MOUNT DIABLO UNIFIED SCHOOL DISTRICT

WILLOW CREEK CENTER TECHNOLOGY INFRASTRUCTURE UPGRADE

Project #24103.01

SPECIFICATIONS
VOLUME II

NOVEMBER 22, 2024

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ARCHITECTS

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DOCUMENT 01 11 00

SUMMARY OF WORK

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals; and

1.1.5. Temporary Facilities and Controls.

1.2. SUMMARY OF WORK COVERED BY CONTRACT DOCUMENTS

The Work may consist of the following:

1.2.1. **Fully re-cable the data network, copper and fiber, utilizing a combination of new and existing pathways. Establish MDF and IDF locations as indicated on the plans. Provide (N) dedicated electrical circuits as noted to support the new data network infrastructure. Provide a (N) Bogen Nyquist Intercom System. After cutover to new systems, removal of old or abandoned data network, audiovisual, analog telephone, analog intercom, analog clock and coax cabling and devices will occur. Project requires swing and/or graveyard and/or weekend and/or holiday work schedules.**

1.2.2. The Work shall be conducted in two phases.

1.2.2.1. Construction of new parallel system
1.2.2.2. Demolition of the previous existing system

1.3. CONTRACTS

Perform the Work under a single, fixed-price Contract.

1.4. SPECIAL PROJECT REQUIREMENTS

1.4.1. Hours of Work: Work is to be performed on second and/or graveyard shift. Contractor shall coordinate its operations with activities taking place at each campus/site.

Contractor shall ensure that there are no disruptions to day to day activities and functionality.

1.5. CODES, REGULATIONS AND STANDARDS

1.5.1. The codes, regulations, and standards adopted by the State and federal agencies having jurisdiction shall govern minimum requirements for the Project. Where codes, regulations, and standards conflict with the Contract Documents, these conflicts shall be brought to the immediate attention of the District and the Architect.

1.5.2. Codes, regulations, and standards are as published effective as of date of bid opening, unless otherwise specified or indicated.

1.6. EXAMINATION OF EXISTING CONDITIONS

1.6.1. Contractor shall be held to have examined the Project Site and acquainted itself with the conditions of the Site and of the streets and roads approaching the Site.

1.6.2. Prior to commencement of Work, Contractor shall survey the Site and existing buildings and improvements to observe existing damage and defects such as cracks, sags, broken, missing or damaged glazing, other building elements and Site improvements, and other damage.

1.6.3. Should Contractor observe cracks, sags, and other damage to and defects of the Site and adjacent buildings, paving, and other items not indicated in the Contract Documents, Contractor shall immediately report same to the District and the Architect.

1.7. CONTRACTOR'S USE OF PREMISES

1.7.1. Contractor shall take all reasonable precautions for the safety of the students and the school employees throughout the duration of the Project.

1.7.2. If unoccupied and only with District’s prior written approval, Contractor may use the building(s) at the Project Site without limitation for its operations, storage, and office facilities for the performance of the Work. If the District chooses to beneficially occupy any building(s), Contractor must obtain the District's written approval for Contractor's use of spaces and types of operations to be performed within the building(s) while so occupied. Contractor's access to the building(s) shall be limited to the areas indicated.

1.7.3. If the space at the Project Site is not sufficient for Contractor's operations, storage, office facilities and/or parking, Contractor shall arrange and pay for any additional facilities needed by Contractor, at no expense to District.

1.7.4. Contractor shall not interfere with others use of or access to occupied portions of the building(s) or adjacent property.

1.7.5. Contractor shall maintain corridors, stairs, halls, and other exit-ways of building clear and free of debris and obstructions at all times.

1.7.6. No one other than those directly involved in the demolition and construction or specifically designated by the District or the Architect shall be permitted in the areas of Work during demolition and construction activities.

1.8. PROTECTION OF EXISTING STRUCTURES AND UTILITIES

1.8.1. The Drawings show above-grade and below-grade structures, utility lines, and other installations that are known or believed to exist in the area of the Work. Contractor shall locate these existing installations before proceeding with excavation and other operations that could damage same; maintain them in service, where appropriate; and repair damage to them caused by the performance of the Work. Should damage occur to these existing installations, the costs of repair shall be at the Contractor's expense and made to the District's satisfaction.

1.8.2. Contractor shall be alert to the possibility of the existence of additional structures and utilities. If Contractor encounters additional structures and utilities, Contractor will immediately report to the District for disposition of same as indicated in the General Conditions.

1.9. UTILITY SHUTDOWNS AND INTERRUPTIONS

1.9.1. Contractor shall give the District a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions. District will set exact time and duration for shutdown, and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor.

1.9.2. Contractor shall obtain District's written approval as indicated in the General Conditions in advance of deliveries of material or equipment or other activities that may conflict with District's use of the building(s) or adjacent facilities.

1.10. STRUCTURAL INTEGRITY

1.10.1. Contractor shall be responsible for and supervise each operation and work that could affect structural integrity of various building elements, both permanent and temporary.

1.10.2. Contractor shall include structural connections and fastenings as indicated or required for complete performance of the Work.

END OF DOCUMENT

DOCUMENT 01 12 10

CONTRACT FORMS AND SUBMITTALS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals; and

1.1.5. Construction Schedule.

2. REQUIREMENTS OF THE DISTRICT

2.1. Contractor shall utilize the District's forms as indicated below . This requirement also applies to submittals, including the requirement that the Contractor and its Subcontractors, as indicated, utilize the software, internet and specific programs on this Project as indicated herein.

2.2. DISTRICT FORMS

All forms identified below shall utilize District forms available at the above referenced link. Contractor must only utilize these forms, including the programs, processes and software indicated below.

2.2.1. **Request for Information.** Contractor shall comply with all applicable provisions in Contract Documents relating to Requests for Information. Contractor shall submit all of its Requests for Information using District's Form attached hereto.

2.2.2. **Construction Directive.** Contractor shall comply with all applicable provisions in Contract Documents relating to Changes in the Work. All Construction Directives shall be issued using District's Form attached hereto.

2.2.3. **Price Request.** Contractor shall comply with all applicable provisions in Contract Documents relating to Price Requests. All Price Requests shall be issued using District's Form attached hereto.

2.2.4. **Proposed Change Order.** Contractor shall comply with all applicable provisions in Contract Documents relating to Changes in the Work. Contractor shall submit all of its Proposed Change Orders using District's Form attached hereto.

2.2.5. **Change Order.** Contractor shall comply with applicable provisions in Contract Documents relating to Changes in the Work. All Change Orders shall be issued using District's Form attached hereto.

2.3. CONTRACTOR SUBMITTALS

All submittals required by the Contract Documents shall be submitted using the programs, processes and software indicated below. If no specific program or format is indicated, then Microsoft Word or Microsoft Excel is acceptable.

2.3.1. **Preliminary Construction Schedule**

2.3.1.1. Utilize Primavera P6 Project Management® software (latest version) by Oracle (PCM) (http://www.oracle.com/us/industries/engineering-and-construction/index.html) or another program if pre-approved by the District.

2.3.2. **Schedule of Values**

2.3.2.1. Utilize PCM or another program if pre-approved by the District.

2.3.3. **Contractor's Completed Subcontractor List**

2.3.4. **Contractor's Safety Plan**

2.3.5. **Schedule of Submittals**

2.3.5.1. Utilize PCM or another program if pre-approved by the District.

2.3.6. **Operations and Maintenance Manual & Instructions**

END OF DOCUMENT

DOCUMENT 01 20 00

PRICE AND PAYMENT PROCEDURES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any).

1.2. DESCRIPTION

1.2.1. This Document contains procedures to be followed by the Contractor to request payment.

1.2.2. **IF THERE IS ANY INCONSISTENCY IN THIS DOCUMENT WITH THE PROVISIONS IN THE GENERAL CONDITIONS AND THE SPECIAL CONDITIONS THAT THE CONTRACTOR SHALL COMPLY WITH RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES (e.g., "PAYMENTS," "SCHEDULE OF VALUES"), THOSE PROVISIONS IN THE GENERAL CONDITIONS AND THE SPECIAL CONDITIONS SHALL TAKE PRECEDENCE.**

1.3. SECTION INCLUDES

1.3.1. Schedule of Values.

1.3.2. Application for Payment.

1.4. SCHEDULE OF VALUES

1.4.1. Provide a breakdown of the Contract Price with enough detail to facilitate continued evaluation of Applications for Payment and Progress Reports utilizing or another program if pre-approved by the District.

1.4.2. Contractor must update and resubmit the Schedule of Values before the next Invoice or Application for Payment when Change Orders or Construction Change Directives result in a change in the Contract Price.

1.4.3. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule. Comply with the provisions in the General Conditions regarding the Schedule of Values.

1.4.3.1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

1.4.3.1.1. Application for Payment forms.

1.4.3.1.2. Submittal Schedule.

1.4.3.1.3. Contractor's Construction Schedule.

1.4.3.2. Submit the Schedule of Values to District as indicated in the Contract Documents and, if an updated Schedule of Values is needed, then no later than ten (10) days before the date scheduled for submittal of the next Application(s) for Payment.

1.4.3.3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

1.4.4. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1.4.4.1. Identification: Include the following Project identification on the Schedule of Values:

1.4.4.1.1. Project name and location.

1.4.4.1.2. Name of District's Representative.

1.4.4.1.3. District's contract number .

1.4.4.1.4. District's name and address.

1.4.4.1.5. Date of submittal.

1.4.4.2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

1.4.4.2.1. Related Specification document, section or division.

1.4.4.2.2. Description of the Work.

1.4.4.2.3. Name of subcontractor.

1.4.4.2.4. Name of manufacturer or fabricator.

1.4.4.2.5. Name of supplier.

1.4.4.2.6. Change Orders (numbers) that affect value.

1.4.4.2.7. Dollar value.

1.4.4.2.7.1. Percentage of the Contract Price to nearest one-hundredth percent, adjusted to total 100 percent.

1.4.4.3. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training.

1.4.4.4. Round amounts to nearest whole dollar; total shall equal the Contract Price.

1.4.4.5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

1.4.4.6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

1.4.4.7. Allowances (if any): Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

1.4.4.8. Each item in the Schedule of Values and Applications for Payments shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

1.4.5. Schedule Updating: Update and resubmit the Schedule of Values before the next Application for Payment if there is a change in the Contract Price.

1.5. APPLICATIONS FOR PAYMENT

1.5.1. **Form:** Contractor shall utilize AIA Form G702 - Application and Certificate for Payment and AIA Form G703 - Continuation Sheet, or District-approved form with the same information as these AIA forms.

1.5.2. **Content and Format**: District shall use Schedule of Values for listing items in its Application for Payment.

1.5.3. Each Application for Payment shall be consistent with previous applications and payments as certified and paid for by District.

END OF DOCUMENT

DOCUMENT 01 21 00

ALLOWANCES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions including without limitation, Contract Terms and Definitions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any).

1.1.4. Agreement;

1.1.5. Bid Form; and

1.2. SUMMARY

1.2.1. **THE SPECIFIC ALLOWANCES FOR THIS PROJECT ARE AS LISTED IN THE AGREEMENT.**

1.2.2. This Document includes administrative and procedural requirements governing Allowances.

1.2.3. Certain items are specified in the Contract Documents by Allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements may be issued by Change Order or similar document.

1.3. SELECTION AND PURCHASE

1.3.1. At the earliest practical date after award of the Contract, Contractor shall advise District of the date when final selection and purchase of each product or system described by an Allowance must be completed to avoid delaying the Work.

1.3.2. At District's request, obtain proposals for each Allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

1.3.3. Purchase products and systems selected by District from the designated supplier.

1.4. SUBMITTALS

1.4.1. Submit proposals for purchase of products or systems included in Allowances, in the form specified for Change Orders.

1.4.2. Submit invoices or delivery slips to show actual quantities of materials delivered to the Site for use in fulfillment of each Allowance.

1.4.3. Coordinate and process submittals for Allowance items in same manner as for other portions of the Work.

1.5. COORDINATION

Coordinate Allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6. PAYMENT FOR ALLOWANCES

1.6.1. Allowance shall include all-inclusive cost to Contractor of specific products and materials under Allowance and Contractor may bill its time, materials, and other items in the identical structure as a Change Order.

1.7. UNUSED MATERIALS

1.7.1. Return unused materials purchased under an Allowance to manufacturer or supplier for credit to District, after installation has been completed and accepted.

1.7.2. If requested, prepare and deliver unused material for storage by District when it is not economically practical (as determined by District) to return the material for credit. If directed, deliver unused material to District's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

2. EXECUTION

2.1. EXAMINATION

Examine products covered by an Allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

2.2. PREPARATION

Coordinate materials and their installation for each Allowance with related materials and installations to ensure that each Allowance item is completely integrated and interfaced with related work.

END OF DOCUMENT

DOCUMENT 01 25 10

PRODUCT OPTIONS AND SUBSTITUTIONS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any); and

1.1.4. Instructions to Bidders.

1.2. DOCUMENT INCLUDES

1.2.1. Product options.

1.2.2. Limitations on Substitutions.

1.2.3. Regulatory Requirements.

1.2.4. Substitution Representation.

1.2.5. Submittal Procedure.

1.2.6. District's Review.

1.3. DEFINITIONS

1.3.1. Requests for changes in products, materials, or equipment required by Contract Documents proposed by the Contractor prior to and after award of the Contract are considered requests for substitutions. Contractor must refer to the Instructions to Bidders, the General Conditions and the Special Conditions for limitations on when requests for substitution(s) are permitted on Project. The following are not considered substitutions:

1.3.1.1. Revisions to Contract Documents requested by the District or Architect.

1.3.1.2. Specified options of products, materials, and equipment included in Contract Documents.

1.3.2. Whenever in the Specifications any material, product, thing, or service is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be used for the purpose of facilitating the description

of the material, product, thing, or service, and shall be deemed to be followed by the words "or equal," except:

1.3.2.1. When designated to match other material, product, thing, or service in use on a particular public improvement either completed or in the course of completion; or

1.3.2.2. When designated as a field test or experiment.

1.4. PRODUCT OPTIONS

1.4.1. **Products Specified by Reference Standards or by Description Only**: Any Product meeting those standards or description.

1.4.2. **Products Specified by Naming One or More Manufacturers with or without Provision for Substitution**: Products of manufacturers named and meeting specifications with substitution of Products or manufacturer only when submitted under provisions of this section.

1.5. LIMITATIONS ON SUBSTITUTIONS

1.5.1. **Requests for substitution prior to bid or after bid, shall only be permitted as indicated in and in accordance with requirements specified in the Instructions to Bidders and the Special Conditions.**

1.5.2. The Bid shall be based upon the standards of quality established by those items of equipment and/or materials which are specifically identified in the Contract Documents.

1.5.3. Burden of proof of merit of requested substitution is the responsibility of the Contractor.

1.5.4. It is the sole responsibility of Contractor to submit the proper content of any requests for substitutions. Incomplete submittals will be rejected.

1.6. REGULATORY REQUIREMENTS

1.6.1. It shall be the responsibility of Contractor to obtain all regulatory approvals required for proposed substitutions.

1.6.2. All regulatory approvals shall be obtained for proposed substitutions prior to submittal of substitution request to Architect.

1.6.3. All costs incurred by the District in obtaining regulatory approvals for proposed substitutions to include the costs of the Architect and any authority having jurisdiction over the Project shall be reimbursed to the District. Costs of these services shall be reimbursed regardless of final acceptance or rejection of substitution.

1.6.4. Substitutions of materials or work procedures which affect the health, safety and welfare of the public shall have prior approval of the Division of the State Architect (DSA) field representative.

1.7. SUBSTITUTION REPRESENTATION

1.7.1. In submitting a request for substitution, Contractor makes the representation that:

1.7.2. Contractor has investigated the proposed substitution and determined that it meets or exceeds the quality level of the specified product;

1.7.3. Contractor has determined that all components of the proposed substitution are identical and fully interchangeable with the product name and number specified;

1.7.4. Contractor will provide the same warranty or guarantee for the substitution as for the specified product;

1.7.5. Contractor will coordinate installation and make changes to other work which may be required for the work to be completed with no additional cost to the District;

1.7.6. Contractor waives claims for additional cost or time extension which may subsequently become apparent; and

1.7.7. Contractor will reimburse District for the cost of District's and Architect's review or redesign services associated with substitution request.

1.8. SUBMITTAL PROCEDURE

1.8.1. Submit six (6) copies of each request.

1.8.2. Submit request using District's Substitution Request Form as indicated in Contract Forms and Submittals. Substitution requests that are not on District's required form shall be returned without review.

1.8.3. Limit each request to one proposed substitution.

1.8.4. Request to include sufficient data so that direct comparison of proposed substitution can be made.

1.8.5. Provide complete documentation for each request. Documentation shall include the following information, as appropriate, as a minimum:

1.8.5.1. Statement of cause for substitution request.

1.8.5.2. Identify product by specification section and article number.

1.8.5.3. Provide manufacturer's name, address, and phone number. List fabricators, suppliers, and installers as appropriate.

1.8.5.4. List similar projects where proposed substitution has been used, dates of installation and names of Architect and District.

1.8.5.5. List availability of maintenance services and replacement materials.

1.8.5.6. Documented or confirmation of regulatory approval.

1.8.5.7. Product data, including drawings and descriptions of products.

1.8.5.8. Fabrication and installation procedures.

1.8.5.9. Samples of proposed substitutions.

1.8.5.10. Itemized comparison of significant qualities of the proposed substitution with those of the product specified. Significant qualities may include size, weight, durability, performance requirements and visual effects.

1.8.5.11. Coordination information, including a list of changes or modifications needed to other items of work that will become necessary to accommodate proposed substitution.

1.8.5.12. Statement on the substitutions effect on the Construction Schedule.

1.8.5.13. Cost information including a proposal of the net reduction in cost to the Contract Price if the proposed substitution is accepted.

1.8.5.14. Certification that the substitution is equal to or better in every respect to that required by the Contract Documents and that substitution will perform adequately in the application intended.

1.8.5.15. Waiver of right to additional payment or time that may subsequently become necessary because of failure of substitution to perform adequately.

1.8.6. Inadequate warranty, vagueness of submittal, failure to meet specified requirements, or submittal of insufficient data will be cause for rejection of substitution request.

1.9. DISTRICT'S REVIEW

1.9.1. The District will accept or reject proposed substitution within a reasonable amount of time.

1.9.2. If a request is made prior to bid opening and the District has not completed its review, Contractor shall base its bid on the product specified only.

1.9.3. There shall be no claim for additional time for review of proposed substitutions.

1.9.4. Final acceptance of a substitution submitted prior to the date established for the receipt of bids will be in the form of an addendum.

END OF DOCUMENT

DOCUMENT 01 26 00

CONTRACT MODIFICATION PROCEDURES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Allowances;

1.1.5. Product Options and Substitutions; and

1.1.6. Project Coordination.

1.2. DESCRIPTION

1.2.1. This Document contains procedures to be followed by the Contractor to request changes in the Contract Time of the Contract Price.

1.2.2. **IF THERE IS ANY INCONSISTENCY IN THIS DOCUMENT WITH THE PROVISIONS IN THE GENERAL CONDITIONS AND THE SPECIAL CONDITIONS THAT THE CONTRACTOR SHALL COMPLY WITH RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES (e.g., "Change in the Work"), THOSE PROVISIONS IN THE GENERAL CONDITIONS AND THE SPECIAL CONDITIONS SHALL TAKE PRECEDENCE.**

1.3. SUMMARY

This Document specifies administrative and procedural requirements for handling and processing Contract modifications.

1.4. Minor Changes in the Work

Architect may issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract sum or the Contract Time, or Changes not affecting the Structural Safety, Access Compliance or Fire & Life Safety portions of the work, on AIA Document G710, "Architects Supplemental Instructions" or an equivalent form acceptable to the District and Subject to DSA IR A-6 Construction Change Document Submittal and Approval Process (Title 24, Part 1, California Code or Regulations, Section 4-338) requirements for DSA Construction Change Document – Category B.

1.4.1. **If conflicts between the drawings and specifications for materials to be used and/or work to be done the more stringent, more restrictive, or higher quality shall apply.**

1.5. PRICE REQUESTS

1.5.1. Do not consider Price Requests to be instructions either to stop work in progress or to execute the proposed change.

1.5.2. Within time specified in Price Request after receipt of Price Request, submit a quotation estimating cost adjustments to the Contract Price and the Contract Time necessary to execute the change.

1.5.2.1. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

1.5.2.2. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

1.5.2.3. Include costs of labor and supervision directly attributable to the change.

1.5.2.4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

1.6. PROPOSED CHANGE ORDERS

Contractor may propose changes by submitting a request for a change on District's Proposed Change Order form (PCO) to District.

1.6.1. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

1.6.2. Comply with Contract Document requirements if the proposed change requires substitution of one product or system for product or system specified.

END OF DOCUMENT

DOCUMENT 01 26 10

REQUESTS FOR INFORMATION

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Documentation Requirements;

1.1.5. Electronic Data Transfer;

1.1.6. Submittals;

1.1.7. Contract Closeout and Final Cleaning;

1.1.8. Operation and Maintenance Data;

1.1.9. Warranties; and

1.1.10. Record Documents;

1.2. DESCRIPTION

This Document contains procedures to be followed by the Contractor to request Architect provide additional information necessary to clarify or amplify an item in the Contract Documents that Contractor thinks is not clearly shown or called for in the Drawings or Specifications or other portions of the Contract Documents, or to address issues that have arisen under field conditions.

1.3. PROCEDURES

1.3.1. Notification by Contractor:

1.3.1.1. Submit all requirements for clarification or additional information, whether originated by the Contractor, a Subcontractor, or supplier at any tier, in writing to District as required by the Contract Documents.

1.3.1.2. Number RFIs sequentially. Follow RFI number with sequential alphabetical suffix as necessary for each resubmission. For example, the first RFI would be "001." The second RFI would be "002."

1.3.1.3. All RFIs shall reference all applicable Contract Document(s), including Specification section(s), detail(s), page number(s), drawing number(s), and sheet number(s), etc. Contractor shall make suggestions and interpretations of

the issue raised by each RFI. An RFI cannot modify the Contract Price, Contract Time, or the Contract Documents.

1.3.1.4. Limit each RFI to one subject.

1.3.1.5. Submit a RFI if one of the following conditions occurs:

1.3.1.5.1. Contractor discovers an unforeseen condition or circumstance that is not described in the Contract Documents.

1.3.1.5.2. Contractor discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or is not reasonably inferred from the intent of the Contract Documents.

