECHANICAL T24 - BUILDING 5A

oed optimum energy design
Consulting Engineers
5200 E. La Palma Ave
Anaheim, CA 92807
Telephone (714) 693-2277

APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ABBY BAKERJEE
No. M29253
Exp. 6/30/27
MECHANICAL
STATE OF CALIFORNIA

REVISION SCHEDULE

Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver

REVIEWED BY:

DRAWN BY:

SCALE: As Indicated

ISSUE DATE: Issue Date

SHEET NUMBER

M6.2

PROJECT NUMBER

GENERAL NOTES

1. MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2025 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

THE ATTACHMENT OF THE FOLLOWING ITEMS SHALL BE DESIGNED TO RESIST THE FORCES PRESCRIBED ABOVE, BUT NEED NOT BE DETAILED ON THE PLANS, AND THE PROJECT INSPECTOR WILL VERIFY THAT THESE ITEMS (EQUIPMENT) HAVE BEEN ANCHORED:

A. EQUIPMENT WEIGHING LESS THAN 400 POUNDS SUPPORTED DIRECTLY ON THE FLOOR OR ROOF.

B. FURNITURE REQUIRED TO BE ATTACHED IN ACCORDANCE WITH ASCE 7-05, SECTION 13.5.

C. TEMPORARY OR MOVABLE EQUIPMENT WITH FLEXIBLE CONNECTION TO POWER OR UTILITIES.

D. EQUIPMENT WEIGHING LESS THAN 20 POUNDS SUPPORTED BY VIBRATION ISOLATORS.

E. EQUIPMENT WEIGHING LESS LESS THAN 20 POUNDS SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT OF THE MECHANICAL/ELECTRICAL ENGINEER.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.5, 13.6.6, AND 13.6.7, 13.6.8; AND 2025 CBC 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP [ ] MD [ ] PP [ ] E [✓] OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP [ ] MD [ ] PP [ ] E [ ] OPTION 2: SHALL COMPLY WITH HCAI (OSHPD) PREAPPROVAL (OPM#) #_____, AS INCLUDED IN THESE DRAWINGS WITH PROJECT-SPECIFIC NOTES NOTES AND DETAILS.

COPIES OF THE MANUAL SHALL BE ON THE JOBSITE PRIOR TO STARTING HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS.

THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

2. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL) AND BEAR THEIR LABEL, OR LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING AUTHORITY WHERE UL DOES NOT HAVE A LISTING. CUSTOM MADE EQUIPMENT SHALL HAVE COMPLETE TEST DATA SUBMITTED BY THE MANUFACTURER ATTESTING TO ITS SAFETY. IN ADDITION, THE MATERIALS, EQUIPMENT, AND INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING:

AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
AMERICAN STANDARD ASSOCIATION (ASA)
NATIONAL FIRE PROTECTION AGENCY (NFPA)
AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)
CALIFORNIA ELECTRICAL CODE (CEC) - LATEST EDITION
CALIFORNIA CODE OF REGULATIONS TITLE 24 (CCR)
INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
ALL LOCAL CODES HAVING JURISDICTION.

WHERE THE CODES HAVE DIFFERENT LEVELS OF REQUIREMENTS, THE MOST STRINGENT RULE SHALL APPLY.

3. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES AT THE SITE. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION. WHERE THE INSTALLATION DIFFERS FROM THE WORK INDICATED ON THE APPROVED PLANS A CHANGE ORDER SHALL BE ISSUED. THE CHANGE ORDER SHALL INCLUDE REASON FOR CHANGE, CHANGE IN CONTRACT COST AND SUPPLEMENTARY DRAWINGS AND CALCULATIONS IF NECCESSARY.

4. THE CONTRACTOR SHALL PROVIDE AND KEEP UP-TO-DATE A COMPLETE RECORD SET OF DRAWINGS. THESE PRINTS SHALL BE CORRECTED DAILY AND SHOW EVERY CHANGE FROM THE ORIGINAL DRAWINGS. THIS SET OF DRAWINGS SHALL BE KEPT ON THE JOB SITE AND SHALL BE USED ONLY AS A RECORD SET. THIS SHALL NOT BE CONSTRUED AS AUTHORIZATION FOR THE CONTRACTOR TO MAKE CHANGES IN THE LAYOUT WITHOUT DEFINITE INSTRUCTION. CHANGES TO THE APPROVED PLANS SHALL BE ISSUED IN THE FORM OF A CHANGE ORDER. UPON UPON COMPLETION OF THE WORK, A SET OF REPRODUCIBLE CONTRACT DRAWINGS SHALL BE OBTAINED FROM THE ENGINEER, AND ALL CHANGES AS NOTED ON THE RECORD SET OF DRAWINGS SHALL BE INCORPORATED THEREON WITH BLACK INK IN A NEAT, LEGIBLE, UNDERSTANDABLE AND PROFESSIONAL MANNER. FAILURE TO KEEP RECORD DRAWINGS UP-TO-DATE SHALL CONSTITUTE CAUSE FOR WITHHOLDING OF PROGRESS PAYMENTS.

5. ALL INTERRUPTION OF ELECTRICAL POWER SHALL BE KEPT TO A MINIMUM. HOWEVER, WHEN AN INTERRUPTION IS NECESSARY, THE SHUTDOWN MUST BE COORDINATED WITH THE COLLEGE AND ENGINEER 14 DAYS PRIOR TO THE OUTAGE. ANY OVERTIME PAY SHALL BE INCLUDED IN THE CONTRACTOR'S PRICE. WORK IN EXISTING SWITCHBOARDS OR PANELBOARDS SHALL BE COORDINATED WITH THE COLLEGE PRIOR TO REMOVING ACCESS PANELS OR DOORS.

6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TEMPORARY POWER FACILITIES AND CONNECTIONS FOR ALL FEEDERS OR SYSTEMS BEING DISCONNECTED IN ORDER TO MAINTAIN SYSTEMS IN OPERATION OR WHERE SAID FEEDERS OR SYSTEMS REQUIRE EMERGENCY STANDBY POWER.

7. AFTER ALL REQUIREMENTS OF THE DRAWINGS HAVE BEEN FULLY COMPLETED, REPRESENTATIVES OF THE OWNER (MMA) AND COLLEGE WILL INSPECT THE WORK. THE CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM TO THE FULL SATISFACTION OF EACH REPRESENTATIVE. FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE OWNER (MMA) AFTER RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCEPTANCE FROM EACH REPRESENTATIVE.

8. ALL FINAL CONNECTIONS TO OWNER (MMA) FURNISHED EQUIPMENT SHALL BE MADE BY THE CONTRACTOR.

9. CONNECTIONS TO VIBRATING EQUIPMENT AND SEISMIC SEPARATIONS:

LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN AREAS EXPOSED TO WEATHER, DAMP LOCATIONS, CONNECTIONS TO TRANSFORMER ENCLOSURES, AND FINAL CONNECTIONS TO MOTORS.

PROVIDE A SEPARATE INSULATED EQUIPMENT GROUNDING CONDUCTOR IN FLEXIBLE CONDUIT RUNS. MAXIMUM LENGTH SHALL BE SIX FEET UNLESS OTHERWISE NOTED.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAWCUTTING, TRENCHING, REMOVAL, BACKFILLING, COMPACTION AND PATCHING OF CONCRETE AS REQUIRED TO PERFORM HIS WORK. ATTENTION IS CALLED TO THE FACT THAT THERE ARE EXISTING UNDERGROUND UTILITY LINES. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN TRENCHING FOR HIS WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER AND APPROVED REPAIR OF ANY AND ALL DAMAGES CAUSED BY HIM OR HIS WORK.

11. WHENEVER A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT DEVICES, CIRCUIT BREAKERS, GROUND FAULT PROTECTION SYSTEMS, ETC. (ALL MATERIALS), ARISES ON THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE ENGINEER.

12. REFER TO SINGLE LINE DIAGRAM AND FEEDER SCHEDULES FOR CONDUIT AND CONDUCTOR SIZE TO PANELS, ETC. CONDUIT RUNS MAY NOT BE SHOWN ON DRAWINGS, BUT ARE PART OF THIS CONTRACT.

13. STRAIGHT FEEDER, BRANCH CIRCUIT, AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

14. MAXIMUM NUMBER OF CONDUCTORS IN OUTLET OR JUNCTION BOXES SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE, ARTICLE 370-6, BUT IN NO CASE SHALL CONTAIN MORE THAN THE FOLLOWING NUMBER OF #12 AWG CONDUCTORS FOR THE SIZE OF BOX INDICATED. THE MINIMUM SIZE OUTLET OR JUNCTION BOX PERMITTED IN A WALL IS FOUR INCHES SQUARE BY 1-1/2 INCHES DEEP.

4" SQ. BY 1-1/2" D = 9 CONDUCTORS
4" SQ. BY 2-1/8" D = 13 CONDUCTORS
4-11/16" SQ. BY 1-1/2" D = 11 CONDUCTORS
4-11/16" SQ. BY 2-1/8" D = 18 CONDUCTORS

ALL OUTLET BOXES CONTAINING MORE THAN ONE DEVICE SHALL BE GANGED. TWO DEVICES DOUBLE GANGED, MINIMUM.

15. WHERE MULTI-HOMERUNS ARE INDICATED ON DRAWINGS INDICATING THE SAME PANELBOARD CIRCUIT NUMBER, PROVIDE JUNCTION BOX AND ROUTE ONE SET OF WIRES TO CIRCUIT BREAKERS.

16. IDENTIFICATION NAMEPLATES SHALL BE MICARTA 1/8 INCH THICK AND OF APPROVED SIZE WITH BEVELLED EDGES AND ENGRAVED WHITE LETTERS A MINIMUM OF 1/4 INCH HIGH ON BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED FOR ALL CIRCUITS IN THE SERVICE DISTRIBUTION OR PANELBOARDS. ALL NAMEPLATES SHALL BE ATTACHED WITH SCREWS. PULL BOXES, JUNCTION BOXES, AND DEVICE BOXES SHALL BE MARKED WITH A PERMANENT MARKER.

17. DRAWINGS ARE DIAGRAMMATIC ONLY. ROUTING OF RACEWAYS SHALL BE AT THE OPTION OF THE CONTRACTOR UNLESS OTHERWISE NOTED AND SHALL BE COORDINATED WITH OTHER SECTIONS. DO NOT SCALE THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL, OR MECHANICAL ITEMS OR FEATURES.

18. CUTTING, BORING, SAW CUTTING OR DRILLING THROUGH THE NEW OR EXISTING STRUCTURAL ELEMENTS TO BE DONE ONLY WHEN SO DETAILED ON THE DRAWINGS OR ACCEPTED BY THE ENGINEER WITH THE APPROVAL OF DSA REPRESENTATIVE.

19. ALL EXPOSED CONDUITS SHALL BE RIGID GALVANIZED STEEL CONDUIT, SCH. 40.

20. CONTRACTOR SHALL PROVIDE LAMINATE RED NAMEPLATE ON ALL DISCONNECT SWITCHES, WITH CIRCUIT DESCRIPTIONS AND NUMBER.

21. EQUIPMENT GROUNDING: CONTRACTOR SHALL PROVIDE SIX 3/4"X10' GROUND WELL BONDED WITH 4/0 BARE COPPER GROUND WIRE. CONNECT TO DISTRIBUTION EQUIPMENT AT TWO POINTS WITH 2/0 BARE COPPER CONDUCTOR.