1.3.2. Contractor shall not:

1.3.2.1. Submit an RFI as a request for substitution.

1.3.2.2. Submit an RFI as a submittal.

1.3.2.3. Submit an RFI without first having thoroughly reviewed the Contract Documents.

1.3.2.4. Submit an RFI in a manner that suggests that specific portions of the Contract Documents are assumed to be excluded or by taking an isolated portion of the Contract Documents in part rather than whole.

1.3.2.5. Submit an RFI in an untimely manner without proper coordination and scheduling of Work related trades.

1.3.2.6. If Contractor submits an RFI contrary to the above, Contractor shall pay the cost of any review, which cost shall be deducted from the Contract Price.

1.3.3. Contractor shall be liable to the District for all costs incurred by the District associated with the processing, reviewing, evaluating and responding to any RFI, including without limitation, fees of the Architect and any other design consultant to the Architect or the District, that District reasonably determines:

1.3.3.1. Does not reflect adequate or competent supervision or coordination by the Contractor or any Subcontractor; or

1.3.3.2. Does not reflect the Contractor's adequate or competent knowledge of the requirements of the Work or the Contract Documents;

1.3.3.3. Requests an interpretation or decision of a matter where the information sought is equally available to the Contractor; or

1.3.3.4. Is not justified for any other reason.

1.4. RESPONSE TIME

1.4.1. Architect shall review RFIs and issue a response and instructions to Contractor within a reasonable time frame, no later than fourteen (14) calendar days from the date the RFI

is received and dated by the District.

1.4.2. Responses from the District will not change any requirement of the Contract unless so noted by the District in the response to the RFI. Should the Contractor contend that a response to an RFI causes a change to the Contract that requires a Change Order, the Contractor shall, before proceeding, give written notice to the District, indicating that the Contractor considers the District's response to the RFI to be a Change Order, as required by the Contract Documents.

1.4.3. Should Contractor direct its Subcontractors to proceed with the Work affected before receipt of a response from Architect, any portion of the Work which is not done in accordance with the Architect's ultimate interpretations, clarifications, instructions, or decisions is subject to removal or replacement at Contractor's sole expense and responsibility.

END OF DOCUMENT

DOCUMENT 01 31 00

COORDINATION AND PROJECT MEETINGS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS:

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any); and

1.1.4. Technical Specifications.

1.2. SECTION INCLUDES

1.2.1. Coordination Responsibilities of the Contractor.

1.2.2. Field Engineering Responsibilities of the Contractor.

1.2.3. Preconstruction Conference.

1.2.4. Progress Meetings.

1.2.5. Pre-Installation Conferences.

1.2.6. Post Construction Dedication.

1.3. COORDINATION RESPONSIBILITIES OF THE CONTRACTOR

1.3.1. Coordinate scheduling, submittals, and Work of the Specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

1.3.2. Prior to commencement of a particular type or kind of Work examine relevant information, contract documents, and subsequent data issued to the Project.

1.3.3. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate Work of various sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.

1.3.4. Closing up of holes, backfilling, and other covering up operations shall not proceed until all enclosed or covered Work and inspections have been completed. Verify before proceeding.

1.3.5. Coordinate space requirements and installation of mechanical and electrical Work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and

conduit as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

1.3.6. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

1.3.7. In locations where several elements of mechanical and electrical Work must be sequenced and positioned with precision in order to fit into available space, prepare coordination drawings showing the actual conditions required for the installation. Prepare coordination drawings prior to purchasing, fabricating, or installing any of the elements required to be coordinated.

1.3.8. Closing up of walls, partitions or furred spaces, backfilling, and other covering up operations shall not proceed until all enclosed or covered Work and inspections have been completed. Verify before proceeding.

1.3.9. Coordinate completion and cleanup of Work of separate sections in preparation for completion and for portions of Work designated for District's occupancy.

1.3.10. After District occupancy of Project, coordinate access to Site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of District's activities.

1.3.11. Coordinate all utility company Work in accordance with the Contract Documents.

1.3.12. Key Personnel Names: Within fifteen (10) days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.4. FIELD ENGINEERING RESPONSIBILITIES OF THE CONTRACTOR

1.4.1. Contractor shall employ a Land Surveyor registered in the State of California and acceptable to the Architect.

1.4.2. Control datum for survey is that established by District provided survey. Contractor to locate and protect survey control and reference points.

1.4.3. Replace dislocated survey control points based on original survey control.

1.4.4. Provide field engineering services. Establish elevations, lines, and levels utilizing recognized engineering survey practices.

1.4.5. Upon completion of Work, submit certificate signed by the Land Surveyor that elevations and locations of Work are in conformance with Contract Documents. Record deviations on Record Drawings.

1.5. PRECONSTRUCTION CONFERENCE

1.5.1. Construction Manager or Project Engineer will schedule a conference immediately after, and in no case more than fifteen (15) days after, receipt of fully executed Contract Documents prior to Project mobilization.

1.5.2. Mandatory Attendance: Construction Manager, Project Engineer, Project Inspector, Architect of Record, Contractor, Contractor's Project Manager, and Contractor's Job/Project Superintendent.

1.5.3. Optional Attendance: Architect's consultants, and utility company representatives.

1.5.4. Construction Manager shall preside at conference and the Project Architect shall prepare and record minutes and distribute copies.

1.5.5. Agenda:

1.5.5.1. Execution of Owner-Contractor Agreement.

1.5.5.2. Issue Notice to Proceed.

1.5.5.3. Submission of executed bonds and insurance certificates.

1.5.5.4. Distribution of Contract Documents.

1.5.5.5. Submission of list of Subcontractors, list of Products, Schedule of Values, and Progress Schedule.

1.5.5.6. Designation of responsible personnel representing the parties.

1.5.5.7. Procedures for processing Change Orders.

1.5.5.8. Procedures for Request for Information.

1.5.5.9. Procedures for testing and inspecting.

1.5.5.10. Procedures for processing applications for payment.

1.5.5.11. Procedures for Project closeout.

1.5.5.12. Use of Premises.

1.5.5.13. Work restrictions.

1.5.5.14. District’s occupancy requirements or options.

1.5.5.15. Responsibility for temporary facilities and controls.

1.5.5.16. Construction waste management and recycling.

1.5.5.17. Parking availability.

1.5.5.18. Office, work and storage areas.

1.5.5.19. Equipment deliveries and priority.

1.5.5.20. Security.

1.5.5.21. Progress cleaning.

1.5.5.22. Review required submittals and (if applicable) LEED Certification requirements.

1.6. PROGRESS MEETINGS

1.6.1. Construction Manager shall schedule and administer meetings throughout progress of the Work at a minimum of every week.

1.6.2. Construction Manager or Project Engineer will make arrangements for meetings, prepare agenda, and preside at meetings. Project Architect shall record minutes (Field Reports), and distribute copies.

1.6.3. Attendance Required: Job Superintendent, Construction Manager, Project Engineer, Project Inspector, Architect of Record, Subcontractors, and suppliers as appropriate to agenda topics for each meeting.

1.6.4. Agenda:

1.6.4.1. Review minutes of previous meetings (Field Reports).

1.6.4.2. Review of Work progress.

1.6.4.3. Field observations, problems, and decisions.

1.6.4.4. Identification of problems which impede planned progress.

1.6.4.5. Review of submittals schedule and status of submittals.

1.6.4.6. Review of off-site fabrication and delivery schedules.

1.6.4.7. Maintenance of construction schedule.

1.6.4.8. Corrective measures to regain projected schedules.

1.6.4.9. Planned progress during succeeding work period.

1.6.4.10. Coordination of projected progress.

1.6.4.11. Maintenance of quality and work standards.

1.6.4.12. Effect of proposed changes on progress schedule and coordination.

1.6.4.13. Other business relating to Work.

1.6.5. District has authority to schedule mandatory meetings other than those listed, as

necessary.

1.7. PRE-INSTALLATION CONFERENCES

1.7.1. When required in individual specification section, Contractor shall convene a pre-installation conference prior to commencing Work of the section. Refer to individual specification section for timing requirements of conference.

1.7.2. Contractor shall require its Subcontractors and suppliers directly affecting, or affected by, Work of the specific section to attend.

1.7.3. Notify the Construction Manager, Project Engineer, Project Inspector, and Architect of Record four (4) days in advance of meeting date.

1.7.4. A pre-installation conference may coincide with a regularly scheduled progress meeting.

1.7.5. Contractor shall prepare agenda, preside at conference, record minutes, and distribute copies within two (2) days after conference to participants.

1.7.6. The purpose of the meeting will be to review Contract Documents, conditions of installation, preparation and installation procedures, and coordination with related Work and manufacturer's recommendations.

1.7.7. Pre-installation Schedule: As a minimum, Work being installed under the Contract Documents technical sections will require pre-installation conferences. Contractor shall review the technical specifications and add all additional requirements for pre-installation meetings contained in those sections.

1.8. POST CONSTRUCTION DEDICATION

1.8.1. Attendance Required: Project Superintendent, Contractor, Project Manager, major Subcontractors, Construction Manager, Project Engineer, Project Inspector, and Architect of Record.

1.8.2. Preparation prior to Dedication: Contractor and appropriate Subcontractors and suppliers shall:

1.8.3. Assist District in operation of mechanical devices and systems.

1.8.3.1. Verify operation and adjust controls for communication systems.

1.8.3.2. Assist District in operation of lighting systems.

END OF DOCUMENT

DOCUMENT 01 32 16

CONSTRUCTION SCHEDULE – NETWORK ANALYSIS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Coordination and Meetings; and

1.1.5. Submittals.

1.2. REFERENCES

1.2.1. Construction Planning and Scheduling Manual - A Manual for General Contractors and the Construction Industry, The Associated General Contractors of America (AGC).

1.2.2. CSI - Construction Specifications Institute MP-2-1 Master Format.

1.2.3. U.S. National Weather Service - Local Climatological Data.

1.3. PERFORMANCE REQUIREMENTS

1.3.1. Ensure adequate scheduling during construction activities so Work may be prosecuted in an orderly and expeditious manner within stipulated Contract Time.

1.3.2. Ensure coordination of Contractor and Subcontractors at all levels.

1.3.3. Ensure coordination of submittals, fabrication, delivery, erection, installation, and testing of products, materials and equipment.

1.3.4. Ensure on-time delivery of District furnished products, materials and equipment.

1.3.5. Ensure coordination of jurisdictional reviews.

1.3.6. Prepare applications for payment.

1.3.7. Monitor progress of Work.

1.3.8. Prepare proper requests for changes to Contract Time.

1.3.9. Prepare proper requests for changes to Construction Schedule.

1.3.10. Assist in detection of schedule delays and identification of corrective actions.

1.4. QUALITY ASSURANCE

1.4.1. Perform scheduling work in accordance with Construction Planning and Scheduling Manual published by the AGC.

1.4.2. Maintain one copy of Construction Planning and Scheduling Manual on Site.

1.4.3. In the event of discrepancy between the AGC publication and the Contract Documents, provisions of the Contract Documents shall govern.

1.5. QUALIFICATIONS

1.5.1. **Scheduler**:

1.5.1.1. Contractor shall retain a construction scheduler to work in enough capacity to perform all of the Contractor's requirements to prepare the Construction Schedule. The Scheduler shall plan, coordinate, execute, and monitor a cost/resource loaded CPM schedule as required for Project and have a minimum of five (5) years direct experience using Primavera Project Management.

1.5.1.2. Scheduler will cooperate with District and shall be available on site for monitoring, maintaining and updating schedules in a timely manner.

1.5.1.3. District has the right to reject the Scheduler based upon a lack of experience as required by this Document or based on lack of performance and timeliness of schedule submittals/fragnets on past projects. Contractor shall within seven (7) calendar days of District's rejection, propose another scheduler who meets the experience requirements stated above.

1.5.2. **Administrative Personnel**: Five (5) years minimum experience in using and monitoring schedules on comparable projects.

1.6. SUBMITTALS

1.6.1. Submit Short Interval Schedule at each Construction Progress Meeting.

1.6.2. Submit Time Adjustment Schedule within five (5) days of commencement of a claimed delay.

1.6.3. Submit Recovery Schedules as required for timely completion of Work or when demanded by the District.

1.6.4. Submit job cost reports when demanded by the District.

1.6.5. Submit one (1) reproducible and two (2) copies of each schedule and cost report.

1.6.6. Submit large format plotted schedules monthly or at the request of the District or Construction Manager.

1.7. REVIEW AND EVALUATION

1.7.1. Contractor shall participate in joint review of Construction Schedule and Reports with District and Architect.

1.7.2. Within seven (7) days of receipt of District and/or Architect's comments provide satisfactory revision to Construction Schedule or adequate justification for activities in question.

1.7.3. In the event that an activity or element of Work is not detected by District or Architect review, such omission or error shall be corrected by next scheduled update and shall not affect Contract Time.

1.7.4. Acceptance by District of corrected Construction Schedule shall be a condition precedent to making any progress payments.

1.7.5. Cost-loaded values of Construction Schedule shall be basis for determining progress payments.

1.7.6. Review and acceptance by District and Architect of Preliminary Construction Schedule or Construction Schedule does not constitute responsibility whatsoever for accuracy or feasibility of schedules nor does such acceptance expressly or impliedly warrant, acknowledge or admit reasonableness of activities, logic, duration, manpower, cost or equipment loading stated or implied on schedules.

1.8. FORMAT

1.8.1. Prepare diagrams and supporting mathematical analyses using Precedence Diagramming Method, under concepts and methods outlined in AGC Construction Planning and Scheduling Manual, or other method pre-approved by District.

1.8.2. **Listings**: Reading from left to right, in ascending order for each activity.

1.8.3. **Diagram Size**: 42 inches maximum height x width required.

1.8.4. **Scale and Spacing**: To allow for legible notations and revisions.

1.8.5. Illustrate order and interdependence of activities and sequence of Work.

1.8.6. Illustrate complete sequence of construction by activity.

1.8.7. Provide legend of symbols and abbreviations used.

1.9. COST AND SCHEDULE REPORTS

1.9.1. **Activity Analysis**: Tabulate each activity of network diagram and identify for each activity:

1.9.1.1. Description.

1.9.1.2. Interface with outside contractors or agencies.

1.9.1.3. Number.

1.9.1.4. Preceding and following number.

1.9.1.5. Duration.

1.9.1.6. Earliest start date.

1.9.1.7. Earliest finish date.

1.9.1.8. Actual start date.

1.9.1.9. Actual finish date.

1.9.1.10. Latest start date.

1.9.1.11. Latest finish date.

1.9.1.12. Total and free float.

1.9.1.13. Identification of critical path activity.

1.9.1.14. Monetary value keyed to Schedule of Values.

1.9.1.15. Manpower requirements.

1.9.1.16. Responsibility.

1.9.1.17. Percentage complete.

1.9.1.18. Variance positive or negative.

1.9.2. **Cost Report**: Tabulate each activity of network diagram and identify for each activity:

1.9.2.1. Description.

1.9.2.2. Number.

1.9.2.3. Total cost.

1.9.2.4. Percentage complete.

1.9.2.5. Value prior to current period.

1.9.2.6. Value this period.

1.9.2.7. Value to date.

1.9.3. **Required Sorts**: List activities in sorts or groups:

1.9.3.1. By activity number.

1.9.3.2. By amount of float time in order of early start.

1.9.3.3. By responsibility in order of earliest start date.

1.9.3.4. In order of latest start dates.

1.9.3.5. In order of latest finish dates.

1.9.3.6. Application for payment sorted by Schedule of Values.

1.9.3.7. Listing of activities on critical path.

1.9.4. Listing of basic input data which generates schedule.

1.10. CONSTRUCTION SCHEDULE

1.10.1. Contractor shall develop and submit a cost loaded preliminary schedule of construction (or Preliminary Construction Schedule) as required by this Document and the Contract Documents. It shall be submitted in computer generated network format and shall be organized by Activity Codes representing the intended sequencing of the Work, and with time scaled network diagrams of activities. The Preliminary Construction Schedule shall include activities such as mobilization, preparation of submittals, specified review periods, procurement items, fabrication items, milestones, and all detailed construction activities.

1.10.2. Upon District's acceptance of the Preliminary Construction Schedule, Contractor shall update the accepted Preliminary Construction Schedule until Contractor's Construction Schedule is fully developed and accepted. Since updates to the Construction Schedule are the basis for payment to Contractor, submittal and acceptance of the Construction Schedule and updates shall be a condition precedent to making of monthly payments, as indicated in the General Conditions.

1.10.3. Failure to submit an adequate or accurate Preliminary Construction Schedule, Construction Schedule, updates thereto or failure to submit on established dates, will be considered a breach of Contract.

1.10.4. Failure to include any activity shall not be an excuse for completing all Work by required Completion Date.

1.10.5. Activities of long intervals shall be broken into increments no longer than fourteen (14) days or a value over $20,000.00, unless approved by the District or it is a non-construction activity for procurement and delivery.

1.10.6. The Construction Schedule shall comply with the following and include the following:

1.10.6.1. Provide a written narrative describing Contractor's approach to mobilization, procurement, and construction during the first thirty (30) calendar days including crew sizes, equipment and material delivery, Site access, submittals, and permits.

1.10.6.2. Shall designate critical path or paths.

1.10.6.3. Procurement activities to include mobilization, shop drawings and sample submittals.

1.10.6.4. Identification of key and long-lead elements and realistic delivery dates.

1.10.6.5. Construction activities in units of whole days limited to fourteen (14) days for each activity except non-construction activities for procurement and delivery.

1.10.6.6. Approximate cost and duration of each activity.

1.10.6.7. Shall contain seasonal weather considerations.

1.10.6.8. Indicate a date for Project Completion that is no later than Completion Date subject to any time extensions processed as part of a Change Order.

1.10.6.9. Conform to mandatory dates specified in the Contract Documents.

1.10.6.10. Contractor shall allow for inclement weather in the Proposed Baseline Schedule by incorporating an activity titled "Rain Day Impact Allowance" as the last activity prior to the Completion Milestone. No other activities may be concurrent with it. The duration of the Rain Day Impact Allowance activity will be in accordance with the Special Conditions, and will be calculated from the Notice to Proceed until the Completion.

1.10.6.11. Level of detail shall correspond to complexity of work involved.

1.10.6.12. Indicate procurement activities, delivery, and installation of District furnished material and equipment.

1.10.6.13. Designate critical path or paths.

1.10.6.14. Subcontractor work at all levels shall be included in schedule.

1.10.6.15. As developed, shall show sequence and interdependence of activities required for complete performance of Work.

1.10.6.16. Shall be logical and show a coordinated plan of Work.

1.10.6.17. Show order of activities and major points of interface, including specific dates of completion.

1.10.6.18. Duration of activities shall be coordinated with Subcontractors and suppliers and shall be best estimate of time required.

1.10.6.19. Shall show description, duration and float for each activity.

1.10.7. **Activity.** An activity shall meet the following criteria:

1.10.7.1. Any portion or element of Work, action, or reaction that is precisely described, readily identifiable, and is a function of a logical sequential process.

1.10.7.2. Descriptions shall be clear and concise. Beginning and end shall be readily verifiable. Starts and finishes shall be scheduled by logical restraints.

1.10.7.3. Responsibility shall be identified with a single performing entity.

1.10.7.4. Additional codes shall identify building, floor, bid opening and/or District's receipt of proposals, whichever is acceptable and CSI classification.

1.10.7.5. Assigned dollar value (cost-loading) of each activity shall cumulatively equal total contract amount. Mobilization, bond and insurance costs shall be separate. General requirement costs, overhead, profit, shall be prorated throughout all activities. Activity costs shall correlate with Schedule of Values.

1.10.7.6. Each activity shall have manpower-loading assigned.

1.10.7.7. Major construction equipment shall be assigned to each activity.

1.10.7.8. Activities labeled start, continue or completion are not allowed.

1.10.8. **Equipment and Materials.** For major equipment and materials show a sequence of activities including:

1.10.8.1. Preparation of shop drawings and sample submissions.

1.10.8.2. Review of shop drawings and samples.

1.10.8.3. Finish and color selection.

1.10.8.4. Fabrication and delivery.

1.10.8.5. Erection or installation.

1.10.8.6. Testing.

1.10.9. Include a minimum of fifteen (15) days prior to Completion Date for punch lists and clean up. No other activities shall be scheduled during this period.

1.11. SHORT INTERVAL SCHEDULE

1.11.1. The Four-Week Rolling Schedule shall be based on the most recent District Accepted Construction Schedule or Update. It shall include weekly updates to all construction, submittal, fabrication/procurement, and separate Work Contract activities. Contractor shall ensure that it accurately reflects the current progress of the Work.

1.11.2. Shall be fully developed horizontal bar-chart-type schedule directly derived from Construction Schedule.

1.11.3. Prepare schedule on sheet of sufficient width to clearly show data.

1.11.4. Provide continuous heavy vertical line identifying first day of week.

1.11.5. Provide continuous subordinate vertical line identifying each day of week.

1.11.6. Identify activities by same activity number and description as Construction Schedule.

1.11.7. Show each activity in proper sequence.

1.11.8. Indicate graphically sequences necessary for related activities.

1.11.9. Indicate activities completed or in progress for previous two (2) week period.

1.11.10. Indicate activities scheduled for succeeding three (3) week period.

1.11.11. Further detail should be added if necessary to monitor schedule or if requested by District.

1.12. REQUESTED TIME ADJUSTMENT SCHEDULE

1.12.1. Updated Construction Schedule shall not show a Completion Date later than the Contract Time, subject to any time extensions processed as part of a Change Order.

1.12.2. If an extension of time is requested, a separate schedule entitled "Requested Time Adjustment Schedule" shall be submitted to District and Architect.

1.12.3. Indicate requested adjustments in Contract Time which are due to changes or delays in completion of Work.

1.12.4. Extension request shall include forecast of Project Completion date and actual achievement of any dates listed in Contract Documents.

1.12.5. To the extent that any requests are pending at time of any Construction Schedule update, Time Adjustment Schedule shall also be updated.

1.12.6. Schedule shall be a time-scaled network analysis.

1.12.7. Accompany schedule with formal written time extension request and detailed impact analysis justifying extension.

1.12.8. Time impact analysis shall demonstrate time impact based upon date of delay, and status of construction at that time and event time computation of all affected activities. Event times shall be those as shown in latest Construction Schedule.

1.12.9. Activity delays shall not automatically constitute an extension of Contract Time.

1.12.10. Failure of Subcontractors shall not be justification for an extension of time.

1.12.11. Float is not for the exclusive use or benefit of any single party. Float time shall be apportioned according to needs of Project, as determined by the District.