22. OVERCURRENT PROTECTION SHALL COMPLY WITH CEC ARTICLE 240.

23. SOLAR PHOTOVOLTAIC SYSTEM INSTALLATION SHALL CONFORM TO CEC ARTICLE 690.

24. DEMOLITION/CONSTRUCTION SHALL CONFORM TO CFC CHAPTER 14, CBC CHAPTER 33 AND CEC ARTICLE 89.

25. SOLAR PHOTOVOLTAIC SYSTEM IS INTERACTIVE GRID PARALLEL MODE ONLY.

ELECTRICAL SYMBOL LIST

- RIGID STEEL CONDUIT RUN CONCEALED, 3/4" MINIMUM.
- CONDUIT STUBBED OUT AND CAPPED. PULL LINE IN PLACE.
- CONDUIT RUN UNDERGROUND.
- #10 — CONDUIT RUN WITH TICK MARKS INDICATE QUANTITY OF #12 THHN / THWN COPPER CONDUCTORS -U.O.N.. CONDUIT SHOWN WITH NO TICK MARKS INDICATES 2 #12 THHN / THWN CONDUCTORS -U.O.N..
- B-1,3 — CONDUIT HOME RUN TO PANELBOARD. LETTER AND NUMERALS INDICATES ELECTRICAL PANEL AND CIRCUIT NUMBER.
- HOMERUN TO DESTINATION AS INDICATED. REFER TO CONDUIT SYMBOL ABOVE.
- BRANCH CIRCUIT PANEL, MOUNTING AS SHOWN ON SCHEDULES.
- (E) — EXISTING TO REMAIN.
- C.O. — CONDUIT ONLY.
- MOLDED CASE CIRCUIT BREAKER (SINGLE LINE DIAGRAM).
- GROUND.
- DUPLEX RECEPTACLE WITH (20AMP, 120V, 3W, WALL PLATE TO MATCH DEVICE) MTD. AT 18". RECEPTACLE SHALL BE PROVIDED COMPLETE WITH WEATHERPROOF COVERS LISTED U.L. LISTED FOR WET LOCATIONS WHEN IN USE.
- (X) — NOTE IDENTIFICATION SYMBOL. NUMBER INDICATES NOTE.
- AC 1 — HVAC EQUIPMENT DESIGNATION. SEE MECHANICAL PLANS.
- AS/ P/ AF — FUSED DISCONNECT SWITCH. HEAVY DUTY TYPE WITH REQUIRED QUANTITY OF DUAL ELEMENT TIME DELAY FUSES. NEMA 3R FOR OUTDOOR USE. AS=SWITCH AMPERE RATING. P=NUMBER OF POLES. AF=FUSE AMPERE RATING.
- X / E4X — DETAIL CALLOUT
- E — EXISTING CONDUIT AND CONDUCTORS TO REMAIN.
- ER — EXISTING CONDUIT AND CONDUCTORS TO BE DISCONNECTED AND REMOVED.
- (E) — EXISTING EQUIPMENT TO REMAIN IN OPERATION.
- (N) — NEW EQUIPMENT.
- (R) — EXISTING EQUIPMENT TO DISCONNECTED AND REMOVED.

REFERENCES AND ABBREVIATIONS

—	DETAIL REFERENCE	MCB	MAIN CIRCUIT BREAKER
1	KEYNOTE REFERENCE	FLA	FULL LOAD AMPS
A.F.F.	ABOVE FINISH FLOOR	C.	CONDUIT
U.O.N.	UNLESS OTHERWISE NOTED	V.	VOLTS
C.O.	CONDUIT ONLY W/PULL ROPE	A	AMPS
WP	WEATHER PROOF	GFI	GROUND FAULT INTERRUPTER
CU.	COPPER	GND	GROUND
M.L.O.	MAIN LUGS ONLY	V.L.	VERIFY LOCATION
E or (E)	EXISTING TO REMAIN	A.C.	ABOVE COUNTER
EM.	EMERGENCY	N.L.	NIGHT LIGHT

SHEET INDEX

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2	ED3.1	BUILDING 5A DEMOLITION ROOF PLAN
3	ED3.2	BUILDING 5A DEMOLITION ROOF PLAN
4	E2.1	BUILDING 2A CONSTRUCTION FLOOR PLAN
5	E3.1	BUILDING 2A CONSTRUCTION ROOF PLAN
6	E3.2	BUILDING 5A CONSTRUCTION ROOF PLAN

EXISTING (BLDG. 5A)

PANEL "HG1" — MAIN BREAKER: M.L.O. — SCA: 22 KAIC
VOLTAGE: 208/120V-4-WIRE — BUS SIZE — MOUNT: SURFACE
LOCATION: ELEC ROOM FED FROM HDG — COPPER: 225A. — ENTRY: TOP

	DESCRIPTION	CKT	BKR	P	LTS	REC	MSC	MTR	A-VA	B-VA	C-VA	AMPS
★	EXISTING LOAD	1	20	1								
	EXISTING LOAD	3	20	1								
	EXISTING LOAD	5	20	1								
	EXISTING LOAD	7	20	1								
	EXISTING LOAD	9	20	1								
	EXISTING LOAD	11	20	1								
	EXISTING LOAD	13	20	1								
	EXISTING LOAD	15	20	1								
	EXISTING LOAD	17	20	1								
	EXISTING LOAD	19	20	1								
	EXISTING LOAD	21	20	1								
	EXISTING LOAD	23	20	1								
	EXISTING LOAD	25	20	1								
	EXISTING LOAD	27	20	1								
	EXISTING LOAD	29	20	1								
	EXISTING LOAD	31	20	1								
	EXISTING LOAD	33	20	1								
	EXISTING LOAD	35	20	1								
	EXISTING LOAD	37	20	1								
	EXISTING LOAD	39	20	1								
	EXISTING LOAD	41	20	1								
								SUB TOTAL VOLT/AMPS:		0	0	0
□	AC-60	2	30	3					6917			
	W/ CKT. 2	4	---	--						6917		
	W/ CKT. 2	6	---	--							6917	
★	EXISTING	8	40	3								
	W/ CKT. 8	10	---	--								
	W/ CKT. 8	12	---	--								
	EXISTING	14	30	3								
	W/ CKT. 14	16	---	--								
	W/ CKT. 14	18	---	--								
	EXISTING	20	30	3								
	W/ CKT. 20	22	---	--								
	W/ CKT. 20	24	---	--								
	EXISTING	26	30	3								
	W/ CKT. 26	28	---	--								
	W/ CKT. 26	30	---	--								
	EXISTING	32	25	3								
	W/ CKT. 32	34	---	--								
	W/ CKT. 32	36	---	--								
	EXISTING	38	20	3								
	W/ CKT. 38	40	---	--								
	W/ CKT. 38	42	---	--								
								SUB TOTAL VOLT/AMPS:		6917	6917	6917
								PANEL SUB TOTAL VOLT/AMPS:		6917	6917	6917
									TOTAL LCL/PHASE:	0	0	0
	CONNECTED: 20750 VA								TOTAL VOLT/AMPS:	6917	6917	6917
	25% OF MTR: VA								TOTAL AMPS/PHASE:	58	58	58
	25% OF LCL: 0 VA											
	CALCULATED: 20750 VA = 58 AVERAGE AMPS											

★ = INDICATES EXISTING LOAD TO REMAIN.
□ = INDICATES REVISED LOAD ON EXISTING CIRCUIT BREAKER.

NEW (BLDG. 5A)

PANEL "HG3" — MAIN BREAKER: M.L.O. — SCA: 14 KAIC
VOLTAGE: 480/277V-4-WIRE — BUS SIZE — MOUNT: SURFACE
LOCATION: ELEC ROOM FED FROM HDG — COPPER: 225A. — ENTRY: TOP

DESCRIPTION	CKT	BKR	P	LTS	REC	MSC	MTR	A-VA	B-VA	C-VA	AMPS
AC-58 POWER EXHAUST	1	45	3				1	8715			
W/ CKT. 3	3	---	--						8715		
W/ CKT. 3	5	---	--							8715	
AC-59 POWER EXHAUST	7	45	3				1	8715			
W/ CKT. 7	9	---	--						8715		
W/ CKT. 7	11	---	--							8715	
AC-60 POWER EXHAUST	13	15	3				1	1549			
W/ CKT. 7	15	---	--						1549		
W/ CKT. 7	17	---	--							1549	
							SUB TOTAL VOLT/AMPS:		18979	18979	18979
SPACE	2										
SPACE	4										
SPACE	6										
SPACE	8										
SPACE	10										
SPACE	12										
SPACE	14										
SPACE	16										
SPACE	18										
								SUB TOTAL VOLT/AMPS:	0	0	0
								PANEL SUB TOTAL VOLT/AMPS:	18979	18979	18979
								TOTAL LCL/PHASE:			
CONNECTED: 56938 VA								TOTAL VOLT/AMPS:	18979	18979	18979
25% OF MTR: 6536 VA								TOTAL AMPS/PHASE:	69	69	69
25% OF LCL: VA											
CALCULATED: 63474 VA = 76 AVERAGE AMPS											

PANEL SCHEDULE NOTES:

1. NEW CIRCUIT BREAKER TO MATCH EXISTING IN MANUFACTURE. PROVIDE REQUIRED HARDWARE. CIRCUIT BREAKER AIC RATING TO BE EQUAL TO OR GREATER THAN THE HIGHEST EXISTING AIC RATED CIRCUIT BREAKER IN THE PANEL.

BUILDING 2A

DISTRIBUTION BOARD "HDA"

REMOVED LOAD - AC-72	- 70 A.
REMOVED LOAD - AC-73	- 70 A.
REMOVED LOAD - AC-74	- 65 A.
ADDED LOAD - AC-72	+ 56.7 A.
ADDED LOAD - AC-73	+ 56.7 A.
ADDED LOAD - AC-74	+ 50.8 A.
ADDED LOAD - AC-72 PE	+ 17.9 A.
ADDED LOAD - AC-73 PE	+ 17.9 A.
ADDED LOAD - AC-74 PE	+ 13.1 A.
NET LOAD REDUCTION	+8.1 A.

BUILDING 5A

DISTRIBUTION BOARD "HDG"

REMOVED LOAD - AC-58	- 120 A.
REMOVED LOAD - AC-59	- 120 A.
REMOVED LOAD - AC-60	- 21.3 A.
ADDED LOAD - AC-58	+ 130 A.
ADDED LOAD - AC-59	+ 130 A.
ADDED LOAD - AC-60	+ 25 A.
ADDED LOAD - AC-58 PE	+ 31.5 A.
ADDED LOAD - AC-59 PE	+ 31.5 A.
ADDED LOAD - AC-60 PE	+ 5.6 A.
NET LOAD REDUCTION	+92.3 A.

EXISTING (BLDG. 5A)

DISTRIBUTION BOARD "HDG" — MAIN BREAKER: 1200A. — SCA: 42 KAIC
VOLTAGE: 480/277V-4-WIRE — BUS SIZE — MOUNT: FLOOR
LOCATION: WAREHOUSE — COPPER: 1200A. — ENTRY: TOP

	DESCRIPTION	CKT	BKR	P	LTS	REC	MSC	MTR	A-VA	B-VA	C-VA	AMPS
□	AC-58	1	150	3			1		35967	35967	35967	
□	AC-59	2	150	3			1		35967	35967	35967	
1 ○	PANEL "NEW"	3	100	3				1	18979	18979	18979	
								SUB TOTAL VOLT/AMPS:	90913	90913	90913	
	CONNECTED: 272738 VA							TOTAL AMPS/PHASE:	328	328	328	
	25% OF MTR: 0 VA											
	25% OF LCL: 0 VA											
	CALCULATED: 272738 VA = 328 AMPS								328 ACTUAL AMPS			

★ = INDICATES EXISTING LOAD TO REMAIN.
□ = INDICATES REVISED LOAD ON EXISTING CIRCUIT BREAKER.
○ = INDICATES NEW LOAD ON EXISTING CIRCUIT BREAKER.

EXISTING (BLDG. 2A)

DISTRIBUTION BOARD "HDA" — MAIN BREAKER: 1200A. — SCA: 42 KAIC
VOLTAGE: 480/277V-4-WIRE — BUS SIZE — MOUNT: FLOOR
LOCATION: ELECTRICAL ROOM — COPPER: 1200A. — ENTRY: TOP

	DESCRIPTION	CKT	BKR	P	LTS	REC	MSC	MTR	A-VA	B-VA	C-VA	AMPS
□	AC-72	1	100	3				1	15687	15687	15687	
	AC-73	2	100	3				1	15687	15687	15687	
⊥	AC-74	3	100	3				1	14055	14055	14055	
(TYP. 3) 1 △	AC-72 POWER EXHAUST	4	35	3				1	4952	4952	4952	
	AC-73 POWER EXHAUST	5	35	3				1	4952	4952	4952	
⊥	AC-74 POWER EXHAUST	6	25	3				1	3624	3624	3624	
								SUB TOTAL VOLT/AMPS:	58958	58958	58958	
	CONNECTED: 176873 VA							TOTAL AMPS/PHASE:	213	213	213	
	25% OF MTR: 3714 VA											
	25% OF LCL: 0 VA											
	CALCULATED: 180587 VA = 217 AMPS								217 ACTUAL AMPS			

★ = INDICATES EXISTING LOAD TO REMAIN.
□ = INDICATES REVISED LOAD ON EXISTING CIRCUIT BREAKER.
△ = INDICATES NEW CIRCUIT BREAKER AND NEW LOAD.

AGENCY APPROVAL

DSA A#:03-125870

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SHEET TITLE

ELECTRICAL GENERAL NOTES, SYMBOLS LIST, AND ABBREVIATIONS

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APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER — RICHARD S. SOTO — No. E17229 — 6/30/26 — STATE OF CALIFORNIA

REVISION SCHEDULE

Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/25
	DSA BACKCHECK 1	02/24/25

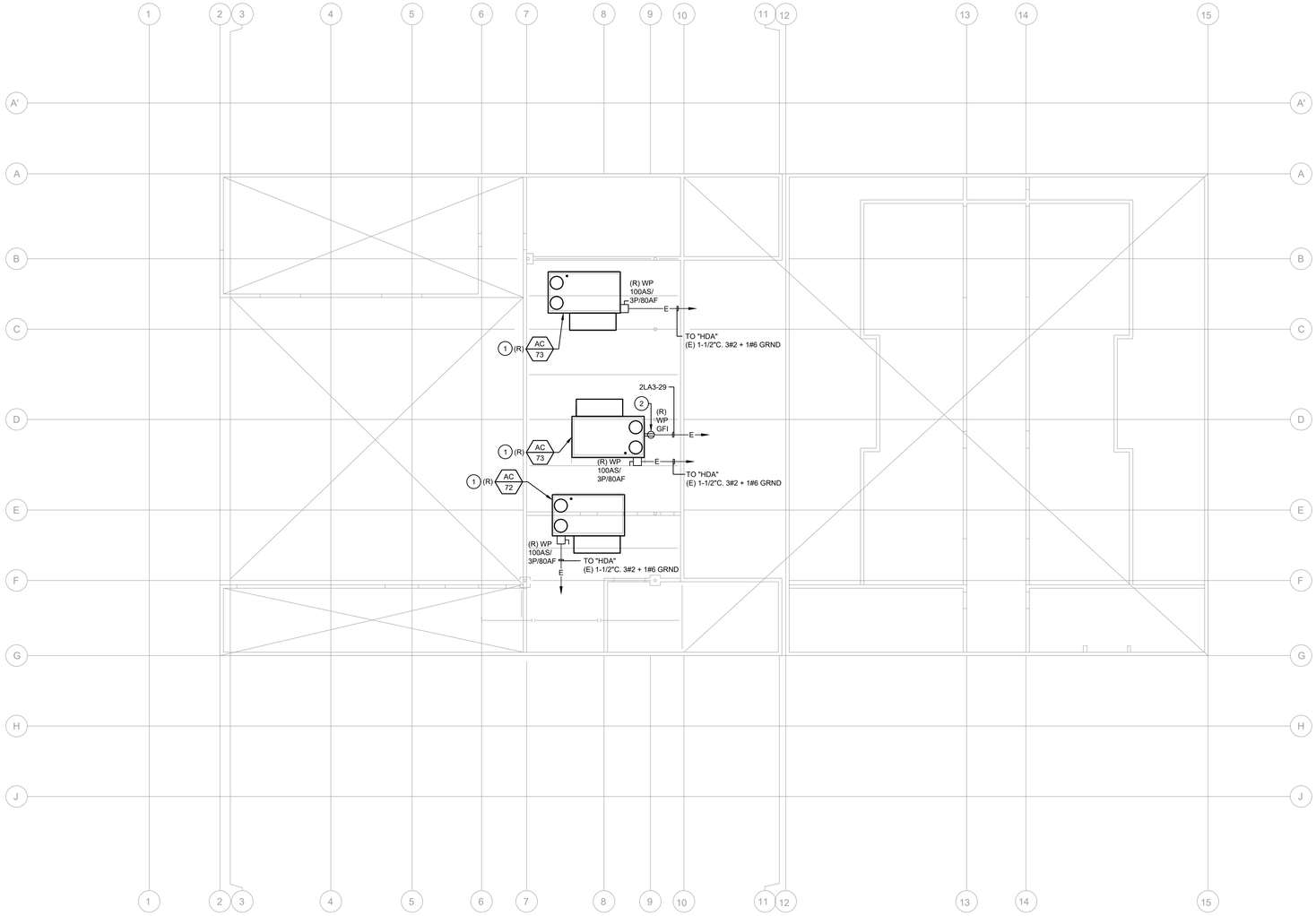
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REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER: E0.1
PROJECT NUMBER

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL NOTE THAT THE DRAWING IS DIAGRAMMATIC. EXACT ROUTING OF EXISTING CONDUITS AND LOCATION OF EXISTING JUNCTION BOXES, DISCONNECT SWITCHES, AND PULL BOXES SHALL BE COORDINATED AND DETERMINED IN THE FIELD.
2. CONTRACTOR SHALL PROVIDE UPDATE PANEL DIRECTORY (TYPED) AT ALL EXISTING DISTRIBUTION BOARDS AND BRACH CIRCUIT PANELS FOR ALL REMOVED AND ADDED HVAC EQUIPMENT.
3. ALL CIRCUITS SERVING THE REMODEL AREA, WHETHER IDENTIFIED ON PLAN OR NOT, SHALL BE TRACED AND IDENTIFIED PRIOR TO START OF THE DEMOLITION PHASE. CIRCUITS AFFECTED BY THE REMODEL THAT SERVE AREAS OF THE BUILDING THAT ARE NOT A PART OF THE REMODEL SHALL BE MAINTAINED IN OPERATION DURING THE CONSTRUCTION PHASE. INTERRUPTION OF SERVICE WILL NOT BE ALLOWED.
4. DISCONNECT AND REMOVE CONDUIT HOME-RUN TERMINATION AT THE HVAC UNIT CONTROL PANEL. PROTECT THE CONDUIT HOME-RUN AND CONDUCTORS IN PLACE. REFER TO REMODEL PLAN FOR EXISTING CONDUIT TERMINATION REQUIREMENTS.
5. REFER TO GENERAL NOTES AND DEMOLITION NOTES, DRAWING E0.1, FOR ADDITIONAL REQUIREMENTS.

PLAN NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING HVAC UNIT AND DISCONNECT SWITCH ONLY. CONTRACTOR SHALL UTILIZE EXISTING CONDUIT AND CONDUCTORS FOR CONNECTION OF NEW HVAC UNIT AND DISCONNECT SWITCH. REFER TO REMODEL PLAN, E3.1, FOR ADDITIONAL REQUIREMENTS.
2. CONTRACTOR SHALL REMOVE EXISTING RECEPTACLE ONLY. CONTRACTOR SHALL UTILIZE EXISTING CONDUIT AND CONDUCTORS FOR CONNECTION OF NEW GFCI RECEPTACLE. REFER TO REMODEL PLAN, E3.1, FOR ADDITIONAL REQUIREMENTS.



BUILDING 2A DEMOLITION ROOF PLAN

3/32" = 1'-0"

1

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
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REGISTERED PROFESSIONAL ENGINEER
RICHARD E. SOTO
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	DSA PROGRESS	12/1/25
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	70% CD	12/22/25
	DSA SUBMITTAL	01/09/25
	DSA BACKCHECK 1	02/24/25

APPROVED BY: Approver
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ED3.1

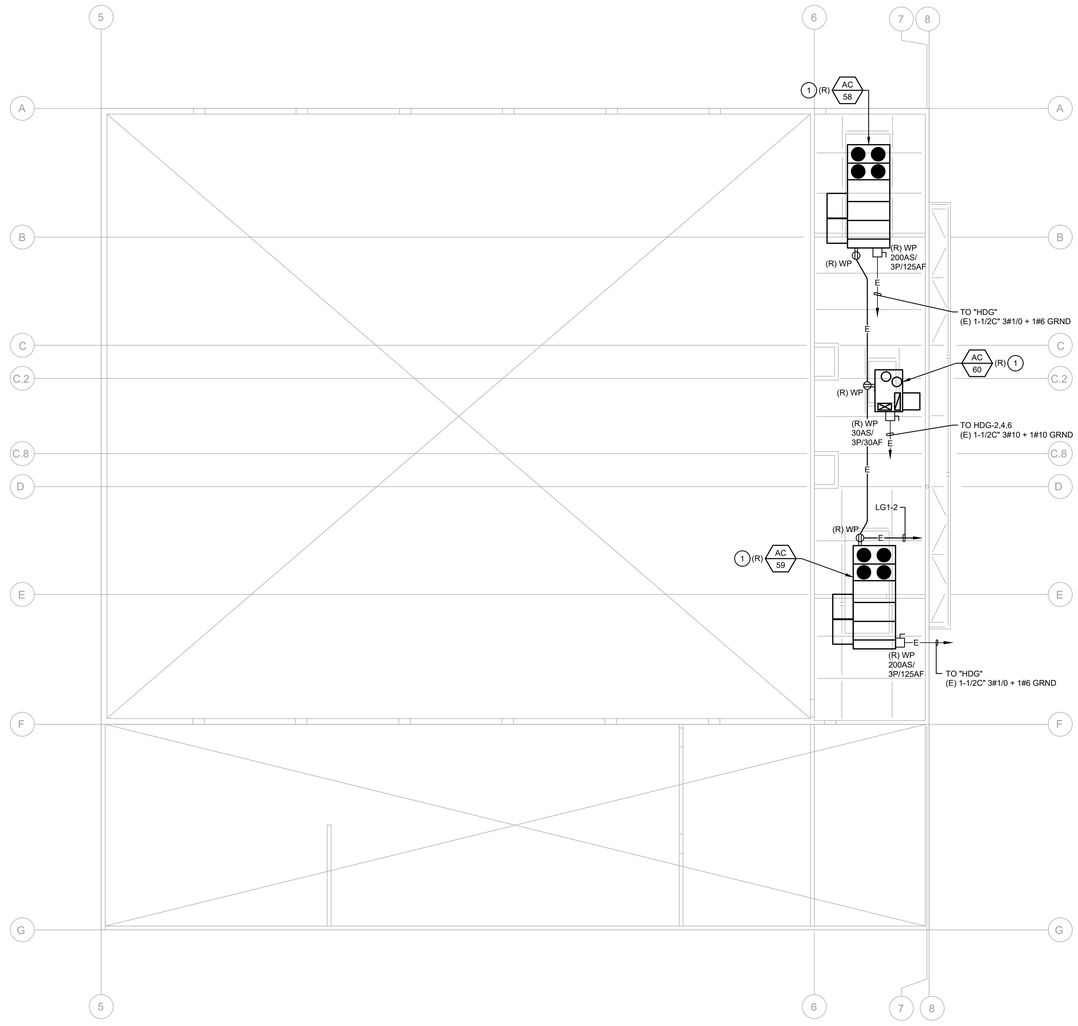
PROJECT NUMBER

CONSTRUCTION NOTES:

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2. CONTRACTOR SHALL PROVIDE UPDATE PANEL DIRECTORY (TYPED) AT ALL EXISTING DISTRIBUTION BOARDS AND BRACH CIRCUIT PANELS FOR ALL REMOVED AND ADDED HVAC EQUIPMENT.
3. ALL CIRCUITS SERVING THE REMODEL AREA, WHETHER IDENTIFIED ON PLAN OR NOT, SHALL BE TRACED AND IDENTIFIED PRIOR TO START OF THE DEMOLITION PHASE. CIRCUITS AFFECTED BY THE REMODEL THAT SERVE AREAS OF THE BUILDING THAT ARE NOT A PART OF THE REMODEL SHALL BE MAINTAINED IN OPERATION DURING THE CONSTRUCTION PHASE. INTERRUPTION OF SERVICE WILL NOT BE ALLOWED.
4. DISCONNECT AND REMOVE CONDUIT HOME-RUN TERMINATION AT THE HVAC UNIT CONTROL PANEL. PROTECT THE CONDUIT HOME-RUN AND CONDUCTORS IN PLACE. REFER TO REMODEL PLAN FOR EXISTING CONDUIT TERMINATION REQUIREMENTS.
5. REFER TO GENERAL NOTES AND DEMOLITION NOTES, DRAWING E0.1, FOR ADDITIONAL REQUIREMENTS.