1.12.12. Float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended activity durations, or imposed dates shall be apportioned according to benefit of Project.

1.12.13. Extensions will be granted only to extent that time adjustments to activities exceed total positive float of the critical path and extends Completion date.

1.12.14. District shall not have an obligation to consider any time extension request unless requirements of Contract Documents, and specifically, but not limited to these requirements, are complied with.

1.12.15. District shall not be responsible or liable for any construction acceleration due to failure of District to grant time extensions under Contract Documents should requested adjustments in Contract Time not substantially comply with submission and justification requirements of Contract for time extension requests.

1.12.16. In the event a Requested Time Adjustment Schedule and Time Impact Analysis are not submitted within ten (10) days after commencement of a delay it is mutually agreed that delay does not require a Contract Time extension.

1.13. RECOVERY SCHEDULE

1.13.1. When activities are behind Construction Schedule a supplementary Recovery Schedule shall be submitted.

1.13.2. Contractor shall prepare and submit to the District a Recovery Schedule whenever activities are behind Construction Schedule or at any time requested by the District, at no cost to the District.

1.13.3. Form and detail shall be sufficient to explain and display how activities will be rescheduled to regain compliance with Construction Schedule and to complete the Work by the Completion Date.

1.13.4. Maximum duration shall be one (1) month and shall coincide with payment period.

1.13.5. Ten (10) days prior to expiration of Recovery Schedule, Contractor shall have to show verification to determine if activities have regained compliance with Construction Schedule. Based upon this verification the following will occur:

1.13.5.1. Supplemental Recovery Schedule will be submitted to address subsequent payment period.

1.13.5.2. Construction Schedule will be resumed.

1.14. UPDATING SCHEDULES

1.14.1. Review and update schedules at least ten (10) days prior to submitting an Application for Payment.

1.14.2. Maintain schedules to record actual prosecution and progress.

1.14.3. Approved Change Orders which affect schedules shall be identified as separate new activities.

1.14.4. Change Orders of less than $5,000.00 value or less than three (3) days duration need not be shown unless critical path is affected.

1.14.5. No other revisions shall be made to schedules unless authorized by District.

1.14.6. **Schedule Narrative Report**: Contractor shall include a written report to explain the Monthly Schedule Update. The narrative shall, at a minimum, include the following headings with appropriate discussions of each topic:

1.14.6.1. Activities or portions of activities completed during previous reporting period.

1.14.6.2. Actual start dates for activities currently in progress.

1.14.6.3. Deviations from critical path in days ahead or behind.

1.14.6.4. List of major construction equipment used during reporting period and any equipment idle.

1.14.6.5. Number of personnel by trade engaged on Work during reporting period.

1.14.6.6. Progress analysis describing problem areas.

1.14.6.7. Current and anticipated delay factors and their impact.

1.14.6.8. Proposed corrective actions and logic revisions for Recovery Schedule.

1.14.6.9. Proposed modifications, additions, deletions and changes in logic of Construction Schedule.

1.14.6.10. In updating the Schedule, Contractor shall not modify Activity ID numbers, schedule calculation rules/criteria, or the Activity Coding Structure required.

1.14.7. Schedule update will form basis upon which progress payments will be made.

1.14.8. District will not be obligated to review or process Application for Payment until the Construction Schedule and Schedule Narrative Report have been submitted.

1.15. DISTRIBUTION

1.15.1. Following joint review and acceptance of updated schedules distribute copies to District, Architect, and all other concerned parties.

1.15.2. Instruct recipients to promptly report in writing any problem anticipated by projections shown in schedules.

2. PRODUCTS

2.1. SCHEDULING SOFTWARE

Contractor shall utilize District-approved software and shall employ the Critical Path Method (CPM) in the development and maintenance of the Construction Schedule The scheduling software shall be capable of being resource loaded with manpower, costs and materials. It shall also be capable of generating time-scaled logic diagrams, resource histograms and profiles, bar charts, layouts and reports with any and/or all activity detail.

2.2. ELECTRONIC DATA

Provide compact disk(s) that contain a back-up of the Proposed Baseline Schedule data on it and in a format approved by the District.

END OF DOCUMENT

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
B. Consult individual sections of specifications for specific submittals required under those sections and for further details and descriptions of requirements.
C. Related Sections include the following:
   1. Division 1 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
   2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
   3. Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
   4. Division 1 Section "Closeout Procedures" for submitting warranties.
   5. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   6. Division 1 Section "Closeout Procedures" for submitting operation and maintenance manuals.
   7. Division 1 Section "Closeout Procedures" for submitting videotapes of demonstration of equipment and training of Owner's personnel.
   8. Other Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.
B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

A. Processing: All costs for printing, preparing, packaging, submitting, mailing, or delivering submittals for initial submittals and all costs for re-printing, re-drawing, re-drafting, re-packaging, re-submitting, and re-mailing or re-delivering as required for all re-submittals shall be included in Contract Sum.

B. Sequence: Transmit each submittal in sequence which will not result in Architect's review having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination. Resubmitted submittals must have the original number with an R numerical sequence.
   1. Identify Project and Architect's project number, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate;
   2. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the Work and Contract Documents. **Submittals without Contractor's stamp and signature will be returned without review.**

C. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
      a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

D. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

E. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing

F. Multiple Reviews: The Contractor shall also be responsible for all costs to Architect or Architect consultants for reviews requiring more than two (2) reviews for same specification section.
   1. Contractor shall reimburse the District through deduction from amounts due the Contractor upon receipt of the Architect's billing and that of the Architect's consultants at standard billing rates for all time and expenses incurred in unanticipated reviews.
   2. Submittals will be reviewed and stamped by the Architect as:
      a. "No exceptions taken" (NET),
      b. "Furnish as Noted" (FAN),
      c. "Revise and Resubmit" (R&R),
      d. "Rejected" (REJ),
      e. " Other"

Terms are defined as follows:

f. No Exceptions Taken (NET): Accepted subject to its compatibility with future submittals and additional partial submittals for portions of the work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown in the partial submittal.

g. Furnish as Noted (FAN) - The submitted item is found to be in conformance with the contract documents with the exceptions of a few minor clarifications, those clarifications maybe noted and the submittal returned with no further actions. No resubmittal required.

h. Revise and resubmit (R&R): The Submitted item is NOT found to conform with the construction documents, the submitted item will be returned with comments stating how the submitted item does not conform. Rejected because of major inconsistencies or errors which shall be resolved or corrected by the Contractor prior to subsequent review by the Architect. A further re-submittal is required by the contractor in order to construct this portion of the project.

i. Rejected (REJ): Submitted material does not conform to plans and specifications in major respect. For example, wrong size, model, capacity or material. Resubmit.

j. Other: May indicate the following:

1) Submit specified item (SSI): Submit to the Architect the items indicated for review. The submittal review requires additional information that does not need to be submitted alongside the original submittal.

2) Not reviewed (NR) – Returned without Architect's review if item is not applicable or has been reviewed previously.

G. File naming Submittals reviewed by the Architect which have been stamped shall be deemed to have the following language affixed and made a part thereof, regardless of the initial or subsequent readability of the actual stamp

1. Corrections or comments made on submittals during this review do not relieve the contractor from compliance with the requirements of the drawings and specifications. This check is for review of general conformance with the design concept of the project and general compliance with information given in the Contract Documents. The contractor is responsible for confirming and correlating all quantities and dimensions, selection of fabrication processes and techniques of construction, coordinating the work of the trades; and performing the work in a safe and satisfactory manner.

H. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Review: Allow 21 days for review of each submittal. Architect will request for more time if needed.

I. Submittal Review

1. The General Contractor is solely responsible for coordination of submittals among all related crafts performing the Work. The General Contractor shall verify that their Sub-Contractors' submittals are complete in every way and meet the requirements of the Contract.

2. Architect's review of submittals is, as a primary objective, to assist in the completion of the project on time and in conformance with the Contract requirements by permitting review of material and fabricated items prior to ordering. Architect's review of submittals is based only on the data presented and extends only to conformance with general design intent and information contained in the Contract Documents.
3. The Architect's and/or design team's review of submittals does not constitute final acceptance or unqualified approval of items or work proposed or put in place, nor does it constitute acceptance of responsibility for the accuracy, coordination or completeness of submittals. ***The Architect's and/or design team's review of submittals, stamped as No Exceptions Taken (NET) or Furnish as Corrected (FAC) does not relieve the Contractor from the responsibility for errors, omissions, or compliance with all the requirements of the Contract Documents.***
4. In the event a submittal presented for review by the design team includes any deviations, changes, or substitutions from the contract documents, such change shall be clearly identified and graphically indicated by clouding. If deviations are not highlighted by the contractor and not noted by the design team upon return of submittal, the General Contractor is still responsible for correcting the deviation, once identified, to comply with the contract documents.
5. If a deviation/change/substitution presented requires additional engineering and/or submittal and review by DSA, the General Contractor is responsible for any professional fees/costs that the owner may incur with.

J. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings, and action taken by Architect.
3. Include the following information on label for processing and recording action taken:
   a. Project name.
   b. Date.
   c. Name and address of Architect.
   d. Name and address of Contractor.
   e. Name and address of subcontractor.
   f. Name and address of supplier.
   g. Name of manufacturer.
   h. Each submittal number shall be unique as follows:
      1) Format shall be as follows:
         a) Project Specification Section Number Sequential Number - Revision Number - (e.g., 09 91 00 -001.1). Do not use letters.
      2) Sample submittal log would look like the following in the submittal number column:

Submittal Number
09 91 00-001
09 91 00-001R1(revised submittal: shown for clarity)
05 51 00-002
07 70 00-003

   i. Number and title of appropriate Specification Section.
   j. Drawing number and detail references, as appropriate.

k. Location(s) where product is to be installed, as appropriate.
l. Other necessary identification.

K. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

L. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

M. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
1. Transmittal Form: Use AIA Document G810.

N. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
a. Identify all changes made since previous submittal.
3. Make all corrections or revisions required by reviewer's comments at Contractor’s expense and resubmit as initially specified above. No additional costs will be authorized for corrections or revisions
4. Resubmit submittals until they are marked “Approved” or “Furnish as Noted”.

O. Distribution: Furnish copies of final submittals with Architects / Engineer (and DSA as applicable) stamps of review to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms. Instruct parties to promptly report any inability to comply with provisions. Contractor is responsible for coordination of submittals and comments following review. Contractor to provide all additional reproduction costs for copies required by the Contractor at its expense. No additional costs will be authorized for Contractor costs pertaining to submittals.

P. Use for Construction: Use only final submittals with mark indicating stamped by Architect.

Q. Submittals not requested will not be recognized or processed. Submittals not requested will be returned without review.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.
B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
      a. Circle items applicable.
      b. Cross-out items not applicable.
      c. Select item number if required.
   3. Submittal data must include complete documentation relating to all the specified features
   4. Include the following information, as applicable:
      a. Manufacturer's Submittal Form with all the options selected when available.
      b. Manufacturer's written recommendations.
      c. Manufacturer's product specifications.
      d. Manufacturer's installation instructions.
      e. Standard color charts.
      f. Manufacturer's catalog cuts.
      g. Wiring diagrams showing factory-installed wiring.
      h. Printed performance curves.
      i. Operational range diagrams.
      j. Mill reports.
      k. Standard product operation and maintenance manuals.
      l. Compliance with specified referenced standards.
      m. Testing by recognized testing agency.
      n. Application of testing agency labels and seals.
      o. Notation of coordination requirements.
   5. Submit Product Data before or concurrent with Samples.
   6. Number of Copies: Submit 6 copies of Product Data, unless otherwise indicated. Architect will return 2 copies. Mark up and retain one returned copy as a Project Record Document.

C. Shop Drawings Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
   1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
      a. Dimensions.
      b. Do not use words "by others." Use words which depict exactly who is responsible for the work.
      c. Identification of products.
      d. Fabrication and installation drawings.
      e. Roughing-in and setting diagrams.

f. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
g. Shopwork manufacturing instructions.
h. Templates and patterns.
i. Schedules.
j. Design calculations.
k. Compliance with specified standards.
l. Notation of coordination requirements.
m. Notation of dimensions established by field measurement.
n. Relationship to adjoining construction clearly indicated.
o. Seal and signature of professional engineer if specified.
p. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
3. Contractor shall upload / post (1) electronic copy of the product literature,

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:
a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of appropriate Specification Section.
3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
a. Number of Samples: Submit 1 full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing

color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
   1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
   2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
   1. Type of product. Include unique identifier for each product.
   2. Number and name of room or space.
   3. Location within room or space.
   4. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Architect will return two copies.
      a. Mark up and retain one returned copy as a Project Record Document.

F. Submittals Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.
   1. Number of Copies: Submit 2 copies of each submittal, unless otherwise indicated. Architect will not return copies.
   2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
   3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."

C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

G. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

J. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

K. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   1. Name of evaluation organization.
   2. Date of evaluation.
   3. Time period when report is in effect.
   4. Product and manufacturers' names.
   5. Description of product.
   6. Test procedures and results.
   7. Limitations of use.

L. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Requirements."

DOCUMENT 01 40 00

QUALITY REQUIREMENTS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Drawings;

1.1.5. Construction Schedule – Network Analysis;

1.1.6. General Definitions and References.

1.2. SUMMARY

1.2.1. This Document includes administrative and procedural requirements for quality assurance and quality control.

1.2.2. Testing and inspecting services by the District are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Documents' requirements.

1.2.2.1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Specifications for those activities. Requirements in those Specifications may also cover production of standard products.

1.2.2.2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Documents' requirements.

1.2.2.3. Requirements for Contractor to provide quality-assurance and -control services required by District, District's consultants, or authorities having jurisdiction are not limited by provisions of this Document.

1.3. DEFINITIONS

1.3.1. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

1.3.2. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by District or its consultants.

1.3.3. Mock-ups: Full-size, physical assemblies that are constructed on-site. Mock-ups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mock-ups establish the standard by which the Work will be judged.

1.3.4. Laboratory Mock-ups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

1.3.5. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

1.3.6. Product Testing: Tests and inspections that are performed by an NRTL (National Recognized Testing Laboratory), an NVLAP (National Voluntary Laboratory Accreditation Program), or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

1.3.7. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

1.3.8. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

1.4. CONFLICTING REQUIREMENTS

1.4.1. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different but apparently equal, to District for a decision before proceeding.

1.4.2. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to District for a decision before proceeding.

1.5. SUBMITTALS

1.5.1. Qualification Data: For testing agencies specified in "Quality Assurance" below to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.5.2. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1.5.2.1. Specification number and title.

1.5.2.2. Description of test and inspection.

1.5.2.3. Identification of applicable standards, codes or regulations.

1.5.2.4. Identification of test and inspection methods.

1.5.2.5. Number of tests and inspections required.

1.5.2.6. Time schedule or time span for tests and inspections.

1.5.2.7. Entity responsible for performing tests and inspections.

1.5.2.8. Requirements for obtaining samples.

1.5.2.9. Unique characteristics of each quality-control service.

1.5.3. Reports: Prepare and submit certified written reports that include the following:

1.5.3.1. Date of issue.

1.5.3.2. Project title and number.

1.5.3.3. Name, address, and telephone number of testing agency.

1.5.3.4. Dates and locations of samples and tests or inspections.

1.5.3.5. Names of individuals making tests and inspections.

1.5.3.6. Description of the Work and test and inspection method.

1.5.3.7. Identification of product and Specification.

1.5.3.8. Complete test or inspection data.

1.5.3.9. Test and inspection results and an interpretation of test results.

1.5.3.10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.

1.5.3.11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Documents' requirements.

1.5.3.12. Name and signature of laboratory inspector.

1.5.3.13. Recommendations on retesting and reinspecting.

1.5.3.14. Descriptions of deficiencies noted, and corrective action undertaken to resolve such deficiencies.

1.5.3.14.1. Deficiencies observed shall immediately be brought to the attention of the Contractor's field superintendent, and trade foreman. In the event deficiencies are not corrected, or if an interpretation of the Contract Documents is required, the Testing Agency shall immediately notify the District and applicable consultant, Architect, or Engineer.

1.5.3.14.2. The Testing Agency shall maintain a deficiency list of all items not corrected and shall reinspect the area after the deficiency has been corrected. The list shall include a description of the deficiency, the date and time the deficiency was observed,

who was notified, the date of reinspection and description of any corrective action taken. Distribute the deficiency list at least once per month.

1.5.3.15.15. At the end of the Project, the Testing Agency shall submit a final signed report stating whether the work tested and inspected conforms to the Contract Documents' requirements.

1.5.4. Permits, Licenses, and Certificates: For District's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.6. QUALITY ASSURANCE

1.6.1. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specifications specify additional requirements.

1.6.2. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance. Where required by the individual Specifications, Installer employing workers trained and approved by manufacturer, Installer being acceptable to manufacturer, and/or Installer being an authorized representative of manufacturer for both installation and maintenance.

1.6.3. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

1.6.4. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

1.6.5. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the State of California, and who is experienced in providing engineering services of the kind indicated.

1.6.6. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

1.6.7. Specialists: Certain Specifications may require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1.6.7.1. Requirement for specialists shall not supersede building codes or regulations governing the Work.

1.6.8. Testing Agency Qualifications: An NRTL, an NVLAP, Division of the State of Architect's Accepted Laboratory, or an independent agency with the experience and capability to conduct testing and inspecting indicated; and with additional qualifications stated in

individual Specifications; and where required by and acceptable to authorities having jurisdiction.

1.6.8.1. NRTL: A Nationally Recognized Testing Laboratory according to 29 CFR 1910.7.

1.6.8.2. NVLAP: A testing agency accredited according to NIST's (National Institute of Standards and Technology) National Voluntary Laboratory Accreditation Program.

1.6.8.3. Tests shall be made by an accredited testing agency with a minimum of 5 years of experience in the specific type of testing to be performed. Except as otherwise provided, sampling and testing of all materials and the laboratory methods and testing equipment shall be in accordance with the applicable standards and methods of the California Building Standards code.

1.6.8.4. For each type of inspection and testing service to be performed, the Testing Agency shall submit certification, signed and sealed by the Agency's professional engineer, of compliance with all applicable requirements of the following:

1.6.8.4.1. ASTM E329, "Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction."

1.6.8.4.2. "Recommended Requirements for Independent Laboratory Qualifications" published by the American Council of Independent Laboratories.

1.6.8.5. Furnish written certification to the District that all equipment to be used has been calibrated in accordance with applicable ASTM standards within the last year and is in proper working order.

1.6.8.6. Testing Agency Personnel Qualifications: Testing and inspection services shall be performed only by trained and experienced technicians currently qualified for the work they are to perform. Documentation of such training and experience shall be submitted to the District and/or its consultants upon request.

1.6.8.7. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

1.6.8.8. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.6.9. Preconstruction Testing: Where a testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1.6.9.1. Contractor responsibilities include the following:

1.6.9.1.1. Verify by its Quality Assurance/Quality Control procedures that an element is ready for testing prior to requesting a test.

1.6.9.1.2. Provide test specimens representative of proposed products and construction.

1.6.9.1.3. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

1.6.9.1.4. Provide sizes and configurations of test assemblies, mock-ups, and laboratory mock-ups to adequately demonstrate capability of products to comply with performance requirements.

1.6.9.1.5. Build site-assembled test assemblies and mock-ups using installers who will perform same tasks for Project.

1.6.9.1.6. Build laboratory mock-ups at testing facility using personnel, products, and methods of construction indicated for the completed Work.

1.6.9.1.7. When testing is complete, remove test specimens, assemblies, mock-ups, and laboratory mock-ups; do not reuse products on Project.

1.6.9.2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to District with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents' requirements.

1.6.10. Mock-ups: Before installing portions of the Work requiring mock-ups, build mock-ups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1.6.10.1. Build mock-ups in location and of size indicated or, if not indicated, as directed by District or its consultant.

1.6.10.2. Notify District and its consultants seven (7) days in advance of dates and times when mock-ups will be constructed.

1.6.10.3. Demonstrate the proposed range of aesthetic effects and workmanship.

1.6.10.4. Obtain District and its consultant's approval of mock-ups before starting work, fabrication, or construction.

1.6.10.4.1. Allow seven (7) days for initial review and each re-review of each mock-up.

1.6.10.5. Incorporate seismic design of nonstructural components as listed in Division 01 Document "Seismic Design Requirements for Non-Structural Components" into mock-ups.

1.6.10.6. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed Work.

1.6.10.7. Demolish and remove mock-ups when directed, unless otherwise indicated.

1.6.11. Laboratory Mock-Ups: Comply with requirements of preconstruction testing and those specified in individual Specifications in Divisions 02 through 49.

1.7. QUALITY CONTROL

1.7.1. District Responsibilities: Where quality-control services are indicated as District's responsibility, District will engage a qualified testing agency to perform these services.

1.7.1.1. District will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting the testing agencies are engaged to perform.

1.7.1.2. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Price will be adjusted by Change Order per the Contract Documents.

1.7.2. Tests and inspections not explicitly assigned to District are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1.7.2.1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform the quality-control services.

1.7.2.1.1. Contractor shall not employ same entity engaged by District, unless agreed to in writing by District.

1.7.2.2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.

1.7.2.3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

1.7.2.4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

1.7.2.5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

1.7.3. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Document "Submittal Procedures."

1.7.4. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents' requirements.

1.7.5. Testing Agency Responsibilities: Cooperate with District, District's consultants, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1.7.5.1. Notify District, District's consultants, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

1.7.5.2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

1.7.5.3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

1.7.5.4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

1.7.5.5. Do not release, revoke, alter, or increase the Contract Documents' requirements or approve or accept any portion of the Work.

1.7.5.6. Do not perform any duties of Contractor.

1.7.6. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify testing agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1.7.6.1. Access to the Work.

1.7.6.2. Incidental labor and facilities necessary to facilitate tests and inspections.

1.7.6.3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.

1.7.6.4. Facilities for storage and field curing of test samples.

1.7.6.5. Delivery of samples to testing agencies.

1.7.6.6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

1.7.6.7. Security and protection for samples and for testing and inspecting equipment at Project Site.

1.7.6.8. Furnish tools, samples of materials, design mixes, equipment and assistance as requested.

1.7.6.9. Provide and maintain, for the sole use of the Testing Agency, adequate facilities for the safe storage and proper curing of concrete test cylinders on the project site for the first 24 hours after casting as required by ASTM C31, Method of Making and Curing Concrete Test Specimens in the Field.

1.7.6.10. Build and store masonry test prisms in a manner acceptable to the Testing Agency. Prisms to be tested shall remain at the job site until moved by Testing Agency personnel.