PLAN NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING HVAC UNIT AND DISCONNECT SWITCH ONLY. CONTRACTOR SHALL UTILIZE EXISTING CONDUIT AND CONDUCTORS FOR CONNECTION OF NEW HVAC UNIT AND DISCONNECT SWITCH. REFER TO REMODEL PLAN, E3.2, FOR ADDITIONAL REQUIREMENTS.
2. CONTRACTOR SHALL REMOVE EXISTING RECEPTACLE ONLY. CONTRACTOR SHALL UTILIZE EXISTING CONDUIT AND CONDUCTORS FOR CONNECTION OF NEW GFCI RECEPTACLE. REFER TO REMODEL PLAN, E3.2, FOR ADDITIONAL REQUIREMENTS.



N

BUILDING 5A DEMOLITION ROOF PLAN | 3/32" = 1'-0" | 1

AGENCY APPROVAL

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BUILDING 5A DEMOLITION ROOF PLAN

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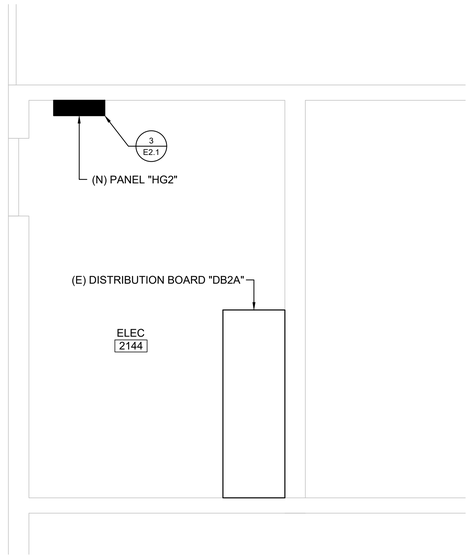
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ED3.2

PROJECT NUMBER



N

BUILDING 2A ENLARGE ELECTRICAL ROOM 2144 | 1/2" = 1'-0" | 2

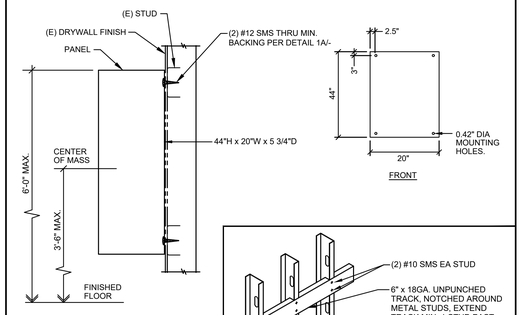


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BUILDING 2A CONSTRUCTION FIRST FLOOR PLAN | 1/8" = 1'-0" | 1

PLAN NOTES:

1. REFER TO GENERAL NOTES, DRAWING E0.1, FOR ADDITIONAL REQUIREMENTS.



MAX. EQUIPMENT WEIGHT:

BRANCH CIRCUIT PANELBOARD = 150 LBS. MAX.

DETAIL–1A

PANELBOARD - WALL MOUNTED | SCALE: NONE | 3

AGENCY APPROVAL

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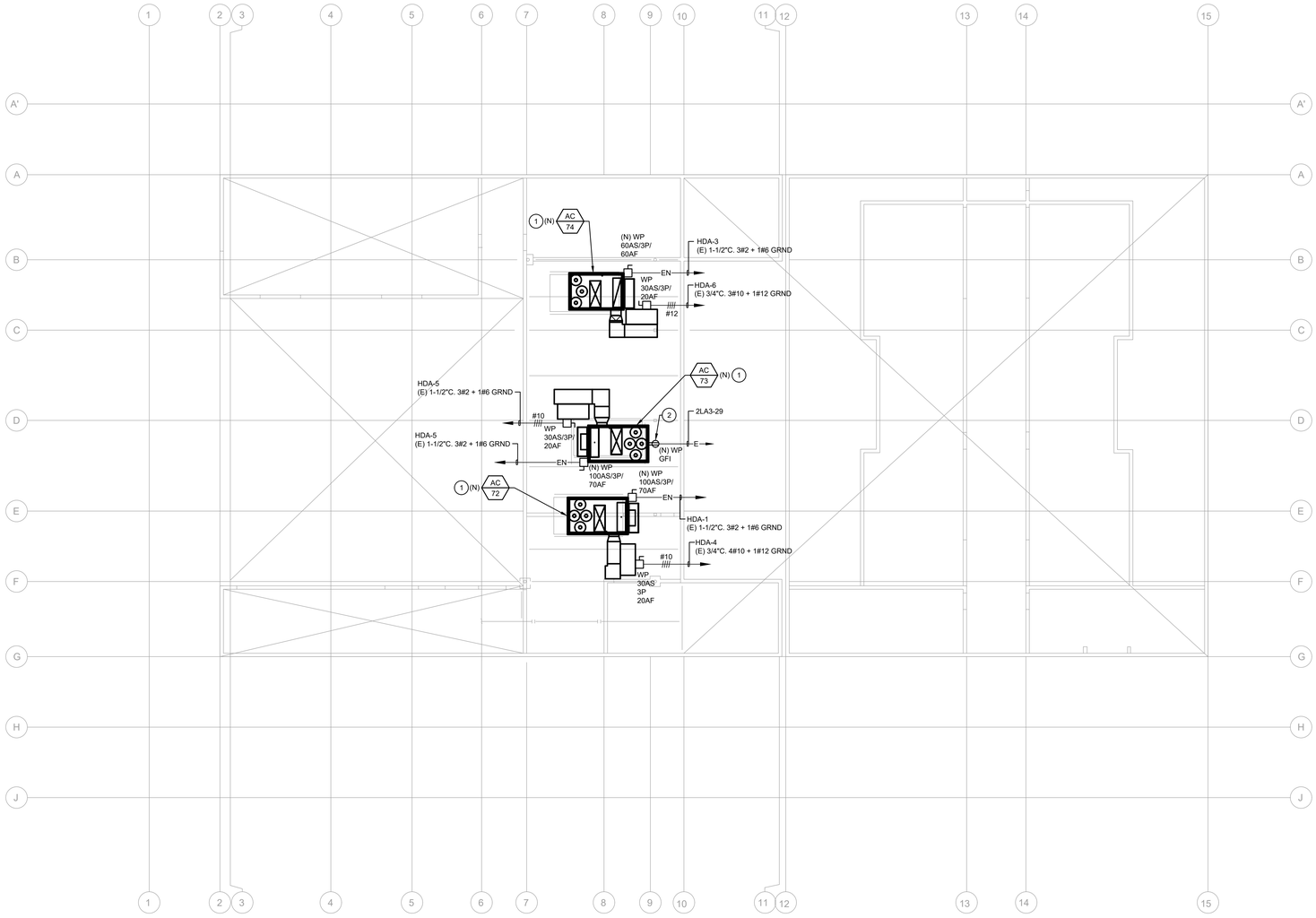
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	DSA SUBMITTAL	01/09/25
	DSA BACKCHECK 1	02/24/25

APPROVED BY: Approver
REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER

E2.1

PROJECT NUMBER



CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL NOTE THAT THE DRAWING IS DIAGRAMMATIC. EXACT ROUTING OF EXISTING CONDUITS AND LOCATION OF EXISTING JUNCTION BOXES, DISCONNECT SWITCHES, AND PULL BOXES SHALL BE COORDINATED AND DETERMINED IN THE FIELD. NEW CONDUIT, JUNCTION BOXES AND PULL BOXES SHALL BE ROUTED / PLACED IN SUCH A MANNER AS TO ADHERE TO ALL APPLICABLE CODES AND TO AVOID INTERFERENCE WITH EXISTING BUILDING STRUCTURES, UTILITIES AND THE WORK BEING PERFORMED BY OTHER TRADES. ALL EXTERIOR CONDUIT, FITTINGS, JUNCTION BOXES AND PULL BOXES TO BE WEATHER PROOF TYPE; NEMA 3R.
2. CONTRACTOR SHALL PROVIDE UPDATE PANEL DIRECTORY (TYPED) AT ALL EXISTING DISTRIBUTION BOARDS AND BRACH CIRCUIT PANELS FOR ALL REMOVED AND ADDED HVAC EQUIPMENT.
3. ALL CIRCUITS SERVING THE REMODEL AREA, WHETHER IDENTIFIED ON PLAN OR NOT, SHALL BE TRACED AND IDENTIFIED PRIOR TO START OF THE DEMOLITION PHASE. CIRCUITS AFFECTED BY THE REMODEL THAT SERVE AREAS OF THE BUILDING THAT ARE NOT A PART OF THE REMODEL SHALL BE MAINTAINED IN OPERATION DURING THE CONSTRUCTION PHASE. INTERRUPTION OF SERVICE WILL NOT BE ALLOWED.
4. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONDUIT AND FEEDERS FROM EQUIPMENT MARKED TO BE REMOVED ALL THE WAY BACK TO THE SERVING PANEL UNLESS OTHERWISE NOTED.
5. THE CONTRACTOR SHALL REFER TO THE MECHANICAL DRAWINGS FOR EXACT EQUIPMENT LOCATIONS AND ELECTRICAL CONNECTIONS REQUIREMENTS / POINTS OF CONNECTION. CONTRACTOR SHALL PROVIDE ALL POWER AND CONTROL CONNECTIONS AS INDICATED ON THE MECHANICAL DRAWINGS.
6. CIRCUITS INDICATED ON THE PANEL SCHEDULES, WHETHER SHOWN ON THE DRAWING OR NOT, SHALL BE A PART OF THIS CONTRACT AND THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE REQUIRED CONDUIT AND WIRE AS REQUIRED TO MEET THE INTENT OF THE PLANS AND SPECIFICATIONS.
7. REFER TO GENERAL NOTES AND DEMOLITION NOTES, DRAWING E0.1, FOR ADDITIONAL REQUIREMENTS.
8. EXISTING FIRE ALARM–CONNECTED DUCT SMOKE DETECTORS SERVING REPLACED HVAC UNITS ARE INTENDED TO REMAIN IN SERVICE. RECONNECT AND TEST SHUTDOWN INTERLOCK ONLY IF DISTURBED DURING CONSTRUCTION. COORDINATE WITH MECHANICAL AND FIRE ALARM CONTRACTOR AND VERIFY OPERATION

PLAN NOTES:

1. NEW HVAC UNIT AND NEW DISCONNECT SWITCH AT REMOVED HVAC UNIT AND DISCONNECT SWITCH. CONTRACTOR SHALL CONNECT NEW HVAC UNIT TO THE EXISTING CONDUCTORS PREVIOUSLY FEEDING THE REMOVED HVAC UNIT. CONTRACTOR SHALL PROVIDE AND EXTEND NEW CONDUIT / CONDUCTORS AS REQUIRED TO ENSURE A FULLY OPERABLE HVAC UNIT UPON COMPLETION OF INSTALLATION. REFER TO DEMOLITION PLAN, ED3.1, FOR ADDITIONAL REQUIREMENTS.
3. NEW RECEPTACLE AT REMOVED RECEPTACLE LOCATION. CONTRACTOR SHALL CONNECT NEW RECEPTACLE TO THE EXISTING CONDUCTORS PREVIOUSLY FEEDING THE REMOVED RECEPTACLE. CONTRACTOR SHALL PROVIDE AND EXTEND NEW CONDUIT / CONDUCTORS AS REQUIRED TO ENSURE A FULLY OPERABLE RECEPTACLE UPON COMPLETION OF INSTALLATION. REFER TO DEMOLITION PLAN, ED3.1, FOR ADDITIONAL REQUIREMENTS.

N

BUILDING 2A CONSTRUCTION ROOF PLAN | 3/32" = 1'-0" | 1

AGENCY APPROVAL

DSA A#:03-125870

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SHEET TITLE

BUILDING 2A CONSTRUCTION ROOF PLAN

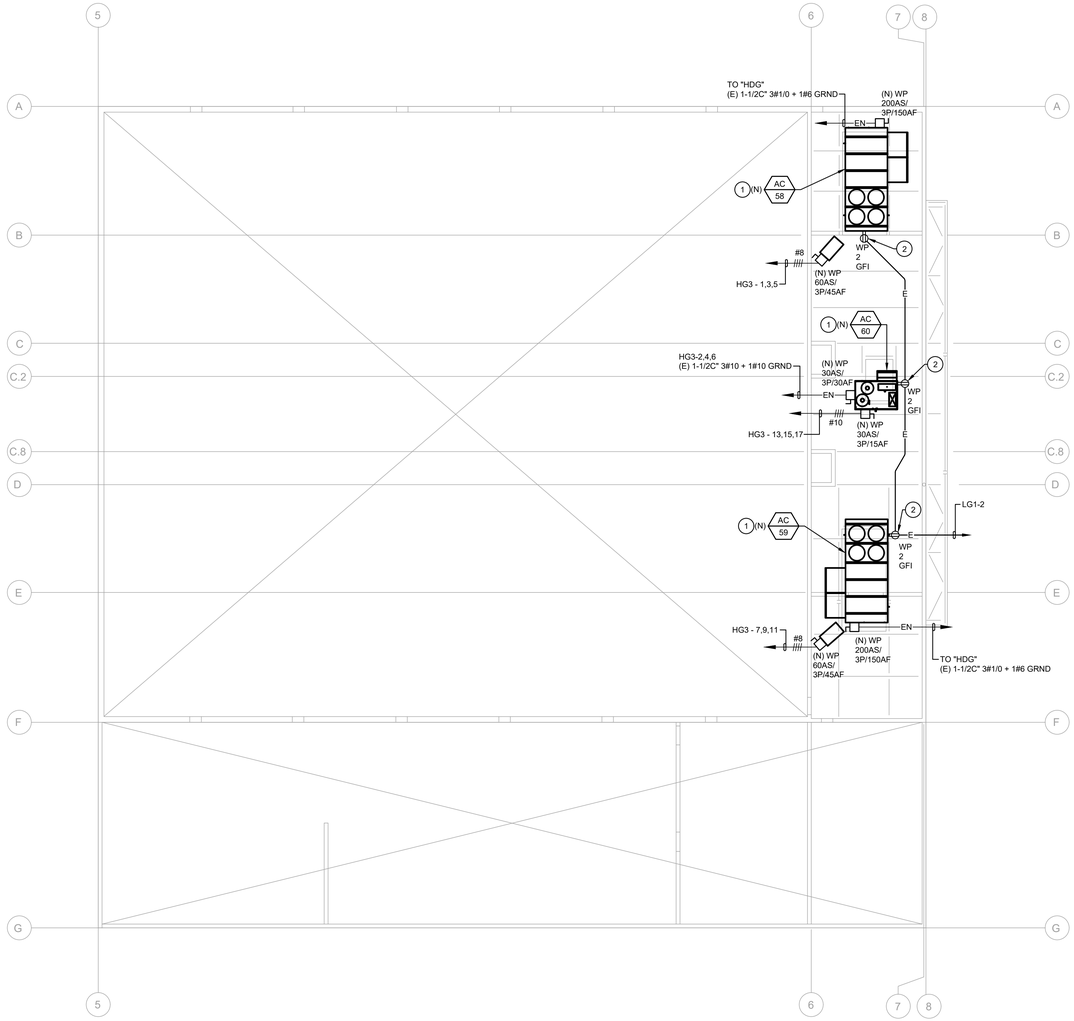
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6/30/26
STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/25
	DSA BACKCHECK 1	02/24/25

APPROVED BY: Approver
REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER: E3.1
PROJECT NUMBER



CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL NOTE THAT THE DRAWING IS DIAGRAMMATIC. EXACT ROUTING OF EXISTING CONDUITS AND LOCATION OF EXISTING JUNCTION BOXES, DISCONNECT SWITCHES, AND PULL BOXES SHALL BE COORDINATED AND DETERMINED IN THE FIELD. NEW CONDUIT, JUNCTION BOXES AND PULL BOXES SHALL BE ROUTED / PLACED IN SUCH A MANNER AS TO ADHERE TO ALL APPLICABLE CODES AND TO AVOID INTERFERENCE WITH EXISTING BUILDING STRUCTURES, UTILITIES AND THE WORK BEING PERFORMED BY OTHER TRADES. ALL EXTERIOR CONDUIT, FITTINGS, JUNCTION BOXES AND PULL BOXES TO BE WEATHER PROOF TYPE; NEMA 3R.
2. CONTRACTOR SHALL PROVIDE UPDATE PANEL DIRECTORY (TYPED) AT ALL EXISTING DISTRIBUTION BOARDS AND BRACH CIRCUIT PANELS FOR ALL REMOVED AND ADDED HVAC EQUIPMENT.
3. ALL CIRCUITS SERVING THE REMODEL AREA, WHETHER IDENTIFIED ON PLAN OR NOT, SHALL BE TRACED AND IDENTIFIED PRIOR TO START OF THE DEMOLITION PHASE. CIRCUITS AFFECTED BY THE REMODEL THAT SERVE AREAS OF THE BUILDING THAT ARE NOT A PART OF THE REMODEL SHALL BE MAINTAINED IN OPERATION DURING THE CONSTRUCTION PHASE. INTERRUPTION OF SERVICE WILL NOT BE ALLOWED.
4. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONDUIT AND FEEDERS FROM EQUIPMENT MARKED TO BE REMOVED ALL THE WAY BACK TO THE SERVING PANEL UNLESS OTHERWISE NOTED.
5. THE CONTRACTOR SHALL REFER TO THE MECHANICAL DRAWINGS FOR EXACT EQUIPMENT LOCATIONS AND ELECTRICAL CONNECTIONS REQUIREMENTS / POINTS OF CONNECTION. CONTRACTOR SHALL PROVIDE ALL POWER AND CONTROL CONNECTIONS AS INDICATED ON THE MECHANICAL DRAWINGS.
6. CIRCUITS INDICATED ON THE PANEL SCHEDULES, WHETHER SHOWN ON THE DRAWING OR NOT, SHALL BE A PART OF THIS CONTRACT AND THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE REQUIRED CONDUIT AND WIRE AS REQUIRED TO MEET THE INTENT OF THE PLANS AND SPECIFICATIONS.
7. REFER TO GENERAL NOTES AND DEMOLITION NOTES, DRAWING E0.1, FOR ADDITIONAL REQUIREMENTS.
8. EXISTING FIRE ALARM–CONNECTED DUCT SMOKE DETECTORS SERVING REPLACED HVAC UNITS ARE INTENDED TO REMAIN IN SERVICE. RECONNECT AND TEST SHUTDOWN INTERLOCK ONLY IF DISTURBED DURING CONSTRUCTION. COORDINATE WITH MECHANICAL AND FIRE ALARM CONTRACTOR AND VERIFY OPERATION

PLAN NOTES:

1. NEW HVAC UNIT AND NEW DISCONNECT SWITCH AT REMOVED HVAC UNIT AND DISCONNECT SWITCH. CONTRACTOR SHALL CONNECT NEW HVAC UNIT TO THE EXISTING CONDUCTORS PREVIOUSLY FEEDING THE REMOVED HVAC UNIT. CONTRACTOR SHALL PROVIDE AND EXTEND NEW CONDUIT / CONDUCTORS AS REQUIRED TO ENSURE A FULLY OPERABLE HVAC UNIT UPON COMPLETION OF INSTALLATION. REFER TO DEMOLITION PLAN, ED3.2, FOR ADDITIONAL REQUIREMENTS.
3. NEW RECEPTACLE AT REMOVED RECEPTACLE LOCATION. CONTRACTOR SHALL CONNECT NEW RECEPTACLE TO THE EXISTING CONDUCTORS PREVIOUSLY FEEDING THE REMOVED RECEPTACLE. CONTRACTOR SHALL PROVIDE AND EXTEND NEW CONDUIT / CONDUCTORS AS REQUIRED TO ENSURE A FULLY OPERABLE RECEPTACLE UPON COMPLETION OF INSTALLATION. REFER TO DEMOLITION PLAN, ED3.2, FOR ADDITIONAL REQUIREMENTS.

AGENCY APPROVAL

DSA A#:03-125870

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SHEET TITLE

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ROOF PLAN

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E3.2

PROJECT NUMBER

N

Plot Date:

Project # 2025-131_R25

MEP COMPONENT ANCHORAGE NOTE

All mechanical, plumbing, and electrical components shall be anchored and installed per the details on the DSA-approved construction documents. The following components shall be anchored or braced to meet the force and displacement requirements prescribed in the 2025 CBC Sections 1617A.1.18 through 1617A.1.26 and ASCE 7-16 Chapters 13, 26, and 30:

1. All permanent equipment and components.
2. Temporary, movable or mobile equipment that is permanently attached (e.g. hard wired) to the building utility services such as electricity, gas or water. "Permanently attached" shall include all electrical connections except plugs for 110/220 volt receptacles having a flexible cable.
3. Temporary, movable or mobile equipment which is heavier than 400 pounds or has a center of mass located 4 feet or more above the adjacent floor or roof level that directly support the component is required to be restrained in a manner approved by DSA.

The following mechanical and electrical components shall be positively attached to the structure but need not demonstrate design compliance with the references noted above. These components shall have flexible connections provided between the component and associated ductwork, piping, and conduit.
Flexible connections must allow movement in both transverse and longitudinal directions:

A. Components weighing less than 400 pounds and having a center of mass located 4 feet or less above the adjacent floor or roof level that directly support the component.

B. Components weighing less than 20 pounds, or in the case of distributed systems, less than 5 pounds per foot, which are suspended from a roof or floor or hung from a wall.

The anchorage of all mechanical, electrical and plumbing components shall be subject to the approval of the design professional in general responsible charge or structural engineer delegated responsibility and acceptance by DSA. The project inspector will verify that all components and equipment have been anchored in accordance with the above requirements.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

MEP Distribution System Bracing Note for Piping, Ductwork, and Electrical Conduit:

Piping, ductwork, and electrical distribution systems shall be braced to comply with the forces and displacements prescribed in ASCE 7 Section 13.3 as defined in ASCE 7 Sections 13.6.5, 13.6.6, 13.6.7, 13.6.8; and 2025 CBC, Sections 1617A.1.24, 1617A.1.25 and 1617A.1.26.