1.7.6.11. Notify Testing Agency at least 10 working days in advance of any qualification testing for welding required herein.

1.7.6.12. Notify Testing Agency at least 24 hours prior to expected time for operations requiring testing or inspection services.

1.7.6.13. Make arrangements with the Testing Agency and pay for additional samples and tests made for the Contractor's convenience or for retesting of failed samples.

1.7.6.14. For deficiencies requiring corrective action, submit in writing a description of the deficiency and a proposed correction to the District. After review and approval, the proposed corrective action shall be implemented and inspected by the Testing Agency. It is Contractor's responsibility to ascertain that the deficiency is corrected and inspected prior to the work being covered.

1.7.6.15. Retention of an independent Testing Agency by the District shall in no way relieve Contractor of responsibility for performing all work in accordance with the Contract Documents' requirements.

1.7.7. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1.7.7.1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.8. TESTS AND SPECIAL INSPECTIONS

1.8.1. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specifications, and as follows:

1.8.1.1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.

1.8.1.2. Notifying District, District's consultants, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

1.8.1.3. Submitting a certified written report of each test, inspection, and similar quality-control service to District, with copy to Contractor and to authorities having jurisdiction.

1.8.1.4. Submitting a final report of special tests and inspections at Project Completion, which includes a list of unresolved deficiencies.

1.8.1.5. Interpreting tests and inspections and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

1.8.1.6. Retesting and reinspecting corrected work.

2. PRODUCTS

2.1. GENERAL

2.1.1. Do not use any materials or equipment represented by samples until tests, if required, have been made and the materials or equipment found to be acceptable. Any product which becomes unfit for use after acceptance shall not be incorporated into the Work.

3. EXECUTION

3.1. TEST AND INSPECTION LOG

3.1.1. Prepare a record of tests and inspections. Include the following:

3.1.1.1. Date test or inspection was conducted.

3.1.1.2. Description of the Work tested and inspected.

3.1.1.3. Date test or inspection results were transmitted to District.

3.1.1.4. Identification of testing agency or special inspector conducting test or inspection.

3.1.2. Maintain log at Project Site. Post changes and modifications as they occur. Provide access to test and inspection log for District's reference during normal working hours.

3.2. REPAIR AND PROTECTION

3.2.1. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

3.2.1.1. Provide materials and comply with installation requirements specified in other Specifications. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

3.2.1.2. Comply with Document "Cutting and Patching" and all related Contract Documents' requirements.

3.2.2. Protect construction exposed by or for quality-control service activities.

3.2.3. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF DOCUMENT

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes list of references.

1.3 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.
B. “AHJ”: Agency having jurisdiction.
C. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
D. “Compatible”: When used for products, it shall comply with requirements including products recommended/ required by the manufacturer for warrantee acceptance.
E. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
F. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
G. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
H. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
I. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

J. "Owner": As defined in Division 1 section "Summary".
K. "Provide": Furnish and install, complete and ready for the intended use.
L. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
    1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
    2. Copies of standards and applicable building codes (Title 24 Parts 1-6 and 9) shall be kept on-site during construction.

D. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations.
E. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized names.
F. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized names.
G. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized names.

1.5 QUALITY ASSURANCE

A. Reference Standards: (Effective January 1, 2023) The 2022 Code of Regulations CCR, CFC, CMC, CPC, CEC Govern
    1. Title 19 CCR, Public Safety, State Fire Marshall Regulations
    2. Title 24 CCR, Part 1 - 2022 Building Standards Administrative Code

3. Title 24 CCR, Part 2 - 2022 California Building Code, VOL. 1&2 (CBC) (2021 IBC, as Amended by CA)
4. Title 24 CCR, Part 3 - 2022 California Electrical Code (CEC) (2020 NEC, as Amended by CA)
5. Title 24 CCR, Part 5 - 2022 California Plumbing Code (CPC) (2021 IAPMO UPC, as Amended by CA)
6. Title 24 CCR, Part 6 - 2022 California Energy Code
7. Title 24 CCR, Part 9 - 2022 California Fire Code (CFC) (2021 IFC, as Amended by CA
8. Title 24 CCR, Part 11 - 2022 California Green Building Standards Code (Calgreen Code)
9. Title 24 CCR, Part 12 - 2022 California Reference Standards (Partial List)
10. NFPA 101- Life Safety Code. 2021 Edition
11. 2022 ADA Standards for Accessible Design
12. Americans with Disabilities Act (ADA), Title II or Title III.

B. California Referenced Standards Title 24 CCR, Part 12 - 2022 (partial list)
1. NFPA 13 - Automatic Sprinkler Systems (California Amended), 2019 Edition.
2. NFPA 17 - Dry Chemical Extinguishing Systems, 2021 Edition.
3. NFPA 24 - Private Fire Service Mains (California Amended), 2018 Edition.
4. NFPA 72 - National Fire Alarm and Signaling Code (California Amended) 2022 Edition (Note: See UL Standard 1971 for "Visual Devices").
5. NFPA 80 - Fire Door and Other Opening Protectives, 2019 Edition.
6. NFPA 101- Life Safety Code. 2021 Edition
7. NFPA 105 – Standard for Smoke Door Assemblies and Other Opening Protectives, 2019 Edition
8. NFPA 252 – Standard Methods of Fire Tests of Door Assemblies
9. 2019 California Access Compliance Advisory Reference Manual
10. Americans with Disabilities Act (ADA), Title II or Title III.
11. UL 300 – Standard for Testing of Fire Extinguishing Equipment for Protection of Commercial Cooking Equipment.
12. Ul 464 – Audible for Fire Alarm and Signaling Systems. Including Accessories
13. UL 521 – Standard for Heat Detectors for Fire Protective Signaling Systems (2005 edition).
14. UL 1971 Standard for Signaling Devices for the Hearing Impaired (2002-2010)
15. Refer to 2022 CBC (SFM) Chapter 35 and California Fire Code Chapter 80 for a complete list of applicable NFA Standards.
16. 2022 California Access Compliance Advisory Reference Manual

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

DOCUMENT 01 42 13

ABBREVIATIONS AND ACRONYMS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions including without limitation, Contract Terms and Definitions; and

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any).

1.2. ABBREVIATIONS AND ACRONYMS FOR STANDARDS AND REGULATIONS

1.2.1. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations as indicated in Thomson Gale™ (www.gale.com), Gale Research's "Encyclopedia of Associations" or "Encyclopedia of Associations: National Organizations of the U.S," or in Columbia Books' "National Trade & Professional Associations of the U.S."

1.2.2. Some of the applicable abbreviations and acronyms referenced in the Specifications or other Contract Documents have the following meanings, subject to updates or revisions based on the above-referenced publications:

- AA: Aluminum Association
- AAMA: Architectural Aluminum Manufacturers Association
- AASHTO: American Association of State Highway and Transportation Officials
- ABPA: Acoustical and Board Products Association
- ACI: American Concrete Institute
- AGA: American Gas Association
- AGC: Associated General Contractors
- AHC: Architectural Hardware Consultant
- AI: Asphalt Institute
- AIA: American Institute of Architects
- AIEE: American Institute of Electrical Engineers
- AISC: American Institute of Steel Construction
- AISI: American Iron and Steel Institute
- AMCA: Air Moving and Conditioning Association
- ANSI: American National Standards Institute
- APA: American Plywood Association
- ARI: Air Conditioning and Refrigeration Institute
- ASHRAE: American Society of Heating, Refrigeration and Air Conditioning Engineers
- ASME: American Society of Mechanical Engineers
- ASSE: American Society of Structural Engineers
- ASTM: American Society of Testing and Materials
- AWPB: American Wood Preservers Bureau

- AWPI: American Wood preservers Institute
- AWS: American Welding Society
- AWSC: American Welding Society Code
- AWI: Architectural Woodwork Institute
- AWWA: American Water Works Association
- BIA: Brick Institute of America
- CCR: California Code of Regulations
- CLFMI: Chain Link Fence Manufacturers Institute
- CMG: California Masonry Guild
- CRA: California Redwood Association
- CRSI: Concrete Reinforcing Steel Institute
- CS: Commercial Standards
- CSI: Construction Specifications Institute
- CTI: Cooling Tower Institute
- FGMA: Flat Glass Manufacturer's Association
- FIA: Factory Insurance Association
- FM: Factory Mutual
- FS: Federal Specification
- FTI: Facing Title Institute
- GA: Gypsum Association
- ICC: International Code Council
- IEEE: Institute of Electrical and Electronic Engineers
- IES: Illumination Engineering Society
- LIA: Lead Industries Association
- MIA: Marble Institute of America
- MLMA: Metal Lath Manufacturers Association
- MS: Military Specifications
- NAAMM: National Association of Architectural Metal Manufacturers
- NBHA: National Builders Hardware Association
- NBFU: National Board of Fire Underwriters
- NBS: National Bureau of Standards
- NCMA: National Concrete Masonry Association
- NEC: National Electrical Code
- NEMA: National Electrical Manufacturers Association
- NFPA: National Fire Protection Association/National Forest Products Association
- NMWIA: National Mineral Wool Insulation Association
- NTMA: National Terrazzo and Mosaic Association
- NWMA: National Woodwork Manufacturer's Association
- ORS: Office of Regulatory Services (California)
- OSHA: Occupational Safety and Health Act
- PCI: Precast Concrete Institute
- PCA: Portland Cement Association
- PDCA: Painting and Decorating Contractors of America
- PDI: Plumbing Drainage Institute
- PEI: Porcelain Enamel Institute
- PG&E: Pacific Gas & Electric Company
- PS: Product Standards
- SDI: Steel Door Institute; Steel Deck Institute
- SJI: Steel Joist Institute
- SSPC: Steel Structures Painting Council
- TCA: Tile Council of America

- TPI: Truss Plate Institute
- UBC: Uniform Building Code
- UL: Underwriters Laboratories Code
- UMC: Uniform Mechanical Code
- USDA: United States Department of Agriculture
- VI: Vermiculite Institute
- WCLA: West Coast Lumberman's Association
- WCLB: West Coast Lumber Bureau
- WEUSER: Western Electric Utilities Service Engineering Requirements
- WIC: Woodwork Institute of California
- WPOA: Western Plumbing Officials Association

1.2.3. Additional Abbreviations and Symbols: Refer to the above-referenced publications or to Drawings for additional abbreviations and for symbols.

END OF DOCUMENT

DOCUMENT 01 42 16

GENERAL DEFINITIONS AND REFERENCES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions including without limitation, Contract Terms and Definitions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any); and

1.1.4. Special Conditions.

1.2. DEFINITIONS

General: Basic Contract definitions are included in the General Conditions of the Contract for Construction. The following are in addition to those definitions.

1.2.1. "Alternate": A cost or credit for certain Work that may be added to or deducted from the Project.

1.2.2. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

1.2.3. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

1.2.4. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

1.2.5. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

1.2.6. "Provide": Furnish and install, complete and ready for the intended use.

1.3. QUALITY ASSURANCE

1.3.1. For products or workmanship specified by association, trade, or Federal Standards, Contractor shall comply with requirements of the standard, except when more stringent requirements are specified in the Contract Documents, or are required by applicable codes.

1.3.2. Contractor shall conform to current reference standard publication in effect on the date of bid opening.

1.3.3. Unless directed otherwise by the Contract Documents, Contractor shall obtain copies of referenced standards.

1.3.4. Unless directed otherwise by the Contract Documents, Contractor shall maintain a copy of referenced standards at jobsite until Completion.

1.3.5. If specified standards conflict with Contract Documents, Contractor shall request clarification from the District or the Architect before proceeding.

1.3.6. Governing Codes shall be as shown in the Contract Documents including, without limitation, the Specifications.

1.4. STANDARDS

1.4.1. Standard Specifications: References to codes, specifications and standards referred to in the Contract Documents shall mean, and are intended to be, the latest edition, amendment or revision of such reference standard in effect as of the date of these Contract Documents. If those standard specifications are revised prior to Completion of any part of the Work to which such revision would pertain, Contractor may, if acceptable to and approved by the District, perform such Work in accordance with the revised standard specifications.

1.4.2. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the District for a decision before proceeding.

1.4.3. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to District for a decision before proceeding.

1.4.4. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.

1.4.5. Copies from the Publication Source: Where copies of standards are needed for performance of a required construction activity, Contractor shall obtain copies directly from the publication source.

1.5. SCHEDULE OF REFERENCES

The following information is intended only for the general assistance of Contractor. District does not represent the accuracy of the information. Contractor shall independently verify the information for each entity listed below:

AA	Aluminum Association 900 19th Street NW, Suite 300 Washington, DC 20006 www.aluminum.org	202/862-5100
AABC	Associated Air Balance Council 1518 K Street, NW, Suite 503	202/737-0202

	Washington, DC 20005 www.aabchq.com	
AAMA	American Architectural Manufacturers Association 1827 Walden Office Sq., Suite 104 Schaumburg, IL 60173-4268 www.aamanet.org	847/303-5664
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, Suite 249 Washington, DC 20001 www.aashto.org	202/624-5800
AATCC	American Association of Textile Chemists and Colorists P.O. Box 12215 One Davis Drive Research Triangle Park, NC 27709-2215 www.aatcc.org	919/549-8141
ACI	American Concrete Institute P.O. Box 9094 Farmington Hills, MI 48333-9094 www.aci-int.org	248/848-3700
ACPA	American Concrete Pipe Association 222 West Las Colinas Blvd., Suite 641 Irving, TX 75039-5423 www.concrete-pipe.org	972/506-7216
ADC	Air Diffusion Council 11 South LaSalle St., Suite 1400 Chicago, IL 60603 http://www.flexibleduct.org/index.asp	312/201-0101
AFPA	American Forest and Paper Association 1111 19th St., NW, Suite 800 Washington, DC 20036 http://www.afandpa.org/	202/463-2700
AGA	American Gas Association 1515 Wilson Blvd. Arlington VA 22209 www.aga.com	703/841-8400
AHA	American Hardboard Association 1210 W. Northwest Hwy Palatine, IL 60067-1897 http://domensino.com/AHA/default.htm	847/934-8800
AI	Asphalt Institute Research Park Drive P.O. Box 14052 Lexington, KY 40512-4052	606/288-4960

	www.asphaltinstitute.org	
AIA	The American Institute of Architects 1735 New York Avenue, NW Washington, DC 20006-5292 www.aia.org	202/626-7300
AISC	American Institute of Steel Construction One East Wacker Drive, Suite 3100 Chicago, IL 60601-2001 http://www.aisc.org/	800/644-2400
AITC	American Institute of Timber Construction 7012 S. Revere Pkwy., Suite 140 Englewood, CO 80112 www.aitc-glulam.org	303/792-9559
ALCA	Associated Landscape Contractors of America 12200 Sunrise Valley Drive, Suite 150 Reston, VA 20191 www.alca.org	703/620-6363
ALI	Associated Laboratories, Inc. P.O. Box 152837 1323 Wall St. Dallas, TX 75315 http://www.assoc-labs.com/	214/565-0593
ALSC	American Lumber Standards Committee P.O. Box 210 Germantown, MD 20875	301/972-1700
AMCA	Air Movement and Control Association International, Inc. 30 W. University Drive Arlington Heights, IL 60004-1893 www.amca.org	847/394-0150
ANLA	American Nursery and Landscape Association 1250 Eye Street, NW, Suite 500 Washington, DC 20005	202/789-2900
ANSI	American National Standards Institute 11 West 42nd Street, 13th Floor New York, NY 10036-8002 www.ansi.org	212/642-4900
APA	APA-The Engineered Wood Association P.O. Box 11700 Tacoma, WA 98411-0700 www.apawood.org	206/565-6600
APA	Architectural Precast Association P.O. Box 08669 Fort Myers, FL 33908-0669	941/454-6989

ARI	Air Conditioning and Refrigeration Institute 4301 Fairfax Drive, Suite 425 Arlington, VA 22203 www.ari/org	703/524-8800
ARMA	Asphalt Roofing Manufacturers Association Center Park 4041 Powder Mill Road, Suite 404 Calverton, MD 20705	301/231-9050
ASA	Acoustical Society of America 500 Sunnyside Blvd. Woodbury, NY 11797	516/576-2360
ASCE	American Society of Civil Engineers- World Headquarters 1801 Alexander Bell Drive Reston, VA 20190-4400 www.asce.org	800/548-2723 703/295-6000
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle, NE Atlanta, GA 30329-2305 www.ashrae.org	800/527-4723 404/636-8400
ASLA	American Society of Landscape Architects 4401 Connecticut Ave., NW, 5th Floor Washington, DC 20008-2369 www.asla.org	202/686-2752
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017-2392 www.asme.org	800/434-2763
ASPE	American Society of Plumbing Engineers 3617 Thousand Oaks Blvd., Suite 210 Westlake, CA 91362-3649	805/495-7120
ASQC	American Society for Quality Control 611 E. Wisconsin Avenue Milwaukee, WI 53201-3005 www.asqc.org	800/248-1946 414/272-8575
ASSE	American Society of Sanitary Engineering 28901 Clemens Road Westlake, OH 44145 www.asse-plumbing.org	216/835-3040
ASTM	American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, PA 19428-2959 www.astm.org	610/832-9500

AWCI	Association of the Wall and Ceiling Industries--International 307 E. Annandale Road, Suite 200 Falls Church, VA 22042-2433 www.awci.org	703/534-8300
AWPA	American Wood-Preservers' Association 3246 Fall Creek Highway, Suite 1900 Granbury, TX 76049-7979	817/326-6300
AWS	American Welding Society 550 NW LeJeune Road Miami, FL 33126 www.amweld.org	800/443-9373 305/443-9353
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235 www.awwa.org	800/926-7337 303/794-7711
BHMA	Builders' Hardware Manufacturers Association 355 Lexington Avenue, 17th Floor New York, NY 10017-6603	212/661-4261
CBM	Certified Ballast Manufacturers Association 1422 Euclid Avenue, Suite 402 Cleveland, OH 44115-2094	216/241-0711
CGA	Compressed Gas Association 1725 Jefferson Davis Hwy, Suite 1004 Arlington, VA 22202-4102 www.cganet.com	703/412-0900
CISCA	Ceilings & Interior Systems Construction Association 1500 Lincoln Hwy, Suite 202 St. Charles, IL 60174 www.cisca.org	630/584-1919
CISPI	Cast Iron Soil Pipe Institute 5959 Shallowford Road, Suite 419 Chattanooga, TN 37421	423/892-0137
CPSC	Consumer Product Safety Commission East West Towers 4330 East-West Hwy. Bethesda, MD 20814	800/638-2772
CPPA	Corrugated Polyethylene Pipe Association 432 N. Superior Street Toledo, OH 43604	800/510-2772 419/241-2221
CRA	California Redwood Association 405 Enfrente Drive, Suite 200	415/382-0662

	Novato, CA 94949	
CRI	Carpet and Rug Institute 310 S. Holiday Avenue Dalton, GA 30722-2048 www.carpet-rug.com	800/882-8846 706/278-3176
CRSI	Concrete Reinforcing Steel Institute 933 N. Plum Grove Road Schaumburg, IL 60173-4758 www.crsi.org	847/517-1200
CTI	Ceramic Tile Institute of America 12061 W. Jefferson Blvd. Culver City, CA 90230-6219	310/574-7800
DHI	Door and Hardware Institute 14170 Newbrook Drive Chantilly, VA 20151-2223 www.dhi.org	703/222-2010
DIPRA	Ductile Iron Pipe Research Association 245 Riverchase Pkwy East, Suite O Birmingham, AL 35244	205/988-9870
DOC	Department of Commerce 14th Street and Constitution Avenue, NW Washington, DC 20230	202/482-2000
DOT	Department of Transportation 400 Seventh Street, SW Washington, DC 20590	202/366-4000
EJMA	Expansion Joint Manufacturers Association 25 N. Broadway Tarrytown, NY 10591-3201	914/332-0040
EPA	Environmental Protection Agency 401 M Street, SW Washington, DC 20460	202/260-2090
FCICA	Floor Covering Installation Contractors Association P.O. Box 948 Dalton, GA 30722-0948	706/226-5488
FM	Factory Mutual 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062-9102 www.factorymutual.com	781/255-4300
FS	Federal Specifications Unit (Available from GSA) 470 East L'Enfant Plaza, SW, Suite 8100	202/619-8925

	Washington, DC 20407	
GA	Gypsum Association 810 First Street NE, Suite 510 Washington, DC 20002 www.usg.com	202/289-5440
GANA	Glass Association of North America 3310 SW Harrison Street Topeka, KS 66611-2279 www.glasswebsite.com/gana	913/266-7013
HMA	Hardwood Manufacturers Association 400 Penn Center Blvd., Suite 530 Pittsburgh, PA 15235-5605 www.hardwood.org	412/828-0770
HPVA	Hardwood Plywood and Veneer Association 1825 Michael Farraday Drive P.O. Box 2789 Reston, VA 22195-0789 www.hpva.org	703/435-2900
IEEE	Institute of Electrical and Electronic Engineers 345 E. 47th Street New York, NY 10017-2394 www.ieee.org	800/678-4333 212/705-7900
IESNA	Illuminating Engineering Society of North America 120 Wall Street, 17th Floor New York, NY 10005-4001 www.iesna.org	212/248-5000
ITS	Intertek Testing Services P.O. Box 2040 607/753-6711 3933 US Route 11 Cortland, NY 13045-7902 www.itsglobal.com	800/345-3851
LMA	Laminating Materials Association 116 Lawrence Street Hillsdale, NJ 07642-2730 www.lma.org	201/664-2700
MCAA	Mechanical Contractors Association of America 1385 Piccard Drive Rockville, MD 20850-4329	301/869-5800
ML/SFA	Metal Lath/Steel Framing Association (A Division of the NAAMM) 8 South Michigan Avenue, Suite 1000 Chicago, IL 60603	312/456-5590
MSS	Manufacturers Standardization Society for the Valve and Fittings Industry	703/281-6613

	127 Park Street, NE Vienna, VA 22180-4602	
NAA	National Arborist Association P.O. Box 1094 603/673-3311 Amherst, NH 03031-1094 www.natlarb.com	800/733-2622
NAAMM	National Association of Architectural Metal Manufacturers 8 South Michigan Avenue, Suite 1000 Chicago, IL 60603 www.gss.net/naamm	312/782-5590
NAIMA	North American Insulation Manufacturers Association 44 Canal Center Plaza, Suite 310 Alexandria, VA 22314 www.naima.org	703/684-0084
NAPA	National Asphalt Pavement Association NAPA Building 5100 Forbes Blvd. Lanham, MD 20706-4413	301/731-4748
NCSPA	National Corrugated Steel Pipe Association 1255 23rd Street, NW, Suite 850 Washington, DC 20037 www.ncspa.org	202/452-1700
NEBB	National Environmental Balancing Bureau 8575 Grovemont Circle Gaithersburg, MD 20877-4121	301/977-3698
NECA	National Electrical Contractors Association 3 Bethesda Metro Center, Suite 1100 Bethesda, MD 20814-5372	301/657-3110
NEI	National Elevator Industry 185 Bridge Plaza North, Suite 310 Fort Lee, NJ 07024	201/944-3211
NEMA	National Electrical Manufacturers' Association 1300 N. 17th Street, Suite 1847 Rosslyn, VA 22209 www.nema.org	703/841-3200
NFPA	National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101 www.nfpa.org	800/344-3555 617/770-3000
NHLA	National Hardwood Lumber Association P.O. Box 34518	901/377-1818

	Memphis, TN 38184-0518 www.natlhardwood.org	
NIA	National Insulation Association 99 Canal Center Plaza, Suite 222 Alexandria, VA 22314 www.insulation.org	703/683-6422
NPA	National Particleboard Association 18928 Premiere Court Gaithersburg, MD 20879-1569 www.pbmdf.com	301/670-0604
NPCA	National Paint and Coatings Association 1500 Rhode Island Avenue, NW Washington, DC 20005-5597 www.paint.org	202/462-6272
NRCA	National Roofing Contractors Association O'Hare International Center 10255 W. Higgins Road, Suite 600 Rosemont, IL 60018-5607 www.roofonline.org	800/323-9545
NRMCA	National Ready Mixed Concrete Association 900 Spring Street Silver Spring, MD 20910 www.nrmca.org	301/587-1400
NSF	NSF International P.O. Box 130140 Ann Arbor, MI 48113-0140 www.nsf.org	313/769-8010
NUSIG	National Uniform Seismic Installation Guidelines 12 Lahoma Court Alamo, CA 94526	510/946-0135
NWWDA	National Wood Window and Door Association 1400 E. Touhy Avenue, G-54 Des Plaines, IL 60018 www.nwwda.org	800/223-2301 847/299-5200
SHA	Occupational Safety and Health Administration (U.S. Department of Labor) 200 Constitution Ave., NW Washington, DC 20210	202/219-8148
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077-1083 www.portcement.org	847/966-6200
PDCA	Painting and Decorating Contractors of America	800/332-7322 703/359-0826

	3913 Old Lee Hwy, Suite 33-B Fairfax, VA 22030 www.pdca.com	
PDI	Plumbing and Drainage Institute 45 Bristol Drive, Suite 101 South Easton, MA 02375	800/589-8956 508/230-3516
RFCI	Resilient Floor Covering Institute 966 Hungerford Drive, Suite 12-B Rockville, MD 20805-1714	301/340-8580
RIS	Redwood Inspection Service c/o California Redwood Association 405 Enfrente Drive, Suite 200 Novato, CA 94949-7206	415/382-0662
SDI	Steel Deck Institute P.O. Box 25 Fox River Grove, IL 60012 www.sdi.org	847/462-1930
SDI	Steel Door Institute 30200 Detroit Road Cleveland, OH 44145-1967	216/889-0010
SMA	Stucco Manufacturers Association 14006 Ventura Blvd. Sherman Oaks, CA 91403	213/789-8733
SMACNA	Sheet Metal and Airconditioning Contractors National Association, Inc. P.O. Box 221230 Chantilly, VA 20151-1209 www.smacna.org	703/803-2980
SPI	Society of the Plastics Industry, Inc. Spray Polyurethane Division 1801 K Street, NW, Suite 600K Washington, DC 20006 www.socplas.org	800/951-2001 202/974-5200
SSPC	Steel Structures Painting Council 40 24th Street, 6th Floor Pittsburgh, PA 15222-4643	412/281-2331
TCA	Tile Council of America 100 Clemson Research Blvd. Anderson, SC 29625	864/646-8453
TPI	Turfgrass Producers International 1855-A Hicks Road Rolling Meadows, IL 60008	800/405-8873 847/705-9898
UL	Underwriters Laboratories, Inc.	800/704-4050

	333 Pfingston Road 847/272-8800 Northbrook, IL 60062 www.ul.com	
UNI	Uni-Bell PVC Pipe Association 2655 Villa Creek Drive, Suite 155 Dallas, TX 75234 www.members.aol.com/unibell1	972/243-3902
USDA	U.S. Department of Agriculture 14th St. and Independence Ave., SW Washington, DC 20250	202/720-8732
WA	Wallcoverings Association 401 N. Michigan Avenue Chicago, IL 60611-4267	312/644-6610
WCLIB	West Coast Lumber Inspection Bureau P.O. Box 23145 Portland, OR 97281-3145	503/639-0651
WCMA	Window Covering Manufacturers Association 355 Lexington Ave., 17th Floor New York, NY 10017-6603	212/661-4261
WIC	Woodwork Institute of California P.O. Box 980247 West Sacramento, CA 95798-0247	916/372-9943
WLPDIA	Western Lath/Plaster/Drywall Industries Association 8635 Navajo Road San Diego, CA 92119	619/466-9070
WMMPA	Wood Moulding & Millwork Producers Association 507 First Street Woodland, CA 95695 www.wmmpa.com	800/550-7889 916/661-9591
WRI	Wire Reinforcement Institute 203 Loudoun Street, SW Leesburg, VA 20175-2718	703/779-2339
WWPA	Western Wood Products Association Yeon Building 522 S.W. 5th Avenue Portland, OR 97204-2122	503/224-3930

END OF DOCUMENT

SECTION 01 45 00 – QUALITY CONTROL
PART 1 **- GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.
B. Coordinate the work of this Section with all trades.
C. Verify applicable dimensions, clearances and heights at the jobsite.
D. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:
   1. Control quality of installation of materials & systems.
   2. Control quality of construction.
   3. Control quality of site demolition.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.
B. Title 24, California Code of Regulations, California Building Standards Commission.
C. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.
D. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission.
E. Title 24, Chapter 11 – California Green Building Standards Code
   1. Non-residential new construction:
      a. All occupancy types.
F. Leadership in Energy and Environmental Design (LEED), www.usgbc.org/LEED (United States Green Building Council (USGBC)
   Refer to Division 1 for version of LEED Rating System and Reference Guide applicable to project.
G. Collaborative for High Performance Schools (CHPS), www.chps.net

1.3 PERFORMANCE, TESTING AND INSPECTION

A. General:
   1. Comply with manufacturer's standards.
   2. Comply with Building Code.
   3. Job site inspections shall be done as herein specified and as listed in drawings.
   4. Testing shall be done as herein specified and as listed in drawings.
   5. Comply with requirements of specific Specification Section and/or Drawings.

1.4 SUBMITTALS AND MOCK-UPS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.
   1. Coordinate with each specific Specification Section.
B. Refer to Division 1 for sustainability requirements.
C. Mock-ups:
   1. Shall be reviewed and approved in field by **Architect**.

1.5 QUALITY ASSURANCE

A. Refer as herein indicated and as indicated in each specific Specification Section.
B. Hazardous materials:
   1. It is illegal to manufacture, sell or use products containing asbestos in the United States.
      a. These specifications rely on the product manufacturers and distributors to insure that the products they manufacture and/or distribute comply with all statutes and regulations governing their products.
      b. It is understood that there has not been any testing or inspection done to confirm any hazardous materials of the specified products to confirm compliance with these statutes and regulations by the **Architect**.
      c. Therefore, these specifications are done not knowingly including any specified products or materials which contain asbestos and/or any other hazardous material.
      d. Any materials suspected of containing hazardous materials shall be brought to the attention of **Owner**.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product delivery, storage and handling requirements.

1.7 JOB CONDITIONS

A. Refer as indicated in each specific Specification Section.
B. Field-verify that all components, substrates, backing, mock-ups, etc. provided by others are installed correctly before proceeding with installation of products as herein specified.

1.8 PROTECTION

A. Protect finish surfaces at all times during testing.

1.9 RELATED WORK/SECTIONS

A. Related work includes, but is not limited to the following:
   1. Project construction.
   2. Project site demolition.
   3. Testing & inspection by others.
B. Related Sections include, but are not limited to the following:
   1. Division 1.

2. All Drawings and Specification Sections.

1.10 SEQUENCING AND SCHEDULING

A. **General Contractor** shall schedule all testing & inspections and coordinate attendance by **Architect**, **Owner,** and others.
B. Schedule required testing, prior to the installation of materials, components, etc.
C. **General Contractor** shall coordinate slab vapor emission and PH testing of concrete floors and ensure that concrete treatment within criteria of finish flooring is complete prior to the installation of finish flooring as herein specified; refer to Section 07 28 00 – Concrete Slab Vapor Emission and Alkalinity Control Treatment.

1.11 TESTING AND INSPECTIONS

A. Testing required by Testing Agent / Testing Agency shall be done in accordance with Division 1 Testing Laboratory service requirements and as indicated in the Contract Documents.
B. Testing required by **General Contractor** shall be done in accordance with this Section and each specific Specification Section requiring field testing and/or inspection.
C. Geotechnical Engineer:
    1. Services of a **Geotechnical Engineer** are required for Work specified in various individual Specification Sections and/or as indicated in drawings and Division 1 Testing Laboratory service requirements.

1.12 GENERAL SYSTEM DESCRIPTION

A. Observation and Supervision:
    1. The **Architect** and **Owner** or their appointed representatives will review the Work for design intent at appropriate stages, and the Contractor shall provide facilities and access to the Work at all times as required to facilitate this review.
        a. **Owner**:
            1) The **Owner** shall have access to the Work wherever it is in preparation or progress for ascertaining that work is in accordance with the Contract Documents. The **General Contractor** shall provide facilities, hard hats, and access and shall provide assistance for sampling or measuring materials.
            2) The **Owner** will notify the **Architect** and **Engineers of Record**, and call to the **General Contractor's** attention all observed failure of work and/or material not conforming to Contract Documents.
        b. **General Contractor**:
            1) Shall comply with all requirements of the Contract Documents (Drawings, Specifications, **Owner's** General Conditions and Owner–General Contractor Contract). He shall supervise and direct the Work and maintain a competent superintendent on the job who is authorized to act in all matters pertaining to the Work. The **General Contractor's** superintendent shall also inspect all materials as they arrive for

compliance with the Contract Documents. He shall reject defective work or materials immediately upon performance or delivery.

B. Geotechnical Engineer services:
   1. Refer to Division 1 for Testing Laboratory service requirements.
C. Testing Laboratory services:
   1. Refer to Division 1 for Testing Laboratory service requirements.
D. Field testing not done under Division 1:
   1. By **General Contractor** as required per Drawings and or Specifications.
E. Inspections:
   1. Done by product and/or system manufacturer's approved representative for products/systems requiring Inspections.
F. Observations:
   1. Done by product and/or system manufacturer's approved representative for products/systems requiring observations for general compliance.
G. Mock-ups:
   1. Reviewed for acceptance by **Architect** and **Owner** as indicated in specific Specification Sections.
H. Mock-ups
   1. Reviewed for acceptance by **Architect** and **Owner** as indicated in specific Specification Sections.

1.13 MAINTENANCE

A. Refer to each specific Specification Section for which products and/or assemblies will require follow-up maintenance and/or adjustment after project is complete and has been occupied for a given period of time.

PART 2 **– PRODUCTS**
Not Used

PART 3 **- EXECUTION**

3.1 INSPECTION/EXAMINATION

A. Verification of Conditions:
   1. Examine areas and conditions under which work is to be performed.
   2. Identify conditions detrimental to proper or timely completion of work and coordinate with **General Contractor** to rectify.

3.2 COORDINATION

A. Refer to Division 1 for project coordination requirements.
B. **General Contractor** shall coordinate work as herein specified, in accordance with drawings and as required to complete scope of work with all related trades.

3.3 TESTING, INSPECTIONS AND OBSERVATIONS

A. General
   1. Product manufacturer inspections and observations shall be done by authorized representative & observed by **General Contractor**.
   2. The **General Contractor** shall be responsible for scheduling all required tests and inspections.
      a. Notify the **Owner** and **Architect** 48 hours in advance of scheduled performance of any work requiring testing or inspection.
   3. The **General Contractor** shall provide access to Work to be tested, facilitate inspections, observations, tests and furnish incidental labor and facilities.
   4. The **General Contractor** shall orchestrate inspections of work performed, and construction of mock-ups with **Architect** and **Owner**.
   5. Re-Inspection & Testing
      a. The **General Contractor** shall pay for:
         1) Tests of materials, inspections, and certifications required by Specifications.
         2) Testing, adjusting, and balancing of equipment and systems required by Specifications.
         3) Re-tests or re-inspections, if required, and tests or inspections required to established Contractor error or missing test data required by Specifications.
         4) Uncovering of work in accordance with Division 1 cutting and patching requirements.
         5) Additional tests directed by the **Architect** or **Owner** which establish that materials and installation do not comply with the Contract Document.
   6. Testing & Inspection Reports and Certifications
      a. A copy of each **General Contractor** provided testing, inspection, observation report or certification shall be provided to each of the following:
         1) **Owner**
         2) **Architect**
         3) **General Contractor**
B. General Contractor testing shall be done in accordance with individual Specification Sections and manufacturer's requirements.

3.4 PROTECTION AND CLEAN UP

A. Refer to Division 1 for protection and cleaning requirements.
B. **General Contractor** shall keep the work areas in a clean and safe condition so their testing and inspection services do not interfere with the work of others.
C. **General Contractor** shall protect work and materials of others testing and protect the installed work and materials of other trades.
D. Perform testing in accordance with listed requirements, industry standards and also as indicated in drawings and other specification sections.

E. In the event of damage, immediately make all repairs and replacements necessary to the approval of the **Architect** and at no cost to the **Owner**.
F. After completion of work in this section, remove all equipment and implements of service, and debris.
    1. Leave entire area in a neat, clean, acceptable condition.

END OF SECTION 01 45 00

SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS
PART 1 **- GENERAL**

1.1 WORK INCLUDED

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 General Requirements apply to the work of this Section.
B. The **General Contractor** is responsible for all costs associated with temporary utilities during construction.
C. Temporary facilities and controls required for this Work include, but are not necessarily limited to:
    1. Temporary utilities including, but not limited to;
        a. Gas
        b. Water
        c. Electricity
        d. Telephone
    2. Field office.
    3. Sanitary facilities.
    4. Fencing of construction area.
    5. Protective fencing for existing vegetation
    6. Parking of vehicles.
    7. Egress plan.

1.2 RELATED WORK

A. Utility hookups: pertinent Specification Sections.

PART 2 **- PRODUCTS**

2.1 TEMPORARY UTILITIES

A. General: Furnish water, gas and electricity required during construction and extend temporary service lines to construction areas for use of all Subcontractors.
B. Temporary water:
    1. **General Contractor** may connect a temporary line to the existing water service lines at the site.
    2. The **General Contractor** shall be responsible to verify all existing conditions associated with a water connection.
    3. Connections to existing water service lines shall be coordinated with and accepted by the Project Inspector.
    4. Water used in construction must comply with Section 16 of the Standard Construction Specifications.
    5. Provide ample supply of potable water for all purposes of construction at point convenient to Project. Pipe water from source of supply to all points where water will be required.

6. Provide sufficient hose to carry water to every required part of construction and allow use of water facilities to Subcontractors engaged on Work.

C. Temporary electricity:
   1. The **General Contractor** shall arrange for and shall install power service from electrical service provider service lines, or shall provide a portable generator.
   2. Electric service: Construct all temporary electric facilities and maintain in accordance with Division of Industrial Safety "Electrical Safety Orders" (ESO), Public Utilities Commission "Rules of Overhead Line Construction" (G.O. 95), and CAL-OSHA. Materials, devices and equipment used for these facilities shall be in good and safe condition but need not be new.

D. Temporary heating: Provide heat, ventilation, fuel and services as required to protect all work and materials and to keep humidity down to extent required to prevent corrosion of any metal and to prevent dampness or mildew which is potentially damaging to materials and finishes. In addition, provide heat and ventilation prior to and during following work operations:
   1. Where applicable: At all times during placing, setting and curing of concrete, provide sufficient heat and protection to insure heating of spaces involved to not less than 50ºF.
   2. From beginning of application of drywall and during setting and curing period, provide sufficient heat to produce temperature in spaces involved of not less than 55ºF.
   3. For period of 7 days previous to placing of interior finish materials and throughout application of finish painting and laying of resilient flooring materials, provide sufficient heat to product temperature of not less than 60ºF.
   4. After finishing trades are complete and until final acceptance of Work, provide temperature of not less than 60ºF.

E. Telephone:
   1. Maintain telephone in field office for use by **Architect** and **Owner** as well as **General Contractor**.
   2. Provide and pay for telephone installation and service for field office. Maintain service for duration of operations under this Contract. Provide gongs, horns or remote control devices so that telephones may be heard throughout construction site.
   3. **General Contractor** shall not have access to phones on site and therefore, shall arrange for their own pager or portable phone if needed for on-site communication.

F. Fax Machine:
   1. Maintain fax machine in field office for use by **Architect** and **Owner** as well as **General Contractor**.
   2. Provide and pay for fax machine telephone service installation and service for field office. Maintain service for duration of operations under this Contract. Provide gongs, horns or remote control devices so that telephones may be heard throughout construction site.

2.2 FIELD OFFICE

A. **General Contractor** shall provide at least one temporary field office for use by himself, their Subcontractors, and the **Architect**.

2.3 SANITARY FACILITIES

A. The **General Contractor** will provide proper, adequate, sanitary toilet facilities for use of all workers employed on Project, in accordance with State and Local health departments.

2.4 TEMPORARY CONSTRUCTION, EQUIPMENT AND PROTECTION

A. Provide, maintain and remove upon completion of Work, all temporary rigging, trench plates, scaffolding, hoisting equipment, rubbish chutes, ladders, barricades, lights and all other protective structures or devices necessary for safety of workers and public property as required to complete all Work.
B. Walkways and barricades: Provide pedestrian walkway protection and wood barricades conforming to Jurisdiction standards and requirements.
C. Temporary fencing: Provide chain link fencing enclosures around unfenced areas of the site as required to protect pedestrians until project is complete.
D. Protection: Protect all workers and equipment from power lines and maintain safe distances and protective devices as required by Industrial Safety Commission and CAL-OSHA.
E. Temporary construction and equipment: All temporary construction and equipment shall conform to all regulations, ordinances, laws and other requirements of State and other authorities having jurisdiction, including insurance companies, with regards to safety precautions, operation and fire hazard.
F. Pumping: Provide and maintain pumping facilities, including power for keeping site, excavations and structures free of accumulations of water at all times, whether from underground seepage, rainfall, drainage or broken lines. Pond discharge to get rid of sediment prior to discharge into storm drain.
G. Damage or theft: Protect work and materials to be used on Project from damage or loss due to elements, theft, vandalism, malicious mischief, or other causes. **General Contractor** shall be held responsible for such damages or loss which he shall remedy at their expense.
H. Provide fencing to maintain means of egress in and out of building and site.

2.5 PARKING OF VEHICLES

A. **General Contractor** shall be responsible for job site vehicle parking of their Subcontractor's vehicles.

PART 3 **- EXECUTION**

3.1 MAINTENANCE AND REMOVAL

A. Maintain all temporary facilities and controls as long as needed for safe and proper completion of Work; remove all such temporary facilities and controls as rapidly as progress of Work will permit.

END OF SECTION 01 50 00

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DOCUMENT 01 52 10

SITE STANDARDS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS:

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including without limitation, Site Access, Conditions, and Regulations;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Drug-Free Workplace Certification;

1.1.5. Tobacco-Free Environment Certification;

1.1.6. Criminal Background Investigation/Fingerprinting Certification; and

1.1.7. Temporary Facilities and Controls.

1.2. REQUIREMENTS OF THE DISTRICT

1.2.1. **Drug-Free Schools and Safety Requirements:**

1.2.1.1. All school sites and other District Facilities have been declared “Drug-Free Zones.” No drugs, alcohol, smoking or the use of tobacco products are allowed at any time in any buildings, Contractor-owned vehicles or vehicles owned by others while on District property. No students, staff, visitors, or contractors are to use drugs on these sites.

1.2.1.2. Contractor shall post: "Non-Smoking Area" in a highly visible location on Site. Contractor may designate a smoking area outside of District property within the public right-of-way, provided that this area remains quiet and unobtrusive to adjacent neighbors. This smoking area must be kept clean at all times.

1.2.1.3. Contractor shall ensure that no alcohol, firearms, weapons, or controlled substances enter or are used at the Site. Contractor shall immediately remove from the Site and terminate the employment of any employee(s) found in violation of this provision.

1.2.2. **Language**: Unacceptable and/or loud language will not be tolerated, "Cat calls" or other derogatory language toward students or public will not be allowed.

1.2.3. **Disturbing the Peace (Noise and Lighting):**

1.2.3.1. Contractor shall observe the noise ordinance of the Site at all times including, without limitation, all applicable local, city, and/or state laws, ordinances, and/or regulations regarding noise and allowable noise levels.

1.2.3.2. The use of radios, etc., shall be controlled to keep all sound at a level that cannot be heard beyond the immediate area of use. District reserves the right to prohibit the use of radios at the Site, except for handheld communication radios.

1.2.3.3. If portable lights are used after dark, the lights must be located so as not to direct light into neighboring properties.

1.2.4. **Traffic**:

1.2.4.1. Driving on the Premises shall be limited to periods when students and public are not present. If driving or deliveries must be made during the school hours, two (2) or more ground guides shall lead the vehicle across the area of travel. In no case shall driving take place across playgrounds or other pedestrian paths during recess, lunch, and/or class period changes. The speed limit on-the Premises shall be five (5) miles per hour (maximum) or less if conditions require.

1.2.4.2. All paths of travel for deliveries, including without limitation, material, equipment, and supply deliveries, shall be reviewed and approved by District in advance. Any damage will be repaired to the pre-damaged condition by the Contractor.

1.2.4.3. District shall designate a construction entry to the Site. If Contractor requests, District determines it is required, and to the extent possible, District shall designate a staging area so as not to interfere with the normal functioning of school facilities. Location of gates and fencing shall be approved in advance with District and at Contractor's expense.

1.2.4.4. Parking areas shall be reviewed and approved by District in advance. No parking is to occur under the drip line of trees or in areas that could otherwise be damaged.