The method of showing bracing and attachments to the structure for the identified distribution system are as noted below. The MEP design professional engineer responsible for content on these sheets has verified that the design methods identified below are in accordance with DSA IR 16-13.

Mechanical Piping (MP), Mechanical Ducts (MD), Plumbing Piping (PP), Electrical Distribution Systems (E):

MP ☐ MD ☐ PP ☒ E ☐ Option 1: Project-Specific Design.

MP ☐ MD ☐ PP ☐ E ☐ Option 2: Design Based on OSHPD OPM, Within Project Submittal

MP ☐ MD ☐ PP ☐ E ☐ Option 3: Design Based on OSHPD OPM, Deferred Submittal

APPLICABLE CODES

BUILDING OCCUPANCY CLASSIFICATION: -

THE CONSTRUCTION OF THIS PROJECT SHALL CONFORM TO THE REQUIREMENTS OF:

CODES

2025 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
2025 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
2025 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
2025 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
2025 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
2025 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
2025 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
2025 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
2025 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2025 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY EXACT LOCATION OF EXISTING LINES, LATERALS AND WYES BEFORE STARTING. SHOULD IT BE NECESSARY TO REROUTE LINES DUE TO CONDITIONS FOUND ON THE SITE OR IF INDICATED P.O.C. CANNOT BE MADE TO THE LINES AS FOUND, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT BEFORE INSTALLING ANY WORK WHICH MAY BE AFFECTED.
2. OFFSET PIPES AS REQUIRED TO CLEAR MECHANICAL DUCTWORK.
3. FURNISH AND INSTALL A SHUT-OFF VALVE, PLUG COCK OR STOP AT EACH PIECE OF EQUIPMENT FURNISHED BY OTHERS REQUIRING DRAIN, WASTE, WATER, ETC.
4. SEAL AND FLASH ALL PENETRATIONS THROUGH ROOF WATERTIGHT.
5. REFER TO MECHANICAL DRAWINGS FOR THE EXACT LOCATION OF ALL A.C. UNITS.
6. UNLESS OTHERWISE NOTED, ALL CONDENSATE AND GAS DROPS SHALL BE CONCEALED IN WALLS.
7. THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC TO THE EXTENT THAT ALL OFFSETS, BENDS, SPECIAL FITTINGS AND LOCATIONS ARE NOT EXACTLY LOCATED. THE CONTRACTOR SHALL LOCATE ALL OFFSETS, BENDS, AND SPECIAL FITTINGS TO SUIT JOB SITE CONDITIONS. THEREFORE THE CONTRACTOR SHALL MAKE HIMSELF FULLY AWARE OF ALL EXISTING CONDITIONS AND LOCATE ALL REQUIRED SPECIAL FITTINGS TO SUIT EXISTING CONDITIONS.
8. THIS CONTRACTOR SHALL COMPLY WITH ALL CONTRACT DOCUMENTS IN LAYING OUT HIS WORK AND EQUIPMENT. HE SHALL COORDINATE THE WORK OF THIS SECTION WITH THE WORK OF OTHER TRADES AND ALL JOB CONDITIONS.
9. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, CHARGES, AND INCIDENTAL COSTS NECESSARY FOR EXECUTION AND COMPLETION OF WORK, INCLUDING ALL CHARGES BY STATE, COUNTY AND LOCAL GOVERNMENT AGENCIES.
10. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL TRADES AT THE SITE. ANY COSTS TO INSTALL WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE PLANS SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT DURING BID TIME FOR CLARIFICATION. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERPRETATION OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.
11. AFTER ALL REQUIREMENTS OF THE SPECIFICATIONS AND/OR THE DRAWINGS HAVE BEEN FULLY COMPLETED, REPRESENTATIVES OF THE OWNER WILL INSPECT THE WORK. THE CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM, TO THE FULL SATISFACTION OF EACH REPRESENTATIVE. FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE OWNER AFTER RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCEPTANCE FROM EACH REPRESENTATIVE.
12. WHEREVER A DISCREPANCY IN QUANTITY OR SIZE OF MECHANICAL EQUIPMENT MATERIAL ARISES ON THE DRAWINGS AND/OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON DRAWINGS AND/OR IN THE SPECIFICATION TO ENSURE COMPLETE AND OPERABLE SYSTEMS.
13. ALL PIPING INSULATION AND SEALING MATERIALS SHALL HAVE FLAME SPREAD RATING NOT EXCEEDING 25 AND SMOKE DEVELOPED RATING NOT EXCEEDING 50.
14. BEFORE ORDERING ANY PIECE OF EQUIPMENT, THE CONTRACTOR SHALL PROVIDE EQUIPMENT SUBMITTALS, AND SHOP DRAWINGS WITH EQUIPMENT DIMENSIONS, AND SITE CLEARANCE AVAILABLE. WHERE REQUIRED BY SPACE LIMITATIONS HAVE UNITS SHIPPED IN SECTIONS.
15. ALL PIPE BRANCH CONNECTIONS SHALL OFF-SET. NO "BULL HEAD" CONNECTIONS WILL BE ALLOWED.
16. ALL EXISTING PLUMBING LINES SHOWN ARE TAKEN FROM EXISTING DRAWINGS WHICH INDICATE APPROXIMATE LOCATION ONLY. THE CONTRACTOR IS TO INCLUDE IN HIS BID TO PERFORM FIELD INVESTIGATION TO PIN POINT THE EXACT LOCATION AS REQUIRED FOR DEMOLITION OR MAKING NEW CONNECTION.
17. INTERRUPTION OF EXISTING SERVICES: THE CONTRACTOR'S ATTENTION IS CALLED TO THE PRESENCE OF EXISTING, CONDUIT, PIPING, ETC. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE PROPER AND APPROVED REPAIR OF ANY AND ALL DAMAGE BY HIM OR HIS CAUSED WORK TO EXISTING BUILDINGS, CONDUIT, PIPING, PLANTS, ETC. NEW WORK AND INSTALLATIONS SHALL BE MADE WITH MINIMAL INTERRUPTIONS OF SERVICES TO EXISTING BUILDINGS ANY INTERRUPTIONS REQUIRED SHALL BE SCHEDULED TO MINIMIZE INCONVENIENCE TO THE OWNER, AND AT TIMES AS APPROVED IN ADVANCE BY THE ARCHITECT. NEW WORK AND INSTALLATIONS SHALL NOT IMPAIR THE PROPER FUNCTIONING OF THE EXISTING FACILITY. THE COMPLETED PROJECT SHALL BE A PROPERLY FUNCTIONING ENTITY THROUGHOUT. FURNISH ALL LABOR AND MATERIALS REQUIRED TO RELOCATE, REMOVE, REINSTALL, RECONNECT, REPLACE, ETC., ANY EXISTING PIPING TO ACCOMMODATE THE WORK. MATERIALS SHALL BE AS SPECIFIED UNLESS OTHERWISE. APPROVED IN WRITING BY THE ARCHITECT. CONTRACTOR SHALL INCLUDE IN HIS BID ANY EXTRA WORK REQUIRED TO MINIMIZE SHUTDOWN TIME.
18. WHERE EQUIPMENT IS NOTED AND/OR SHOWN TO BE REMOVED AND/ OR RELOCATED, THIS REMOVAL AND/OR RELOCATION SHALL INCLUDE ALL PIPING, SUPPORT, TRIM, ETC. CONSIDERED TO BE A FUNCTIONING PART OF THE ITEM.
19. ALL EXISTING PIPING AND EQUIPMENT THAT IS REMOVED SHALL BE DISPOSED OF AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
20. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY, AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY REAL OR ALLEGED, IN CONNECTION WITH PERFORMANCE OF WORK ON THIS PROJECT.
21. CONTRACTOR SHALL PATCH AND REPAIR ALL EXISTING WALLS, FLOORS AND CEILING OPENED DURING CONSTRUCTION TO MATCH EXISTING.
22. ALL UTILITIES BEING REMOVED FOR THE PROJECT SHALL BE REMOVED BACK TO ITS SOURCE.
23. UNLESS SPECIFICALLY SHOWN ON THESE PLANS NO STRUCTURAL MEMBER SHALL BE CUT, DRILLED NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DISTRICT STRUCTURAL ENGINEER FROM THE DIVISION OF THE STATE ARCHITECT.
24. ALL PIPING AND RELATED VALVES AND FITTINGS TO BE DEMOLISHED SHALL BE DISPOSED AND REMOVED FROM THE PROJECT SITE.
25. ALL PIPING SHOWN TO BE DEMOLISHED AND/OR REMOVED SHALL BE CAPPED OFF AT THE POINT OF DEMOLITION AND CLEAR FROM INTERFERENCE FROM NEW WORK BEING INSTALLED.
26. ANY DISCREPANCIES ARISE BETWEEN THE PLUMBING DRAWINGS AND OTHER DISCIPLINES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BID AND CONSTRUCTION.
27. PROVIDE INSULATION FOR ALL CONDENSATE DRAIN INDOOR.
28. ALL CONDENSATE DRAIN PIPING SHALL SLOPE 1/8"/FT. MINIMUM.

LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
—— —— ——	CW	COLD WATER
—— CD ——	CD	CONDENSATE DRAIN
—— OCD ——	OCD	OVERFLOW CONDENSATE DRAIN
—— TP ——	TP	TRAP PRIMER
—— G ——	G	GAS LINE
——▶——		DIRECTION OF FLOW
—— ⋈ —— S	SOV	SHUT-OFF VALVE
—— ⊗ ——	SOV/GC	SHUT-OFF VALVE OR GAS COCK IN YARD BOX
—— ⋈ ——	GC	GAS COCK
—— ⋈ ——	BV	BALANCING VALVE
——⌽	FCO	FLOOR CLEANOUT
——‖	CO	CLEANOUT
——○		RISER UP
——⊃		RISER DOWN
	ABV	ABOVE
	BEL	BELOW
	CLG	CEILING
	CONT	CONTINUATION
	DN	DOWN
	(E)	EXISTING
	FLR	FLOOR
◒	POC	POINT OF CONNECTION
○		DEMOLITION KEY NOTE
○		REMODEL KEY NOTE
◒		POINT OF DISCONNECT
	RT	REFRIGERANT TONNAGE

PIPE MATERIAL SCHEDULE

SERVICE	ABBR:		MATERIAL: SEAMLESS COPPER TUBING, TYPE L DRAWN TEMPER, ASTM B88	CPVC SCH 80 PAINTED WITH UV PROTECTION	COPPER TYPE M 95/5 SOLDER	BLACK STEEL SCH 40	REMARKS
CONDENSATE DRAIN	(CD)	INDOOR			●		GRAVITY @ 1% SLOPE MIN. PROVIDE INSULATION FOR INDOOR PIPING. PAINTED W/ UV INHIBITOR FOR EXPOSED OUTDOOR PIPE.
		OUTDOOR		●			
GAS	(G)	OUTDOOR				●	

SHEET INDEX

S.NO.	SHEET No.	SHEET TITLE
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5	P3.2	BUILDING 5A CONSTRUCTION ROOF PLAN
6	P4.1	PLUMBING DETAILS