1.2.4.5. All of the above shall be observed and complied with by the Contractor and all workers on the Site. Failure to follow these directives could result in individual(s) being suspended or removed from the work force at the discretion of the District. The same rules and regulations shall apply equally to delivery personnel, inspectors, consultants, and other visitors to the Site.

END OF DOCUMENT

SECTION 01 5813 – TEMPORARY CONSTRUCTION SIGNAGE

PART 1 - **GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Coordinate the work of this Section with related trades.
C. Verify applicable dimensions at the job site for placement of temporary signage.
D. Wood framing, including posts, sheathing.
E. Finishing, including painting of substrate and letters and numerals for signage.
F. Framing hardware.
G. Concrete Footings with integral gravel base.
H. Disposal of sign assembly after **Owner** occupation of building.

1.2 QUALITY ASSURANCE

A. Lumber and plywood source quality control: Provide materials graded under one of the following:
   1. Rules 17, Standard Grading Rules for West Coast Lumber, current edition - WCLIB.
   2. Standard Grading Rules for Western Lumber, current edition - WWPA.
   3. Plywood Specification and Grade Guide of American Plywood Association, current edition - APA.
B. Grade mark each piece of lumber. Marking must be done by recognized agency. Lumber Manufacturer's Association Certificates may be accepted in lieu of such grade and trademarks.
C. Plywood sheathing: Each panel shall be legibly identified as to type, grade and species by APA grade, comply with PS-1 (ANSI A199.1).

1.3 SUBMITTALS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.
B. List of materials: Submit list of materials proposed to be used including posts, sheathing & hardware.
C. Submit: Shop drawings of sign & anchorage. Sign layout shall indicate character sizes, style & spacing, type.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Division 1 product delivery, storage and handling requirements.
B. Provide, ship to project site, and install.

PART 2 - **PRODUCTS**

2.1 FRAMING LUMBER

A. Lumber: Coast Region Douglas Fir (DF), unless otherwise noted. Lumber designated DF South by WWPA not acceptable. All lumber new with no re-use.
   1. Grades not less than following:
      a. Posts: No. 1, Pressure treated Douglas fir - free of heart center.
      b. Plywood: Group II Exterior APA 303 Siding EXT, Smooth Face.

B. All wood other then plywood shall be pressure treated, per building code, Chapter 23 and shall bear an AWPB stamp for P.T.D.F.
   1. Wood posts set into ground.
      a. Treat all cut ends of P.T.D.F. with approved preservative.

2.2 ROUGH HARDWARE

A. FASTENERS: Galvanized for exterior use, in accordance with ASTM A153. Select fasteners for the fastening of the plywood substrate sign to the support posts.
   1. Standard bolts and nuts: Carriage head type, ASTM A307, Grade A.
   2. Plain washers: Round, general assembly grade carbon steel, FS FF-W-92.
   3. Lock washers: Helical spring type carbon steel, FS FF-W-84.

2.3 SIGNAGE DESIGN

A. General
   1. Size of sign panel: 4'-0" x ¾" thick x 8'-0" long
   2. Supporting Posts: 4" x 4" x 10'-0"

B. Sign design:
   1. General:
      a. Refer to Drawings detail.
   2. Characters:
      a. Style: Helvetica
      b. Type: Capitals
      c. Border: Install characters, logos, etc. such that an equal clear border of 2" occurs around perimeter.
      d. Character height::
         1. Project Name: 4" tall x two lines & spaced to span sign width
         2. Project Address: 3" tall x full width of sign less perimeter clearance
         3. **Owner**, **Architect** & **General Contractor** name: 2" tall
         4. **Owner**, **Architect** & **General Contractor** address: 1-1/2" tall
      e. Line spacing:
         1. 1" between name & address, type.
         2. Equally spaced between Project name/address & **Owner** name/address, etc.
   3. Color:

a. Background: ICI, 473, Autumn Squash, MP# 10YY 46/515
b. Characters: Jet Black
c. Misc: Install 1/4" dots spaced at 2"+/- on center below Williams + Paddon... name. Red, PPG Color no: 71654
d. Paint Type: Alkyd Enamel
e. Finish: High Gloss

PART 3 - **EXECUTION**

3.1 INSTALLATION

A. General:
1. Install posts straight, true, level, plumb, and place 4'-0" into 12" diameter x 3'-8" deep concrete footing. - extend 4" of post into clean gravel at base of footing.
2. Fasten sign panel to posts with (3) carriage bolts each post & spaced evenly from bottom of sign to top.
3. Install sign assembly such that top of posts are located 2" below top of sign panel & 2" measured from side of sign panel.

B. Bracing:
1. Provide temporary bracing sufficient to keep structure stable, plumb, and in line until completed.

END OF SECTION 01 58 13

DOCUMENT 01 60 00

MATERIALS AND EQUIPMENT

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions.

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any); and

1.1.4. Imported Materials Certification.

1.2. MATERIALS AND EQUIPMENT

1.2.1. Only items approved by the District and/or Architect shall be used.

1.2.2. Contractor shall submit lists of Products and other Product information in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

1.3. MATERIALS AND EQUIPMENT COLORS

1.3.1. The Contractor shall comply with all schedule(s) of colors provided by the District and/or Architect.

1.3.2. No individual color selections will be made until after approval of all pertinent materials and equipment and after receipt of appropriate samples in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

1.3.3. Contractor shall request priority in writing for any item requiring advance ordering to maintain the approved Construction Schedule.

1.4. DELIVERY, STORAGE, AND HANDLING

1.4.1. Contractor shall deliver manufactured materials in original packages, containers, or bundles (with seals unbroken), bearing name or identification mark of manufacturer. District may inspect materials prior to Contractor unloading the delivered materials. District may reject any materials that do not conform to the Contract Documents.

1.4.2. Contractor shall deliver fabrications in as large assemblies as practicable; where specified as shop-primed or shop-finished, package or crate as required to preserve such priming or finish intact and free from abrasion.

1.4.3. Contractor shall store materials in such a manner as necessary to properly protect them from damage. Materials or equipment damaged by handling, weather, dirt, or from any other cause will not be accepted.

1.4.4. Materials that have been warehoused for long periods of time, stored or transported in improper environment, improperly packaged, inadequately labeled, poorly protected, excessively shipped, deviated from normal distribution pattern, or reassembled are not acceptable.

1.4.5. Contractor shall store materials so as to cause no obstructions of sidewalks, roadways, or underground services. Contractor shall protect materials and equipment furnished pursuant to the Contract Documents.

1.4.6. Contractor may store materials on Site with prior written approval by District; all materials shall remain under Contractor's control and Contractor shall remain liable for any damage to the materials. Should the Project Site not have storage area available, the Contractor shall provide for off-site storage at no cost to District.

1.4.7. When any room in Project is used as a shop or storeroom, Contractor shall be responsible for any repairs, patching, or cleaning necessary due to that use. Location of storage space shall be subject to prior written approval by District.

2. PRODUCTS

2.1. MANUFACTURERS

2.1.1. Manufacturers listed in various sections of the Contract Documents are names of those manufacturers that are believed to be capable of supplying one or more of the items specified therein.

2.1.2. The listing of a manufacturer does not imply that every product of that manufacturer is acceptable or as meeting the requirements of the Contract Documents.

2.2. FACILITIES AND EQUIPMENT

Contractor shall provide, install, maintain, and operate a complete and adequate facility for handling, execution, disposal, and distribution of materials and equipment as required for proper and timely performance of Work.

2.3. MATERIALS REFERENCE STANDARDS

Where materials are specified solely by reference to “standard specifications” or other general reference, and if requested by District, Contractor shall submit for review data on actual materials proposed to be incorporated into Work, listing name and address of vendor, manufacturer, or producer, and trade or brand names of those materials, and data substantiating compliance with standard specifications.

3. EXECUTION

3.1. WORKMANSHIP

3.1.1. Where not more specifically described in any other Contract Documents, workmanship shall conform to methods and operations of best standards and accepted practices of trade or trades involved and shall include items of fabrication, construction, or installation regularly furnished or required for completion (including finish and for successful operation, as intended).

3.1.2. Work shall be executed by tradespersons skilled in their respective field of work. When completed, parts shall have been durably and substantially built and present a neat appearance.

3.2. COORDINATION

3.2.1. Contractor shall coordinate installation of materials and equipment so as to not interfere with installation of other Work. Adjustment or rework because of Contractor's failure to coordinate will be at no additional cost to District.

3.2.2. Contractor shall examine in-place materials and equipment for readiness, completeness, fitness to be concealed or to receive Work , and compliance with Contract Documents. Concealing or covering work constitutes acceptance of additional cost which will result should in-place materials and equipment be found unsuitable for receiving other work or otherwise deviating from the requirements of the Contract Documents.

3.3. COMPLETENESS

Contractor shall provide all portions of the Work, unless clearly stated otherwise, installed complete and operational with all elements, accessories, anchorages, utility connections, etc., in a manner to ensure well-balanced performance, in accordance with manufacturer's recommendations and in accordance with Contract Documents. For example, electric water coolers require water, electricity, and drain services; roof drains require drain systems; sinks fit within countertop, etc. Terms such as "installed complete," "operable condition," "for use intended," "connected to all utilities," "terminate with proper cap," "adequately anchored," "patch and refinish," and "to match similar" should be assumed to apply in all cases, except where completeness of functional or operable condition is specifically stated as not required.

3.4. APPROVED INSTALLER OR APPLICATOR

Contractor shall ensure that all installations are only performed by a manufacturer's approved installer or applicator.

3.5. MANUFACTURER'S RECOMMENDATIONS

All installations shall be in accordance with manufacturer's published recommendations and specific written directions of manufacturer's representative. Should the Contract Documents differ from recommendations of manufacturer or directions of manufacturer's representative, Contractor shall analyze differences, make recommendations to the District and the Architect in writing, and shall not proceed until interpretation or clarification has been issued by the District and/or the Architect.

END OF DOCUMENT

DOCUMENT 01 66 10

DELIVERY, STORAGE AND HANDLING

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including, without limitation, Site Access, Conditions and Requirements; and

1.1.2. Special Conditions.

1.2. PRODUCTS

1.2.1. Products are as defined in the General Conditions.

1.2.2. Contractor shall not use and/or reuse materials and/or equipment removed from existing Premises, except as specifically permitted by the Contract Documents.

1.2.3. Contractor shall provide interchangeable components of the same manufacturer, for similar components.

1.3. TRANSPORTATION AND HANDLING

1.3.1. Contractor shall transport and handle Products in accordance with manufacturer's instructions.

1.3.2. Contractor shall promptly inspect shipments to confirm that Products comply with Contract requirements, are of correct quantity, and are undamaged.

1.3.3. Contractor shall provide equipment and personnel to properly handle Products to prevent soiling, disfigurement, or damage.

1.4. STORAGE AND PROTECTION

1.4.1. Contractor shall store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Contractor shall store sensitive Products in weather-tight, climate controlled enclosures.

1.4.2. Contractor shall place fabricated Products that are stored outside, on above-ground sloped supports.

1.4.3. Contractor shall provide off-site storage and protection for Products when Site does not permit on-site storage or protection.

1.4.4. Contractor shall cover Products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.

1.4.5. Contractor shall store loose granular materials on solid flat surfaces in a well-drained area and prevent mixing with foreign matter.

1.4.6. Contractor shall provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

1.4.7. Contractor shall arrange storage of Products to permit access for inspection and periodically inspect to assure Products are undamaged and are maintained under specified conditions.

END OF DOCUMENT

DOCUMENT 01 73 00

EXECUTION

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Coordination and Project Meetings;

1.1.5. Submittals;

1.1.6. Materials and Equipment;

1.1.7. Cutting and Patching;

1.1.8. Contract Closeout and Final Cleaning; and

1.1.9. General Commissioning Requirements.

1.2. SUMMARY

1.2.1. This Document includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1.2.1.1. Construction layout;

1.2.1.2. Field engineering and surveying;

1.2.1.3. General installation of products;

1.2.1.4. Owner furnished, Contractor installed items;

1.2.1.5. Coordination of District-installed products;

1.2.1.6. Progress cleaning;

1.2.1.7. Staring and adjusting;

1.2.1.8. Protection of installed construction; and

1.2.1.9. Correction of the Work.

1.3. SUBMITTALS

1.3.1. Qualification Data: For land surveyor or professional engineer.

1.3.2. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.

1.3.3. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept the materials as classified, for hazardous waste disposal.

1.3.4. Certified Surveys: Submit electronic files and three (3) paper copies signed by land surveyor or professional engineer.

1.3.5. Final Property Survey: Submit electronic files and three (3) paper copies showing the Work performed and record survey data.

2. EXECUTION

2.1. EXAMINATION

2.1.1. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning Site Work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

2.1.1.1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.

2.1.1.2. Furnish location data for Work related to Project that must be performed by public utilities serving the Project Site.

2.2. PREPARATION

2.2.1. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

2.2.2. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

2.2.3. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

2.2.4. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to

District per requirements of Document "Requests for Information." Include a detailed description of problem encountered, together with recommendations for any necessary changes to the Contract Documents.

2.3. CONSTRUCTION LAYOUT

2.3.1. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify District and its consultant promptly.

2.3.2. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.

2.3.2.1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.

2.3.2.2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.

2.3.2.3. Inform installers of lines and levels to which they must comply.

2.3.2.4. Check the location, level and plumb, of every major element as the Work progresses.

2.3.2.5. Notify District and its consultant when deviations from required lines and levels exceed allowable tolerances.

2.3.2.6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

2.3.3. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

2.3.4. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

2.3.5. Record Log: Maintain a log of layout control Work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by District and its consultant.

2.4. FIELD ENGINEERING

2.4.1. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

2.4.1.1. Do not change or relocate existing benchmarks or control points without prior written approval of District and its consultant. Report lost or destroyed

permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to District and its consultant before proceeding.

2.4.1.2. Require surveyor to replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

2.4.2. Benchmarks: Establish and maintain a minimum of two (2) permanent benchmarks on Project Site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

2.4.2.1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

2.4.2.2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

2.4.2.3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

2.4.3. Records: Contractor shall maintain a complete, accurate log of all control and survey Work as it progresses. On request of District or Architect, Contractor shall submit documentation to verify accuracy of field engineering Work at no additional cost to the District.

2.4.4. Certified Survey: On completion of foundation walls, major site improvements, and other Work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

2.4.5. Final Property Survey: Prepare and submit a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor or professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey and are in conformance with Contract Documents.

2.4.5.1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a Site corner to a legal point.

2.4.6. Compliance with Laws: Contractor is responsible for meeting all applicable codes, OSHA, safety, and shoring requirements.

2.4.7. Nonconforming Work: Contractor is responsible for any re-surveying required by correction of nonconforming Work.

2.5. INSTALLATION

2.5.1. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

2.5.1.1. Make vertical Work plumb and make horizontal Work level.

2.5.1.2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

2.5.1.3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

2.5.1.4. Maintain minimum headroom clearance of 7 feet in spaces without a suspended ceiling.

2.5.2. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

2.5.3. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Completion.

2.5.4. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

2.5.5. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels where possible.

2.5.6. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

2.5.7. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

2.5.7.1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by District.

2.5.7.2. Allow for building movement, including thermal expansion and contraction.

2.5.7.3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project Site in time for installation.

2.5.8. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

2.5.9. Hazardous Materials: Use products, cleaners, and installation materials that are not classed as hazardous per the MSDS sheets for the products where possible. If hazardous materials are necessary, inform District where and when they will be used no less than 48 hours before use. Take all recommended precautions of the materials' manufacturers to ensure safe use and clean-up.

2.6. DISTRICT-INSTALLED PRODUCTS

2.6.1. Site Access: Provide access to Project Site for District's construction forces.

2.6.2. Coordination: Coordinate construction and operations of the Work with work performed by District's construction forces.

2.6.2.1. Construction Schedule: Inform District of Contractor's preferred schedule for District's portion of the Work. Adjust Construction Schedule based on a mutually agreeable timetable. Notify District if changes to schedule are required due to differences in actual construction progress.

2.6.2.2. Preinstallation Conferences: Include District's construction forces at preinstallation conferences covering portions of the Work that are to receive District's work. Attend preinstallation conferences conducted by District's construction forces if portions of the Work depend on District's construction.

2.7. PROGRESS CLEANING

2.7.1. General: Clean Project Site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

2.7.1.1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

2.7.1.2. Do not hold materials more than seven (7) days during normal weather or three (3) days if the temperature is expected to rise above 80 degrees F.

2.7.1.3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations. Remove hazardous and unsanitary waste materials daily.

2.7.2. Site: Maintain Project Site free of waste materials and debris.

2.7.3. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

2.7.3.1. Remove liquid spills promptly.

2.7.3.2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

2.7.4. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

2.7.5. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

2.7.6. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Completion.

2.7.7. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

2.7.8. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Completion.

2.7.9. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

2.7.10. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

2.8. STARTING AND ADJUSTING

2.8.1. Start equipment and operating components to confirm proper operation. Replace or repair malfunctioning units and retest.

2.8.2. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

2.8.3. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

2.8.4. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Document "Quality Requirements."

2.9. PROTECTION OF INSTALLED CONSTRUCTION

2.9.1. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Completion.

2.9.2. Comply with manufacturer's written instruction for temperature and relative humidity unless otherwise addressed in the construction planning, sequences, and instructions.

2.10. CORRECTION OF THE WORK

2.10.1. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Document "Cutting and Patching."

2.10.1.1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

2.10.2. Restore permanent facilities used during construction to their specified condition.

2.10.3. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

2.10.4. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

2.10.5. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF DOCUMENT

SECTION 01 73 29 – CUTTING AND PATCHING
PART 1 **- GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.
B. Verify applicable dimensions, clearances and heights at the jobsite.
C. Demolition:
   1. Coordinate the work of this Section with related trades.
      a. Refer to Section 02 41 13 – Selective Site Demolition & Protection
      b. Refer to Section 02 41 19 – Selective building Demolition & Protection
D. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:
   1. Execute cutting, fitting or patching of work, require to:
      a. Make parts fit properly.
      b. Make flatwork, paving, etc. fit properly.
      c. Uncover work to provide for installation of ill-timed work.
      d. Remove and replace work not conforming to requirements of Contract Documents.
      e. Remove and replace defective work.
      f. Remove samples of installed work as specified for testing.
      g. Do not endanger any work by cutting or altering work or any part of it.
      h. Cut existing flatwork, paving, etc. to fit properly with new work.
   2. In addition to Contract requirements, upon written instructions of Architect:
      a. Uncover work to provide for **Architect's** and/or **Inspector's** observation of covered work.
      b. Remove samples of installed materials for testing, when required.
   3. The Contractor with structural responsibility within their scope of work shall solely execute structural cutting and patching required for this project.
   4. Cutting:
      a. Minor cutting will be performed by both the General and Trade Subcontractors where required for the execution of their work. Locations of all trade cutting (core boring, etc.) shall be reviewed and approved by the **General Contractor**, **Owner** and **Inspector** where required.
   5. Patching: **[Specifier, select if patching part of this scope or separate if construction is separate phase]**
      a. Minor patching will be performed by both the General and Trade Subcontractors where required for the execution of their work. Locations of all trade cutting (core boring, etc.) shall be reviewed and approved by the **General Contractor**, **Owner** and **Inspector** where required.
      b. Will be performed under separate scope of work.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.
B. Title 24, California Code of Regulations, California Building Standards Commission
C. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.
D. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission
E. Title 24, Chapter 11 – California Green Building Standards Code
    1. Non-residential new construction:
        a. All occupancy types.
F. Leadership in Energy and Environmental Design (LEED), www.usgbc.org/LEED (United States Green Building Council (USGBC)
    1. Refer to Division 1 for version of LEED Rating System and Reference Guide applicable to project.
G. Collaborative for High Performance Schools (CHPS), www.chps.net
H. American Concrete Institute (ACI), www.aci-int.org
I. American Institute of Steel Construction (AISC), www.aisc.org
J. American Iron and Steel Institute (AISI), www.steel.org
K. American National Standards Institute (ANSI), www.ansi.org
L. American Society of Mechanical Engineers (ASME) www.asme.org
M. American Society For Testing and Materials (ASTM), www.astm.org
N. American Welding Society (AWS), www.aws.org
O. American Water-Works Association (AWWA), www.awwa.org
P. Factory Mutual (FM), www.fmglobal.com
Q. National Electrical Manufacturers Association (NEMA), www.nema.org
R. National Fire Protection Agency (NFPA), www.nfpa.org
S. Occupational Safety and Health Administration (OSHA), www.osha.gov
T. Sheet Metal and Air Conditioning Contractors, Association (SMACNA), www.smacna.org
U. Sealant, Waterproofing and Restoration Institute (SWRI), www.swrionline.org
V. US Environmental Protection Agency, www.epa.gov

1.3 PERFORMANCE, TESTING AND INSPECTION

A. General:
    1. Comply with manufacturer's standards.
    2. Comply with Building Code.
    3. Job site inspections shall be done as herein specified and as listed in drawings.

4. Testing shall be done as herein specified and as listed in drawings.
5. Refer to Division 1 for additional requirements for DSA Projects.

1.4 SUBMITTALS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.
B. Submit Manufacturer's data and shop drawings.
   1. Prior to cutting which affects structural safety, submit written notice to **Architect** and **Structural Engineer** requesting consent to proceed with cutting.
   2. Prior to cutting which affects Aesthetics, submit written notice to **Architect** requesting consent to proceed with cutting.
C. Submit 48-hour advance written notice to **Architect** and **Owner** and designating time work will be uncovered.

1.5 QUALITY ASSURANCE

A. Refer to Division 1 for quality control requirements.
B. Contractor / Installer/ Fabricator shall have been in business for **five (5)** years providing/installing/finishing projects of similar size and complexity.
C. Patching of openings that are cut in any fire rated walls or membranes shall be sealed tightly using approved materials only.
   1. Verify that fire rating envelopes are maintained or inspections provided prior to concealing work.
   2. Cutting and patching, if required by Agencies and/or DSA to verify adequacy of protection after concealment, shall be performed at no additional cost or time extension to the **Owner**.
D. Stipulations:
   1. Should conditions of work or schedule indicate change of materials or methods, submit written recommendation to **Architect** and **Owner**, including:
      a. Conditions indicating change.
      b. Recommendations for alternative materials or methods.
      c. SUBMITTALS as required for substitutions.
      d. Quotations of charges or credits.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product delivery, storage and handling requirements.

1.7 JOB CONDITIONS

A. Field-verify that all components, substrates, backing, etc. provided by others are installed correctly before proceeding with installation of products as herein specified.

1.8 PROTECTION

A. Protect finish surfaces at all times from surfaces and material adjacent to them.
B. Finish work defaced with other materials on surface shall be replaced.