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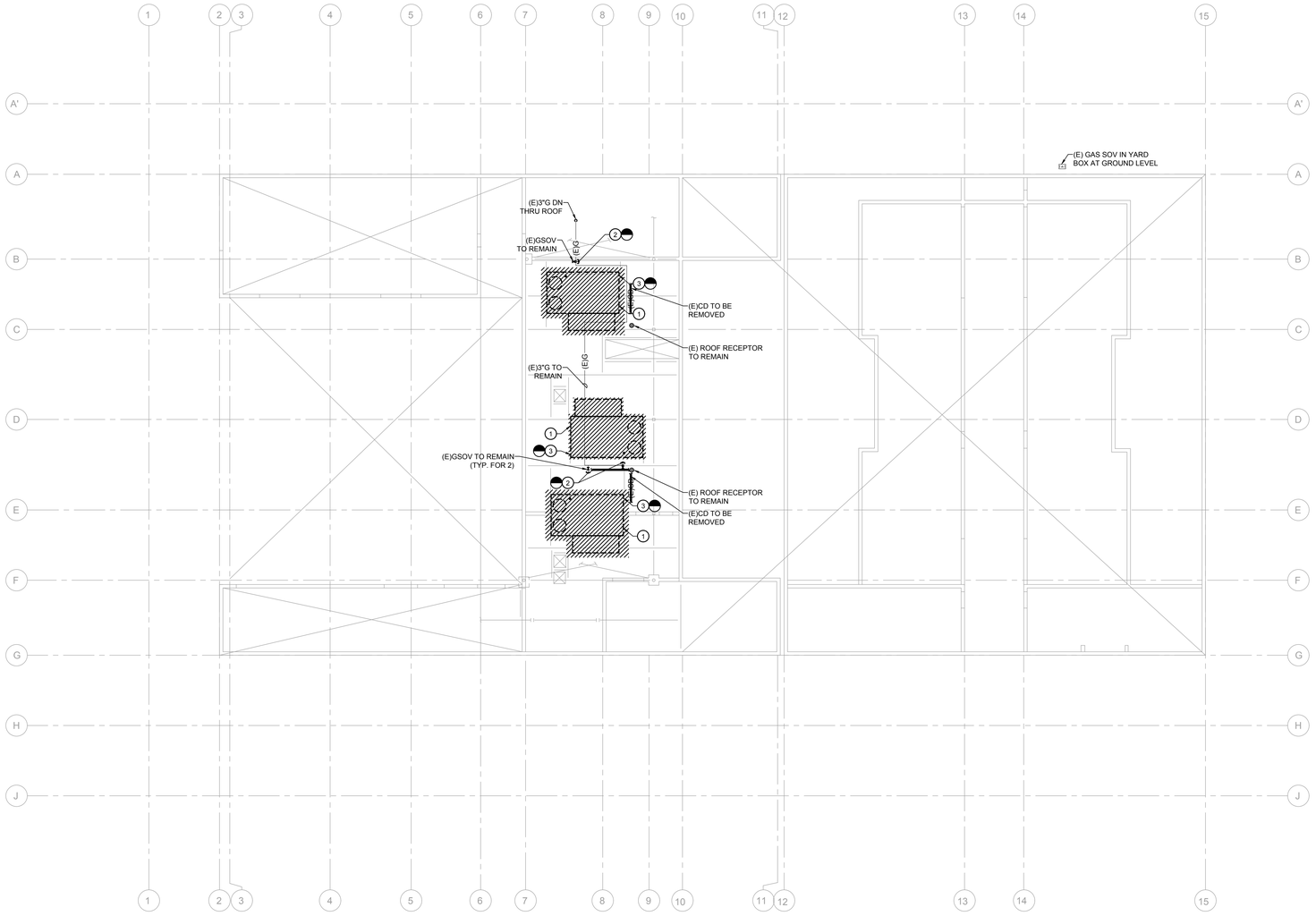
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Plot Date:

Project # 2025-131_R25

DEMOLITION KEYNOTES:

1. (E) MECHANICAL UNIT TO BE REMOVED.
2. (E) GAS FLEX LINE TO MECH. UNIT TO BE REMOVED. CAP EXISTING GAS PIPING AT UNIT.
3. (E) CONDENSATE DRAIN WITH VENTED P-TRAP AND RELATED PIPING TO BE REMOVED.



N

BUILDING 2A DEMOLITION ROOF PLAN | 3/32" = 1'-0" | 1

Date Plotted: 2/4/2026

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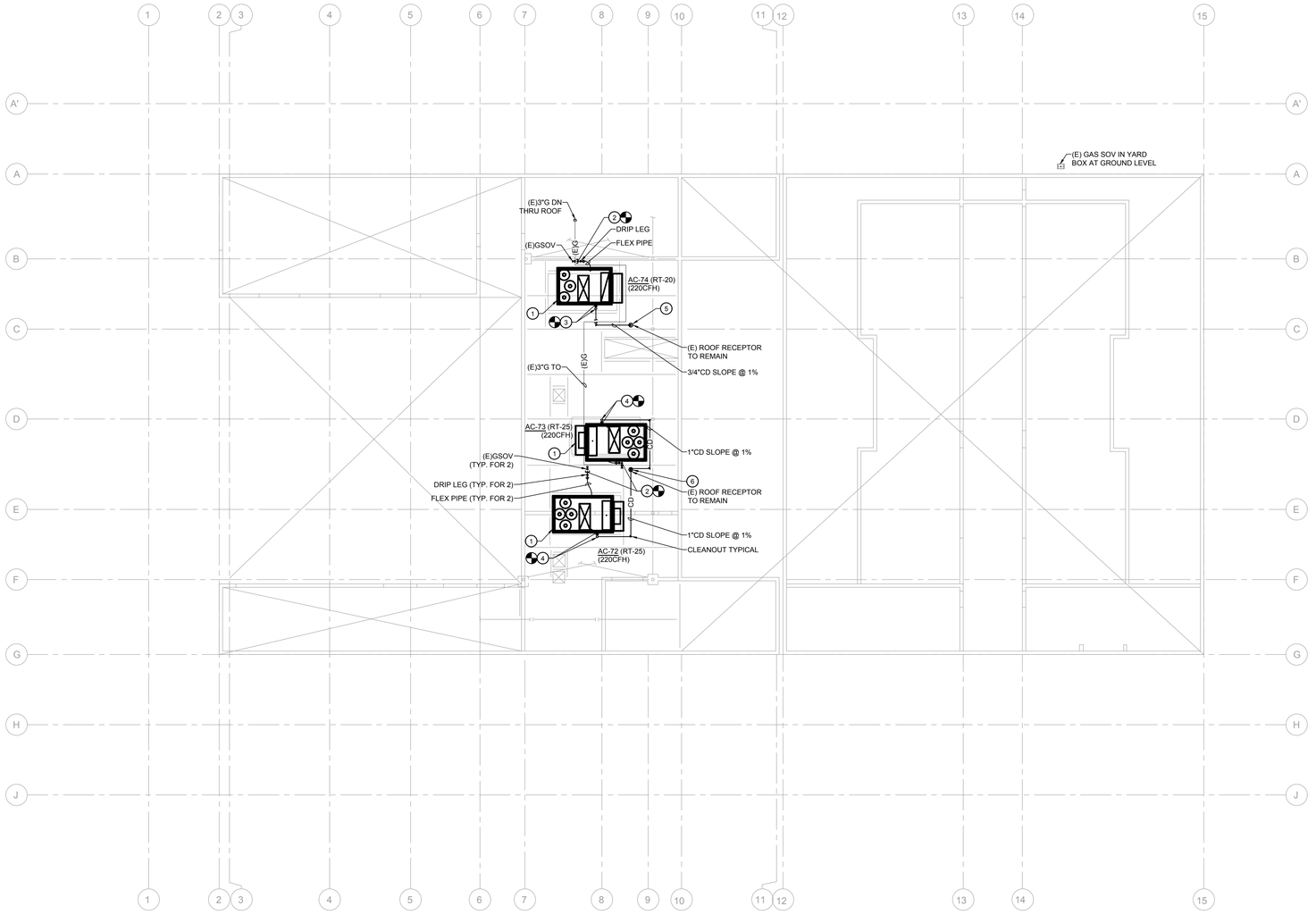
Project # 2025-131_R25

CONSTRUCTION NOTES:

1. COORDINATE WITH OTHER TRADES PRIOR TO THE INSTALLATION OF THE ROOF TOP UNITS. VERIFY IF EXISTING 3" GAS PIPING NEEDS TO BE REROUTED TO ACCOMMODATE THE INSTALLATION OF THE NEW MECH UNITS.
2. FIELD VERIFY EXISTING GAS PIPING LOCATION AND SIZE.
3. ALL EQUIPMENT, PIPING AND MATERIALS SHALL BE LISTED.

CONSTRUCTION KEYNOTES:

1. NEW MECHANICAL UNIT. SEE MECHANICAL DRAWINGS FOR EXACT LOCATION
2. CONNECT NEW 1" O.D. GAS PIPING TO EXISTING GAS PIPING AT MECH. UNIT WITH DRIP LEG 6-INCH MINIMUM, UNION AND APPROVED GAS FLEX LINE. SEE SHEET P4.1 DETAIL NUMBER 3. VERIFY EXACT LOCATION AND SIZE IN FIELD.
3. CONNECT NEW 3/4"CD PLUG & VENTED P-TRAP. SEE SHEET P-4.1 DETAIL NUMBER 1. SLOPE CONDENSATE DRAIN @ 1%.
4. CONNECT NEW 1"CD PLUG & VENTED P-TRAP. SEE SHEET P-4.1 DETAIL NUMBER 1. SLOPE CONDENSATE DRAIN @ 1%.
5. 3/4"CD SPILL OVER EXISTING ROOF RECEPTOR WITH 1-1/2" AIR GAP MINIMUM.
6. 1"CD SPILL OVER EXISTING ROOF RECEPTOR WITH 1-1/2" AIR GAP MINIMUM.



N

BUILDING 2A CONSTRUCTION ROOF PLAN

3/32" = 1'-0"

1

Date Plotted: 2/4/2026

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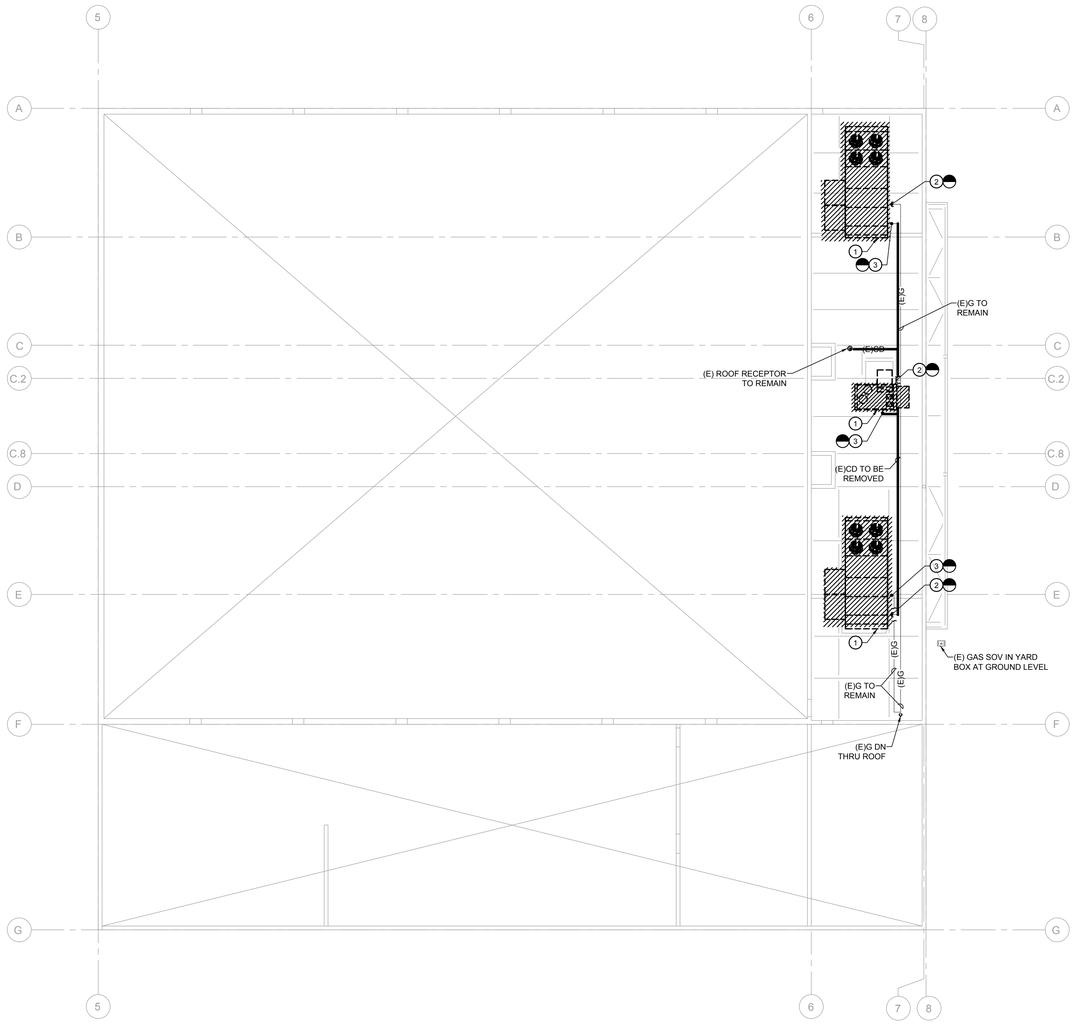
PROJECT NUMBER

Plot Date:

Project # 2025-131_R25

DEMOLITION KEYNOTES:

1. (E) MECHANICAL UNIT TO BE REMOVED.
2. (E) GAS LINE WITH RELATED VALVES TO MECH. UNIT TO BE REMOVED. CAP EXISTING GAS PIPING AT UNIT.
3. (E) CONDENSATE DRAIN WITH VENTED P-TRAP AND RELATED PIPING TO BE REMOVED.



N

BUILDING 5A DEMOLITION ROOF PLAN | 3/32" = 1'-0" | 1

Date Plotted:
Plotted By:

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DSA A#:03-125870

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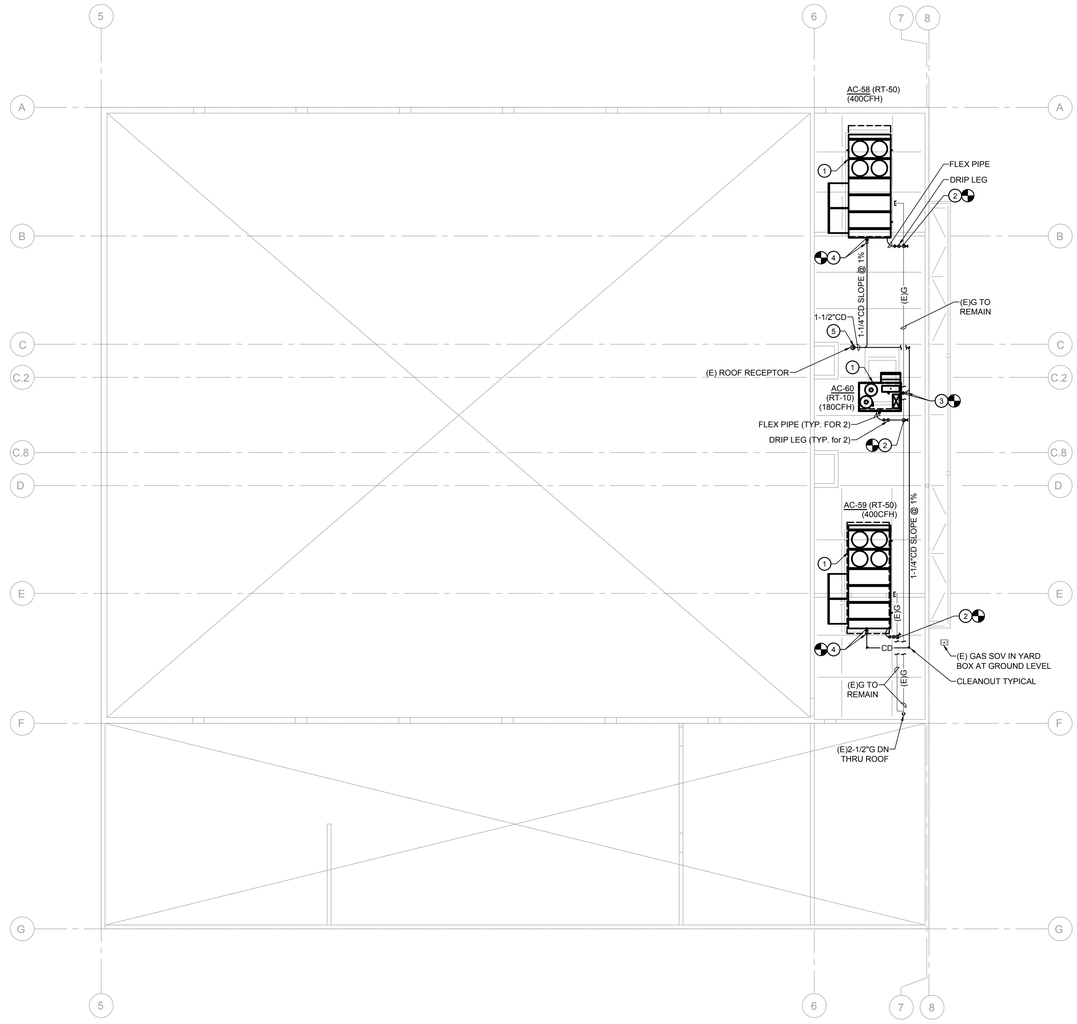
Project # 2025-131_R25

CONSTRUCTION NOTES:

1. COORDINATE WITH OTHER TRADES PRIOR TO THE INSTALLATION OF THE ROOF TOP UNITS. VERIFY IF EXISTING 3" GAS PIPING NEEDS TO BE REROUTED TO ACCOMMODATE THE INSTALLATION OF THE NEW MECH UNITS.
2. FIELD VERIFY EXISTING GAS PIPING LOCATION AND SIZE.
3. ALL EQUIPMENT, PIPING AND MATERIALS SHALL BE LISTED.

CONSTRUCTION KEYNOTES:

1. NEW MECHANICAL UNIT. SEE MECHANICAL DRAWINGS FOR EXACT LOCATION
2. CONNECT NEW 1-1/4" GAS PIPING TO EXISTING GAS PIPING AT MECH. UNIT WITH LOCKWING GSOV, DRIP LEG 6-INCH MINIMUM, UNION AND APPROVED GAS FLEX LINE. SEE SHEET P4.1 DETAIL NUMBER 3. VERIFY EXACT LOCATION AND SIZE IN FIELD.
3. CONNECT NEW 3/4"CD PLUG & VENTED P-TRAP. SEE SHEET P-4.1 DETAIL NUMBER 1. SLOPE CONDENSATE DRAIN @ 1%.
4. CONNECT NEW 1-1/4"CD PLUG & VENTED P-TRAP. SEE SHEET P-4.1 DETAIL NUMBER 1. SLOPE CONDENSATE DRAIN @ 1%.
5. 1-1/2"CD SPILL OVER EXISTING ROOF RECEPTOR WITH 2" AIR GAP MINIMUM.



N

BUILDING 5A CONSTRUCTION ROOF PLAN | 3/32" = 1'-0" | 1

Date Plotted:
File Name:

AGENCY APPROVAL

DSA A#:03-125870

HVAC REPLACEMENT
FIREBAUGH HIGH SCHOOL
5246 MARTIN LUTHER KING JR BLVD
LYNWOOD,
CA 90262

SHEET TITLE

BUILDING 5A
CONSTRUCTION
ROOF PLAN

optimum energy design
Consulting Engineers
5200 E. La Palma Ave
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APPROVED STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT BANKSTON
No. M29252
Exp. 6/30/27
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STATE OF CALIFORNIA

REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

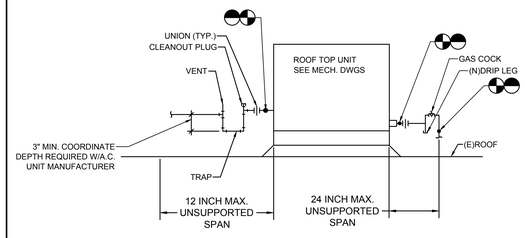
APPROVED BY: Approver
REVIEWED BY:
DRAWN BY:
SCALE: As Indicated
ISSUE DATE: Issue Date
SHEET NUMBER:

P3.2

PROJECT NUMBER

Plot Date:

Project # 2025-131_R25



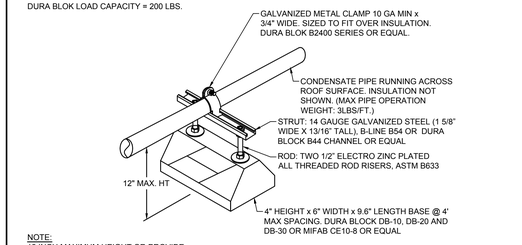
GAS & CD CONNECTION TO ROOF TOP UNIT | SCALE NONE | 3

MODEL #: DURA BLOCK DB-10 OR MIFAB CE10-8 OR EQUAL

INSTALLATION INSTRUCTIONS: THE RUBBER BASES CAN BE DIRECTLY PLACED ON THE ROOF SURFACE. USE CHEMLINK M-1 STRUCTURAL ADHESIVE/ SEALANT OR EQUAL FOR ATTACHMENT TO STRUCTURE.
ADJUST THE CROSSBEAM BY LOOSENING THE NUTS AND ADJUST THE STRUT TO DESIRED HEIGHT AND RE-TIGHTEN NUTS. 4 FEET MAXIMUM SPACING FOR CONDENSATE DRAIN PIPE.

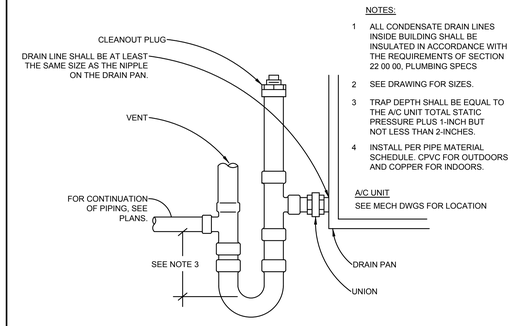
MAXIMUM OPERATING WEIGHT AT EACH SUPPORT IS APPROX. = 4.2 LBS.

DURA BLOK LOAD CAPACITY = 200 LBS.



NOTE:
12 INCH MAXIMUM HEIGHT OR PROVIDE ANCHORAGE TO ROOF STRUCTURE MEMBERS. SLEEP LENGTH OF BASE TO BE 2 TIMES THE ACTUAL HEIGHT.

CONDENSATE DRAIN PIPE SUPPORT ON ROOF DETAIL | SCALE NONE | 2



NOTES:

1 ALL CONDENSATE DRAIN LINES INSIDE BUILDING SHALL BE INSULATED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 22 00 00, PLUMBING SPECS

2 SEE DRAWING FOR SIZES.

3 TRAP DEPTH SHALL BE EQUAL TO THE A/C UNIT TOTAL STATIC PRESSURE PLUS 1-INCH BUT NOT LESS THAN 2-INCHES.

4 INSTALL PER PIPE MATERIAL SCHEDULE. CPVC FOR OUTDOORS AND COPPER FOR INDOORS.

A/C UNIT
SEE MECH DWGS FOR LOCATION

CONDENSATE TRAP DETAIL | SCALE NONE | 1

Date Plotted:
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REVISION SCHEDULE		
Delta	Description	Issue Date
	DSA PROGRESS	12/1/25
	30% CD	12/8/25
	70% CD	12/22/25
	DSA SUBMITTAL	01/09/26
	DSA BACKCHECK 1	03/12/26

APPROVED BY: Approver

REVIEWED BY:

DRAWN BY:

SCALE: As Indicated

ISSUE DATE: Issue Date

SHEET NUMBER

P4.1

PROJECT NUMBER