C. Protect work under this section from damage by other trades.

1.9 GUARANTEE / WARRANTY

A. Refer to Division 1 for closeout submittal procedures.
B. Furnish initial one (1) year written warranty signed by **General Contractor** agreeing to repair and/or replace work (patching) which has failed as a result of defects in materials or workmanship.
   1. Upon notification of **Owner** within the warranty period, such defects shall be repaired and replaced at no cost to the **Owner**.

1.10 RELATED WORK/SECTIONS

A. Related Sections include, but are not limited to the following:
   1. Refer to Division 1 for sustainability requirements.
   2. Refer to Division 1 for additional requirements for DSA projects.
   3. Refer to Division 1 for construction waste management and disposal/recycling requirements.
   4. Divisions 2 through 49.
B. Related Documents include, but are not limited to the following:
   1. Refer to Division 1 for General Conditions.

1.11 OPERATION AND MAINTENANCE DATA

A. Submit as part of project closeout.
   1. Refer to Division 1 for closeout submittal procedures.

1.12 SEQUENCING AND SCHEDULING

A. Schedule work and sequence with **General Contractor**.
B. Schedule required testing, prior to the installation of materials, components, etc.
C. Each Subcontractor shall make the field measurements necessary for their work and be responsible for its accuracy.
   1. Should any structural difficulties prevent a Subcontractor or tradesman from installing their material properly, the **General Contractor** shall be promptly notified so that the **Architect** may be consulted as to how best to resolve the difficulty.
   2. Cutting into the walls and floors, if necessary, shall be carefully and neatly performed and then be repaired in an approved manner.
   3. The **Architect** and **Structural Engineer** shall be consulted in all cases where cutting into a structural portion of the building is either desirable or necessary so that satisfactory reinforcement or other work may be provided or installed.
D. Patching of all exposed architectural finishes shall be performed under the supervision of the **General Contractor**, but executed by the affected finish trade Subcontractor.
   1. Cutting and patching of existing architectural finishes shall be minimized to the extent possible through careful routing and placement of new work.
   2. The **Architect** shall have the authority to reject substandard or unacceptable patching.

E. **General Contractor** shall coordinate slab vapor emission and PH testing of concrete floors which have been sawn cut to remove portions of slab and ensure that concrete treatment within criteria of finish flooring is complete prior to the installation of finish flooring as herein specified.

1.13 VAPOR EMISSION AND ALKALINITY CONTROL COMPLIANCE

A. Refer to Section 07 28 00 – Concrete Slab Vapor Emission Control Treatment

1.14 GENERAL SYSTEM DESCRIPTION

A. Refer to drawings typically for scope of cutting and patching.
B. Cut and patch as require to complete scope of work.
C. Demolition:
    1. Concrete slab on grade:
        a. Refer to drawings and details.
        b. Saw cut floor to remove extent of slab, but not damage existing vapor barrier.
            1) Replace /patch damaged vapor Barrier.
                a) Refer to Concrete Notes on structural drawings.
        c. Sawn cut extent/widths shall be done as indicated and at a minimum to provide room to allow room to drill and install dowels into existing slab prior to install of new concrete.
        d. Sawn cut extents of concrete/masonry shall be done to an extent necessary to remove piping, conduit, etc.
        e. If water or moisture is discovered at sub base notify **Architect** immediately.
        f. Schedule: **[Specifier, for demolition projects confirm if placement back in of vapor barrier, dowels and concrete will be done under Demolition scope or other and edit herein accordingly]**
            1) Construction:
                a) Drill holes and install rebar dowels.
                    i. Refer to structural drawings for typical criteria.
                        a. Minimum standards, unless noted otherwise:
                            i). Length″ 12″
                            ii). Spacing: 12″
                            iii). Size:
                                a. 4″ thick slab: 1/2″ diameter
                                b. 5″ thick slab: 5/8″ diameter
                                c. 6″ thick slab: 3/4″ diameter
                                d. 7″ thick slab: 7/8″ diameter
                                e. 8″ thick slab: 1″ diameter
                b) Install waterstop bar at side of sawn cut concrete face, typical.
                    i. Refer to Section 03 15 13 – Hydrophilic Waterstops and Specialty Waterproofing
                c) Vapor Barrier:

SECTION 01 74 00 – PROTECTION AND CLEANING
PART 1 **- GENERAL**

1.1 REQUIREMENTS INCLUDED

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.
B. Coordinate the work of this Section with related trades.
C. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:
    1. Execute protection and cleaning daily, during progress of Work, and at completion of Work, as required by General Conditions and specifications.
    2. Building: Keep areas of work in building free from accumulated debris, rubbish and waste materials as work progresses.
    3. Site: Keep areas of work within site free from accumulated debris, rubbish and waste materials as work progresses.
    4. Protect work and materials of each Section prior to and during installation, and protect the installed work and materials of other trades.
    5. In the event of damage, immediately make all repairs and replacements necessary to the approval of the **Architect** and at no cost to the **Owner**.
    6. After completion of work in this Section, remove all equipment, tools, cleaning supplies, etc. from site.
    7. Provide product information, instruction manuals & warrantees.
D. Coordinate protection and cleaning with each specific specification section.
E. Coordinate protection and cleaning with demolition work.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.
B. Title 24, California Code of Regulations, California Building Standards Commission.
C. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.
D. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission.
E. Title 24, Chapter 11 – California Green Building Standards Code
    1. Non-residential new construction:
        a. All occupancy types.
F. Leadership in Energy and Environmental Design (LEED), www.usgbc.org/LEED (United States Green Building Council (USGBC)
    1. Refer to Division 1 for version of LEED Rating System and Reference Guide applicable to project.

G. Collaborative for High Performance Schools (CHPS), www.chps.net
H. National Demolition Association, www.demolitionassociation.com

1.3 QUALITY ASSURANCE

A. Refer to Division 1 for quality control requirements.
B. **General Contractor** shall have been in business for **five (5)** years providing/installing/finishing similar size projects and complexity.

1.4 DISPOSAL REQUIREMENTS

A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.
B. Disposal operations shall be in compliance with **General Contractor's** Construction Waste Management plan as approved by the **Owner**.
   1. Refer to Division 1 for construction waste management and disposal/recycling requirements.

1.5 RELATED WORK/SECTIONS

A. Related work includes, but is not limited to the following:
   1. All construction.
B. Related Sections include, but are not limited to the following:
   1. Refer to Division 1 for sustainability requirements.
   2. Refer to Division 1 for construction waste management and disposal/recycling requirements.
   3. Division 2-49.

PART 2 **- PRODUCTS**

2.1 MATERIALS

A. Cleaning and Maintenance Products:
   1. Provide data on manufacturers' recommended maintenance, cleaning, refinishing and disposal procedures for materials and products.
      a. Where chemical products are recommended for these procedures, provide documentation to indicate that no component present in the cleaning product at more than 1% of the total mass of the cleaning product is a carcinogen or reproductive toxicant as defined in the lists in this specification section.
      b. For purposes of reporting, identification of product VOC contents shall not be limited to those regulated under Clean Air Act (CAA) but shall also include compounds exempted from the CAA definition and listing of VOCs.
      c. California EPA and local air district definitions of VOCs based on CAA are not sufficient as they exempt compounds based on non-reactivity for outdoor air pollution control but still important for indoor air quality.
      d. Avoid cleaning products containing alpha-pinene, d-limonene or other unsaturated carbon double bond alkenes due to chemical reactions with ozone to form aldehydes, acidic aerosols, and ultra-fine particulate matter in indoor air.

1. The State of California Department of General Services has published specifications for Environmentally Preferable Janitorial Chemicals and a list of cleaning/maintenance products meeting these specifications. Both are available on the internet at:
   a. http://www.ciwmb.ca.gov/greenbuilding/Specs/Janitorial.doc
   b. http://www.resd.dgs.ca.gov/BPM/lists.htm

B. These procedures are for final General Contractor cleaning of the project prior to substantial completion and for provided materials and products as required by the specific specification sections.
C. Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned and which will not damage surfaces.
D. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

2.2 CHEMICALS OF CONCERN

A. Chemicals of Concern include but are not limited to those chemicals listed below as toxic air contaminants, carcinogens, teratogens, reproductive toxins, and chemicals with established Chronic Reference Exposure Levels (REL):
B. Carcinogens: Chemicals listed as probable or known human carcinogens in the latest published edition of the following two lists:
   1. California Environmental Protection Agency, Air Resources Board (ARB), list of Toxic Air Contaminants (California Air Toxics).http://www.arb.ca.gov/toxics/summary/summary.htm.
   2. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA), Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html.
C. Reproductive Toxicants: Chemicals known to cause reproductive toxicity including birth defects or other reproductive harm in the latest published edition of the following list: California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA), Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). http://www.oehha.ca.gov/prop65/prop65_list/Newlist.htm.
   Chemicals with established Chronic Reference Exposure Levels (REL): Chronic RELs have been developed for 65 hazardous airborne substances as of January 2001. A chronic REL is an airborne concentration level that would pose no significant health risk to individuals indefinitely exposed to that level. RELs are based solely on health considerations, and are developed from the best available data in the scientific literature. The California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) establishes and publishes RELs.
D. Chronic Reference Exposure Levels for organic chemicals with possible indoor sources, based on the California OEHHA list.
   1. Do not use any of the chemicals listed in the list.
   2. The most recent list may be found at: http://www.oehha.org/air/chronic_rels/allChrels.html

PART 3 **– EXECUTION**

3.1 DURING CONSTRUCTION & DEMOLITION **Specifier, select appropriate type of project scope(s) – could have new work and demo combined]**

A. Construction work, cleaning and protection refer also to the following section and the most restrictive shall govern:
   1. Refer to Division 1 for construction waste management and disposal/recycling requirements.
B. Demolition work, cleaning and protection refer also to the following sections and the most restrictive shall govern; **Specifier, select for demolition scope projects]**
   1. Refer to Division 1 for construction waste management and disposal/recycling requirements.
   2. Section 02 41 13 – Selective Site Demolition & Protection.
   3. Section 02 41 19 – Selective Building Demolition & Protection.
C. Execute periodic cleaning to keep Work, site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.
D. Provide on-site containers for collection, disposal and/or recycling of waste materials, debris and rubbish in compliance with **General Contractor's** Construction Waste Management Plan as approved by **Owner**.
   1. Refer to Division 1 for construction waste management and disposal/recycling requirements.
E. Protect material and work as recommended by manufacturer, drawings and as specified.
   1. Clean adjacent surfaces free of caulking or sealant with mechanical action or solvent as necessary, avoiding damage to other materials.
   2. Remove masking tape immediately after tooling joints, leaving finished work in neat and clean condition.
   3. Clean all surfaces, materials, etc. free of dust and dirt.
   4. Clean up and leave premise broom clean and vacuum cleaned; clean adjoining work spotted or otherwise defaced by work of this Section.
      a. Access Floor cavity shall be cleaned to same standard as HVAC ductwork.
F. Moisture Protection:
   1. Moisture Stains:
      a. Materials with evidence of moisture damage, including stains, are not acceptable, including both stored and installed materials;
         1. Immediately remove from site and properly dispose.
         2. Take special care to prevent accumulation of moisture on installed material and within packaging during delivery, storage, and handling to prevent development of molds and mildew on packaging and on products.
      b. Immediately remove from site and properly dispose of materials showing signs of mold and signs of mildew, including materials with moisture stains.
      c. Replace moldy materials with new, undamaged materials.
      d. Mitigate and remove all mold and mildew discovered.
   2. Ducts:
      a. Seal ducts during transportation, delivery, and construction to prevent accumulation of construction dust and construction debris inside ducts.

3. Protect interior materials from water intrusion or penetration; where interior products not intended for wet applications are exposed to moisture, immediately remove from site and dispose of properly.
4. Protect installed products using methods that do not support growth of molds and mildews.
    a. Immediately remove from site materials with mold and materials with mildew.

G. Dust Protection:
1. Clean interior spaces prior to start of finish painting and continue cleaning on as-needed basis until painting is finished.
2. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.

3.2 FINAL CLEANING

A. Employ skilled workers for final cleaning.
B. Comply with specific requirements as indicated in each specification section.
C. Comply with applicable regulatory requirements during the conduct of cleaning, disposal and recycling operations and in compliance with **General Contractor's** Construction Waste Management Plan as approved by **Architect** and **Owner**.
D. Use cleaning materials which will not create hazards to health or property or cause damage to products or Work.
1. Refer to Table 1, Part 2 as herein specified for disallowed chemicals.
E. Use cleaning materials and methods recommended by the manufacturers of the products to be cleaned and as described in Part 2 of this specification section.
1. Most restrictive shall govern.
F. Cleaning: **[Specifier, if demolition only then include Demolition heading notes below]**
1. Using cleaning and maintenance products as described in Part 2 of this Section and as specifically required per each applicable specification section, including, but not limited to;
    a. General:
        1. Remove dust, dirt, grease, stains, fingerprints, labels, spilled and spattered, and other foreign materials from interior and exterior surfaces exposed to view.
        2. Polish transparent and glossy surfaces to a clear shine.
        3. Vacuum dust and dirt from all surfaces.
    b. Flatwork and Paving:
        1. Clean hard surface flatwork and paving.
        2. Power wash all exposed flatwork and paving.
            a. Stained and/or polished finish floors shall be cleaned and polished in accordance with related specification section for floor finish.
        3. Demolition – unless otherwise noted, all flatwork and paving shall be demolished as indicated in drawings and/or specified.
            a. Refer to Section 02 41 13 – Selective Site Demolition & Protection

c. Flooring:
    1. Clean hard surface finish flooring, such as, but not limited to; tile, stone, VCT, linoleum, cork, hardwood, etc., in accordance with manufacturer's cleaning, polishing and maintenance recommendations.
    2. Broom, vacuum and wet mop all exposed concrete floors.
        a. Stained and/or polished finish floors shall be cleaned and polished in accordance with related specification section for floor finish.
    3. Vacuum carpeted and soft surfaces with high efficiency particulate arrestor (HEPA) vacuum.
        a. Final cleaning shall be "Vacuum Clean".
    4. Demolition – unless otherwise noted, all flooring shall be demolished as indicated in drawings and/or specified.
        a. Refer to Section 02 41 19 – Selective Building Demolition & Protection

d. Walls:
    1. Clean surface of finish wall materials in accordance with manufacturer's cleaning and maintenance recommendations.
    2. Remove all fingerprints, scuff marks, etc. from painted gypsum board.
        a. Repaint all area's that cannot be cleaned to like new appearance.
    3. Demolition – unless otherwise noted, all walls shall be demolished as indicated in drawings and/or specified.
        a. Refer to Section 02 41 19 – Selective Building Demolition & Protection

e. Ceilings:
    1. Clean surface of finish wall materials in accordance with manufacturer's cleaning and maintenance recommendations.
    2. Remove all fingerprints, scuff marks, etc. from painted gypsum board.
        a. Repaint all area's that cannot be cleaned to like new appearance.
    3. Demolition – unless otherwise noted, all ceilings shall be demolished as indicated in drawings and/or specified.
        a. Refer to Section 02 41 19 – Selective Building Demolition & Protection

f. Exterior Wall Glazing:
    1. Wash and shine glazing and mirrors to be free of streaks.

g. Interior Wall Glazing:
    1. Wash and shine glazing and mirrors to be free of streaks.
    2. Demolition – unless otherwise noted, all flooring shall be demolished as indicated in drawings and/or specified.
        a. Refer to Section 02 41 19 – Selective Building Demolition & Protection

h. Electrical Fixtures:

1. Clean surface of finish lighting fixtures to be free of dust, finger prints etc. to a new appearance.
2. Clean out debris, bugs, etc. which have accumulated inside fixture lens.
3. Vacuum and wipe insides of electrical and low voltage panels, racks and cabinetwork.

i. Fixtures:
   1. Clean equipment and fixtures to sanitary condition.
   2. Demolition – unless otherwise noted, all fixtures shall be removed and disposed of as indicated in drawings and/or specified.
      a. Refer to Section 02 41 19 – Selective Building Demolition & Protection
      b. Refer to Section 02 41 13 – Selective Site Demolition & Protection

j. HVAC and ventilation system and components:
   1. If ducts were not sealed during construction, and contain dust or dirt, clean ducts using HEPA vacuum immediately prior to Substantial Completion and prior to using ducts to circulate air.
      a. Raised Access Floor cavity shall be cleaned to same standard as HVAC ductwork.
   2. Replace all air filters installed at air handling units and ducts before and during construction.
   3. Replace all air filters (i.e., pre and final filters) of units operated during construction in compliance with the requirements of LEED just prior to Substantial Completion; refer to specific requirements of Division 1 sustainability requirements and mechanical specification sections.
   4. Oil film on sheet metal shall be removed before shipment to site.
      a. However, ducts shall be inspected to confirm that no oil film is present.
         1. Remove oil using cleaning and maintenance products as described in Part 2 of this Section.
   5. Demolition – unless otherwise noted, all ductwork, brackets, etc. shall be removed and disposed of as indicated in drawings and/or specified.
      a. Refer to Section 02 41 19 – Selective Building Demolition & Protection
   6. Demolition – Ductwork: unless otherwise noted, all ductwork, brackets, etc. shall be removed and disposed of as indicated in drawings and/or specified.
      a. Refer to Section 02 41 19 – Selective Building Demolition & Protection
   7. Demolition –HVAC units: refer to drawings for scope of removal of units.
      a. Refer to Section 02 41 19 – Selective Building Demolition & Protection

2. Recycled materials:
   a. Remove and properly recycle materials removed during construction work, refer also to;
      1. Refer to Division 1 for construction waste management and disposal/recycling requirements and as described in **General Contractor's** Construction Waste Management Plan as approved by the **Owner**.

b. Demolition - Remove and properly recycle materials removed during demolition work, refer also to;
    1. Waste management program, refer to;
        a. Refer to Division 1 for construction waste management and disposal/recycling requirements and as described in **General Contractor's** Construction Waste Management Plan as approved by the **Owner**.

3. Demolished materials:
    a. Remove and properly dispose of all demolished materials during demolition work, refer also to;
        1. Section 02 41 13 – Selective Site Demolition & Protection
        2. Section 02 41 19 – Selective Building Demolition & Protection
        3. Refer to Division 1 for construction waste management and disposal/recycling requirements and as described in **General Contractor's** Construction Waste Management Plan as approved by the **Architect** and **Owner**.
4. Waste materials:
    a. Remove and properly dispose and recycle all waste materials during construction work, refer also to;
        1. Refer to Division 1 for construction waste management and disposal/recycling requirements and as described in **General Contractor's** Construction Waste Management Plan as approved by the **Owner**.
    b. Demolition - Remove and properly dispose and recycle all materials during demolition work, refer also to;
        1. Refer to Division 1 for construction waste management and disposal/recycling requirements and as described in **General Contractor's** Construction Waste Management Plan as approved by the **Owner**.
        2. Section 02 41 13 – Selective Site Demolition & Protection
        3. Section 02 41 19 – Selective Building Demolition & Protection
5. Exterior:
    a. Clean site and roof areas of sticks, rubbish, and other debris.
    b. Broom and power wash all flatwork and paving.
    c. Clean all finish paving materials such as brick, interlocking pavers, etc. in accordance with the specific manufacture.
    d. Broom-clean exterior paving.
    e. Rake clean ground surfaces.
    f. Coordinate cleaning, protection and maintenance with all Division 2 sections.

G. Prior to final inspection or **Owner** occupancy, **General Contractor** shall conduct inspection of sight-exposed interior and exterior surfaces, and all work areas, to verify that entire Work is clean.

END OF SECTION 01 74 00

DOCUMENT 01 77 00

CONTRACT CLOSEOUT AND FINAL CLEANING

1. GENERAL

1.1. RELATED DOCUMENTS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions including, without limitation, Documents on Work and Completion of Work;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals;

1.1.5. Operation and Maintenance Data;

1.1.6. Warranties;

1.1.7. Record Documents;

1.1.8. Demonstration and Training; and

1.1.9. General Commissioning Requirements.

1.2. PRELIMINARY PROCEDURES

1.2.1. Before requesting inspection for determining date of Completion, complete the following. List items below that are incomplete in request.

1.2.1.1. Prepare a list of items to be completed and corrected ("Punch List"), the value of items on the list, and reasons why the Work is not complete.

1.2.1.2. Advise District of pending insurance changeover requirements.

1.2.1.3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

1.2.1.4. Obtain and submit releases permitting District unrestricted use of the Work and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases, if required.

1.2.1.5. Prepare and submit Project Record Documents, operation and maintenance manuals, Completion construction photograph prints and electronic files, damage or settlement surveys, property surveys, and similar final record information.

1.2.1.6. Deliver tools, spare parts, extra materials, and similar items to location designated by District. Label with manufacturer's name and model number where applicable.

1.2.1.7. Make final changeover of permanent locks and deliver keys to District. Advise District's personnel of changeover in security provisions.

1.2.1.8. Complete startup testing of systems.

1.2.1.9. Submit test/adjust/balance records.

1.2.1.10. Terminate and remove temporary facilities from Project Site, along with mockups, construction tools, and similar elements.

1.2.1.11. Advise District of changeover in heat and other utilities.

1.2.1.12. Submit changeover information related to District's occupancy, use, operation, and maintenance.

1.2.1.13. Complete final cleaning requirements, including touch-up painting.

1.2.1.14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

1.3. RECORD DOCUMENTS AND SHOP DRAWINGS

1.3.1. Contractor shall legibly mark each item to record actual construction, including:

1.3.1.1. Measured depths of foundation in relation to finish floor datum.

1.3.1.2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permit surface improvements.

1.3.1.3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.

1.3.1.4. Field changes of dimension and detail.

1.3.1.5. Details not on original Contract Drawings

1.3.1.6. Changes made by modification(s).

1.3.1.7. References to related Shop Drawings and modifications.

1.3.1.8. Contractor will provide one set of Record Drawings to District.

1.3.1.9. Contractor shall submit all required documents to District and/or Architect prior to or with its final Application for Payment.

1.4. COMPLETION

1.4.1. Preliminary Procedures: Before requesting inspection for determining date of Completion, complete the following:

1.4.1.1. Submit a final Application for Payment according to the Contract Documents.

1.4.1.2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

1.4.1.3. Submit pest-control final inspection report and warranty.

1.4.1.4. Instruction of District Personnel:

1.4.1.4.1. Before final inspection, at agreed upon times, Contractor shall instruct District's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems.

1.4.1.4.2. For equipment requiring seasonal operation, Contractor shall perform instructions for other seasons within six (6) months.

1.4.1.4.3. Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

1.4.1.4.4. Contractor shall prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

1.4.1.4.5. Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

1.4.2. Inspection: Submit a written request for inspection.

1.4.3. **LIST OF INCOMPLETE ITEMS (PUNCH LIST)** Contractor shall notify District and Architect when Contractor considers the Work complete. Upon notification, District and Architect will prepare a list of minor items to be completed or corrected ("Punch List").

1.4.4. Contractor and/or its Subcontractors shall proceed promptly to complete and correct items on the Punch List. Failure to include an item on Punch List does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

1.4.5. Contractor shall comply with Punch List procedures as provided herein and in the Contract Documents, and maintain the presence of a Project Superintendent and Project Manager until the Punch List is complete to ensure proper and timely completion of the Punch List. Under no circumstances shall Contractor demobilize its forces prior to completion of the Punch List. Upon receipt of Contractor's written notice that all of the Punch List items have been fully completed and the Work is ready for final inspection and acceptance, District and Architect will inspect the Work and shall submit to Contractor a final inspection report noting the Work, if any, required in order to reach Completion in accordance with the Contract Documents. Absent unusual

circumstances, this report shall consist of the Punch List items not yet satisfactorily completed and any additional Punch List items not originally included.

1.4.6. Upon Contractor's completion of all items on the Punch List and any other uncompleted portions of the Work, the Contractor shall notify the District and Architect, who shall again inspect such Work. If the District and Architect find the Work complete and acceptable under the Contract Documents, the District will notify Contractor, who shall then jointly submit to the Architect and District its final Application for Payment.

1.4.7. **Costs of Multiple Inspections**. More than two (2) requests of District to make a final inspection shall be considered an additional service of District, the Architect and/or the Inspector, and all subsequent costs will be invoiced to Contractor and withheld from remaining payments, if funds are available.

1.4.8. Punch List shall be deemed complete only upon the District's determination that all items on the Punch List, and all updates to the Punch List, are complete.

1.5. WARRANTIES

1.5.1. Submittal Time: Submit written warranties on request of District for designated portions of the Work where commencement of warranties other than date of Completion is indicated.

1.5.2. Organize warranty documents into an orderly sequence as required by the Division 01 Document "Warranties."

2. PRODUCTS

2.1. MATERIALS

2.1.1. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

3. EXECUTION

3.1. FINAL CLEANING

3.1.1. Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations. Contractor shall use cleaning methods and procedures that reduce the overall impact on human health and the natural environment by reducing the amount of disposed waste, pollution and environmental degradation. If Project is subject to LEED certification, Contractor shall ensure compliance with the applicable LEED requirements for final cleaning of the Site.

3.1.2. Contractor shall employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program.

3.1.2.1. Complete the following cleaning operations before requesting final inspection:

3.1.2.1.1. Clean Project Site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

3.1.2.1.2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

3.1.2.1.3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

3.1.2.1.4. Remove tools, construction equipment, machinery, and surplus material from Project Site.

3.1.2.1.5. Remove snow and ice to provide safe access to building.

3.1.2.1.6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

3.1.2.1.7. Clean all surfaces and other work in accordance with recommendations of the manufacturer.

3.1.2.1.8. Remove spots, mortar, plaster, soil, and paint from ceramic tile, stone, and other finish materials.

3.1.2.1.9. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

3.1.2.1.10. Sweep concrete floors broom clean in unoccupied spaces.

3.1.2.1.11. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

3.1.2.1.12. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

3.1.2.1.13. Remove labels that are not permanent.

3.1.2.1.14. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

3.1.2.1.14.1. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

3.1.2.1.15. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

3.1.2.1.16. Replace parts subject to unusual operating conditions.

3.1.2.1.17. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

3.1.2.1.18. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

3.1.2.1.19. Clean ducts, blowers, and coils if units were operated without filters during construction.

3.1.2.1.20. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

3.1.2.1.21. Leave Project Site clean and ready for occupancy.

3.1.3. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests.

3.1.4. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on District's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project Site and dispose of lawfully.

END OF DOCUMENT

DOCUMENT 01 78 23

OPERATION AND MAINTENANCE DATA

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including, without limitation, Completion of the Work;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals;

1.1.5. Contract Closeout and Final Cleaning;

1.1.6. Warranties;

1.1.7. Record Documents;

1.1.8. General Commissioning Requirements.

1.2. QUALITY ASSURANCE

1.2.1. Contractor shall prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.3. FORMAT

1.3.1. Contractor shall prepare data in the form of an instructional manual entitled “OPERATIONS AND MAINTENANCE MANUAL & INSTRUCTIONS” (“Manual”).

1.3.2. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size. When multiple binders are used, Contractor shall correlate data into related consistent groupings.

1.3.3. Cover: Contractor shall identify each binder with typed or printed title "OPERATION AND MAINTENANCE MANUAL & INSTRUCTIONS"; and shall list title of Project and identify subject matter of contents.

1.3.4. Contractor shall arrange content by systems process flow under section numbers and sequence of the Table of Contents of the Contract Documents.

1.3.5. Contractor shall provide tabbed fly leaf for each separate Product and system, with typed description of Product and major component parts of equipment.

1.3.6. Text: The content shall include Manufacturer's printed data, or typewritten data on 24 pound paper.

1.3.7. Drawings: Contractor shall provide with reinforced punched binder tab and shall bind in with text; folding larger drawings to size of text pages.

1.4. CONTENTS, EACH VOLUME

1.4.1. Table of Contents: Contractor shall provide title of Project; names, addresses, and telephone numbers of the Architect, any engineers, subconsultants, Subcontractor(s), and Contractor with name of responsible parties; and schedule of Products and systems, indexed to content of the volume.

1.4.2. For Each Product or System: Contractor shall list names, addresses, and telephone numbers of Subcontractor(s) and suppliers, including local source of supplies and replacement parts.

1.4.3. Product Data: Contractor shall mark each sheet to clearly identify specific Products and component parts, and data applicable to installation. Delete inapplicable information.

1.4.4. Drawings: Contractor shall supplement Product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Contractor shall not use Project Record Documents as maintenance drawings.

1.4.5. Text: The Contractor shall include any and all information as required to supplement Product data. Contractor shall provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.5. MANUAL FOR MATERIALS AND FINISHES

1.5.1. Building Products, Applied Materials, and Finishes: Contractor shall include Product data, with catalog number, size, composition, and color and texture designations. Contractor shall provide information for re-ordering custom manufactured Products.

1.5.2. Instructions for Care and Maintenance: Contractor shall include Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

1.5.3. Moisture Protection and Weather Exposed Products: Contractor shall include Product data listing applicable reference standards, chemical composition, and details of installation. Contractor shall provide recommendations for inspections, maintenance, and repair.

1.5.4. Additional Requirements: Contractor shall include all additional requirements as specified in the Specifications.

1.5.5. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.6. MANUAL FOR EQUIPMENT AND SYSTEMS

1.6.1. Each Item of Equipment and Each System: Contractor shall include description of unit or system, and component parts and identify function, normal operating characteristics, and limiting conditions. Contractor shall include performance curves, with engineering data and tests, and complete nomenclature, and commercial number of replaceable parts.

1.6.2. Panelboard Circuit Directories: Contractor shall provide electrical service characteristics, controls, and communications.

1.6.3. Contractor shall include color coded wiring diagrams as installed.

1.6.4. Operating Procedures: Contractor shall include start-up, break-in, and routine normal operating instructions and sequences. Contractor shall include regulation, control, stopping, shut-down, and emergency instructions. Contractor shall include summer, winter, and any special operating instructions.

1.6.5. Maintenance Requirements: Contractor shall include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

1.6.6. Contractor shall provide servicing and lubrication schedule, and list of lubricants required.

1.6.7. Contractor shall include manufacturer's printed operation and maintenance instructions.

1.6.8. Contractor shall include sequence of operation by controls manufacturer.

1.6.9. Contractor shall provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

1.6.10. Contractor shall provide control diagrams by controls manufacturer as installed.

1.6.11. Contractor shall provide Contractor's coordination drawings, with color coded piping diagrams as installed.

1.6.12. Contractor shall provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

1.6.13. Contractor shall provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

1.6.14. Additional Requirements: Contractor shall include all additional requirements as specified in Specification(s).

1.6.15. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.7. SUBMITTAL

1.7.1. Concurrent with the Schedule of Submittals as indicated in the General Conditions, Contractor shall submit to the District for review two (2) copies of a preliminary draft of proposed formats and outlines of the contents of the Manual.

1.7.2. For equipment, or component parts of equipment put into service during construction and to be operated by District, Contractor shall submit draft content for that portion of the Manual within ten (10) days after acceptance of that equipment or component.

1.7.3. On or before the Contractor submits its final application for payment, Contractor shall submit two (2) copies of a complete Manual in final form. The District will provide comments to Contractor and Contractor must revise the content of the Manual as required by District prior to District's approval of Contractor's final Application for Payment.

1.7.4. Contractor must submit two (2) copies of revised Manual in final form within ten (10) days after receiving District's comments. Failure to do so will be a basis for the District withholding funds sufficient to protect itself for Contractor's failure to provide a final Manual to the District.

END OF DOCUMENT

DOCUMENT 01 78 36

WARRANTIES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including, without limitation, Warranty/Guarantee/Indemnity;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals;

1.1.5. Contract Closeout and Final Cleaning;

1.1.6. Operation and Maintenance Data;

1.1.7. Record Documents;

1.1.8. General Commissioning Requirements.

1.2. FORMAT

1.2.1. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size.

1.2.2. Cover: Contractor shall identify each binder with typed or printed title "WARRANTIES" and shall list the title of Project.

1.2.3. Table of Contents: Contractor shall provide the title of Project; name, address, and telephone number of Contractor and equipment supplier, and name of responsible principal. Contractor shall identify each item with the number and title of the specific Specification, document, provision, or section in which the name of the Product or Work item is specified.

1.2.4. Contractor shall separate each Warranty with index tab sheets keyed to the Table of Contents listing, providing full information and using separate typed sheets as necessary. Contractor shall list each applicable and/or responsible Subcontractor(s), supplier(s), and/or manufacturer(s), with name, address, and telephone number of each responsible principal(s).

1.2.5. In addition to all Warranty documentation and information required herein, Contractor shall provide its Guarantee as required by the Contract Documents.

1.3. PREPARATION

1.3.1. Contractor shall obtain Warranties, executed in duplicate by each applicable and/or responsible Subcontractor(s), supplier(s), and manufacturer(s), within ten (10) days after completion of the applicable item or Work. Except for items put into use with District's permission, Contractor shall leave date of beginning of time of Warranty until the date of Completion is determined.

1.3.2. Contractor shall verify that Warranties.

1.3.3. are in proper form, contain full information, and are notarized, when required.

1.3.4. Contractor shall co-execute submittals when required.

1.3.5. Contractor shall retain warranties until time specified for submittal.

1.4. TIME OF SUBMITTALS

1.4.1. Schedule of Warranties. Contractor shall provide District with a Schedule of Warranties at least fourteen (14) days prior to submitting its other required submittals indicated herein. This will provide District the opportunity to review the anticipated Warranties and make any comments, suggestions or revisions the District may require.

1.4.2. For equipment or component parts of equipment put into service during construction with District's permission, Contractor shall submit a draft Warranty for that equipment or component within ten (10) days after acceptance of that equipment or component.

1.4.3. On or before the Contractor submits its final application for payment, Contractor shall submit all Warranties and related documents in final form. The District shall indicate any Warranty-related Work that is being performed and incomplete at the time Contractor submits its final application for payment. District will provide comments to Contractor and Contractor must revise the content of the Warranties as required by District prior to District's approval of Contractor’s final Application for Payment.

1.4.4. For items of Work that are not completed until after the date of Completion, Contractor shall provide an updated Warranty for those item(s) of Work within ten (10) days after acceptance, listing the date of acceptance as start of the Warranty period.

END OF DOCUMENT

DOCUMENT 01 78 39

RECORD DOCUMENTS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including, without limitation, Documents on Work and Completion of Work;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals;

1.1.5. Contract Closeout and Final Cleaning;

1.1.6. Operation and Maintenance Data;

1.1.7. Warranties;

1.1.8. General Commissioning Requirements.

2. RECORD DOCUMENTS OR DRAWINGS

2.1. GENERAL

2.1.1. "Record Documents" and "Record Drawings" may also be referred to in the Contract Documents as "As-Built Drawings."

2.1.2. As indicated in the Contract Documents, District will provide Contractor with one set of reproducible plans of the original Drawings.

2.1.3. Contractor shall maintain at each Project Site one (1) set of marked-up Drawings and shall transfer all changes and information to those marked-up Drawings, as often as required in the Contract Documents, but in no case less than once each month. Contractor shall submit to the Project Inspector one set of reproducible vellums of the Project Record Documents ("As-Builts") showing all changes incorporated into the Work since the preceding monthly submittal. The As-Builts shall be available at the Project Site. The Contractor shall submit reproducible vellums at the conclusion of the Project following review of the blueline prints.

2.1.4. Label and date each Record Document "RECORD DOCUMENT" in legibly printed letters.

2.1.5. All deviations in construction, including but not limited to pipe and conduit locations and deviations caused, without limitation, by Change Orders, Construction Directives, RFI's, and Addenda shall be accurately and legibly recorded by Contractor.

2.1.6. Locations and changes shall be done by Contractor in a neat and legible manner and, where applicable, indicated by drawing a "cloud" around the changed or additional information.

2.2. **RECORD DOCUMENT INFORMATION**

2.2.1. Contractor shall record the following information:

2.2.1.1. Locations of Work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines, and conduits.

2.2.1.2. Actual numbering of each electrical circuit.

2.2.1.3. Locations of significant Work concealed inside each building whose general locations are changed from those shown on the Drawings.

2.2.1.4. Locations of all items, not necessarily concealed, which vary from the Contract Documents.

2.2.1.5. Installed location of all cathodic protection anodes.

2.2.1.6. Deviations from the sizes, locations, and other features of installations shown in the Contract Documents.

2.2.1.7. Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, etc.

2.2.1.8. Sufficient information to locate Work concealed in each building with reasonable ease and accuracy.

2.2.2. In some instances, this information may be recorded by dimension. In other instances, it may be recorded in relation to the spaces in the building near which it was installed.

2.2.3. Contractor shall provide additional Drawings as necessary for clarification.

2.2.4. Contractor shall provide in an electronic format as indicated in the Contract Documents, a copy of the Drawings, made from final Shop Drawings marked "No Exceptions Taken" or "Approved as Noted."

2.2.4.1. With the District's prior approval, Contractor may provide these reproducible Drawings in hard copy.

3. RECORD MATERIALS LOG

3.1.1. Materials Log shall be submitted prior to Completion.

3.1.2. Preparation: Mark Material Log to indicate the actual product installation where installation varies from that indicated in original Material Log.

3.1.3. Give particular attention to information on concealed materials and installations that cannot be readily identified and recorded later.

3.1.4. Mark copy with the proprietary name and characteristics of products, materials, and equipment furnished, including substitutions and product options selected.

3.1.5. Record the name of the manufacturer, supplier, installer, and other information necessary to provide a record of selections made.

3.1.6. The working copy of Materials Log shall be consistently maintained throughout construction, and shall be accessible at Project Site.

4. MAINTENANCE OF RECORD DOCUMENTS

4.1. Contractor shall store Record Documents apart from documents used for construction as follows:

4.1.1. Provide files and racks for storage of Record Documents.

4.1.2. Maintain Record Documents in a clean, dry, legible condition and in good order.

4.2. Contractor shall not use Record Documents for construction purposes.

END OF DOCUMENT

SECTION 01 79 00 – DEMONSTRATION AND TRAINING
PART 1 **- GENERAL**

1.1 REQUIREMENTS INCLUDED

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.
B. Section includes: Provide equipment and systems demonstration and instruction in accordance with Contract Documents
   1. Videotape seminars and system demonstrations.

1.2 RELATED SECTIONS

A. Refer to Division 1 for sustainability requirements
B. Refer to Division 1 for project coordination requirements
C. Refer to Division 1 for closeout submittal procedures
D. Refer to Division 1 for Commissioning requirements
E. Divisions 21 through 28

1.3 DESCRIPTION

A. Seminar Agenda and Outline:
   1. Prepare a seminar agenda and outline in consultation and cooperation with **Owner**. Include following:
      a. Equipment and systems which will be included in seminars.
      b. Name of companies and representatives presenting at seminars.
      c. Outline of each seminar's content.
      d. Time and date allocated to each system and item of equipment.
   2. Submit a preliminary seminar agenda and outline for review and comment by **Owner**.
      a. Revise and resubmit Agenda and outline until all seminar requirements have been satisfied and seminar dates and presenters have been finalized.
   3. Submit a final seminar agenda and outline no later than eight weeks before date of Acceptance of Work.
B. Seminar organization:
   1. **General Contractor's** presentation leaders shall chair seminars.
      a. Coordinate qualification of training personnel, seminar contents and presentations with **Owner**.
   2. Coordinate individual presentations and ensure manufacturer's representatives scheduled to be at training seminars are present.
   3. Arrange for presentation leaders familiar with design operation, maintenance and troubleshooting of equipment and systems.

a. Where a single person is not familiar with all aspects of equipment or system, arrange for specialists familiar with each aspect.

4. Coordinate proposed seminar dates with **Owner** and select mutually agreeable dates.
5. Videotaping: arrange for videotaping of training seminars and system demonstrations, including seminar and demonstration questions and answers.

C. Seminar Content:
1. **Commissioning Agent** will explain design philosophy of primary systems.
2. Include following information in presentations dealing with specific systems:
a. An overview of how system is intended to operate.
b. Describe design parameters, constrains and operational requirements.
c. Describe system operation strategies.
d. Provide information to help in identifying and troubleshooting problems.
3. Include following information in presentations dealing with equipment.
a. Explanation of how equipment of how equipment operates.
b. Recommended preventative and routine maintenance.

D. System Demonstration:
1. Demonstrate operation of equipment and systems when specified in individual technical sections. Include following in demonstration.
a. Start-Up and shut down.
b. Operation.
c. Scheduled and preventative maintenance.
d. Troubleshooting.
2. Demonstration may be conducted at time of original starting with **Owner's** prior approval.

E. Seminar and Demonstration Questions:
1. Be prepared to answer questions raised by **Owner's** personnel at demonstrations and seminars.
2. If unable to satisfactorily answer question immediately, provide written response within three days.

F. Use manufacturer's operation and maintenance data as basis of instruction.

1.4 CONTRACTOR START-UP REPORT FORMS

A. Videotapes: Submit two copies of each videotape; include label on each tape and on each container identifying Project and Seminar content.

PART 2 **- PRODUCTS**
Not used
PART 3 **- EXECUTION**
Not used
END OF SECTION 01 79 00

SECTION 02 41 13 – SELECTIVE SITE DEMOLITION AND PROTECTION

PART 1 - **GENERAL**

1.1 WORK INCLUDED THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.
B. Coordinate the work of this Section with related trades.
C. Verify applicable extents of work and dimensions at the jobsite.
D. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:

1. General:
    a. Pay all disposal fees
    b. Coordinate all recycling procedures and documentation
    c. Obtain all permits
    d. Coordinate and get approval for demolition of all existing utilities with **Owner** and appropriate utility company/governmental jurisdiction.
2. Scope:
    a. Demolition:
    b. Removal and Disposal:
    c. Removal and Storage for Owner use:
    d. Removal and Storage for Future Installation:
    e. Record Drawings / As-built information:
    f. Protect and maintain existing vegetation designated to be saved.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.
B. Title 24, California Code of Regulations, California Building Standards Commission
C. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission
D. Title 24, Chapter 11 – California Green Building Standards Code
    1. Non-residential new construction
        a. All occupancy types
E. Leadership in Energy and Environmental Design (LEED), www.usgbc.org/LEED (United States Green Building Council (USGBC)
    1. Refer to Division 1 for version of LEED Rating System and Reference Guide applicable to project.

F. Collaborative for High Performance Schools (CHPS), www.chps.net
G. American National Standards Institute (ANSI), www.ansi.org
H. American Society For Testing and Materials (ASTM), www.astm.org
I. Industrial Accident Commission of the State of California
J. National Demolition Association, www.demolitionassociation.com
K. Occupational Safety and Health Administration (OSHA), United States Department of Labor, www.osha.gov

1. OSHA – Regulations Standards – 29 (CFR) as approved by State of California
2. OSHA – Regulations Standards – 29 (CFR), Section 1926 Occupational Safety and Health Standards for Construction as approved by State of California

1.3 PERFORMANCE, TESTING AND INSPECTION

A. General:
   1. Comply with manufacturer's standards.
   2. Comply with Building Code.
   3. Refer to Division 1 for additional requirements for DSA projects
B. Sustainability:
   1. Refer to Division 1 sustainability requirements.
   2. Refer to product criteria identified herein.
C. Refer to Division 1 for construction waste management and disposal/recycling requirements

1.4 SUBMITTALS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.
B. Submit O&M (Operation and Maintenance) manuals in accordance with Division 1 requirements and as herein specified
C. Refer to Division 1 for sustainability requirements
D. Submit a written list of all items to be submitted as indicated below and organized in a spread sheet;
   1. Demolition items/material
   2. Removed and disposed of items/materials
   3. Removed and stored items by **Contractor** and supplied at later date to **Owner**
   4. Removed and stored items to be installed at later date by **Contractor** as directed by **Owner**.
   5. Acknowledgment of AS-Demolished Record Drawings to include markup of drawings and pdf files named specific to each drawing sheet for all final record keeping.
   6. Protection and maintenance plan for existing vegetation.
E. Submit As-built site drawings indicating the capped off locations for all utilities.

1.5 QUALITY ASSURANCE

A. Refer to Division 1 for quality control requirements.

B. **Contractor** shall have been in business for **five (5)** years providing demolition services for projects of similar size and complexity.
C. **Contractor** shall be a member of the National Demolition Association in good standing.
D. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product delivery, storage and handling requirements.

1.7 JOB CONDITIONS

A. Field-verify that all work by others is installed correctly prior to proceeding with demolition work under this specification and drawings.
B. Retain and have all applicable permits obtained prior to commencing with work.
C. Hazardous materials:
    1. Any known or presumed hazardous material discovered shall be brought to the **Owner's** attention immediately.
    2. It is the **Contractor's** responsibility to comply with the pertinent sections, as they apply to this project, of the "Construction Safety Orders" issued by the State of California lasts edition and all OSHA requirements.
    3. The **Architect**, Structural Engineer and **Owner** do not accept any responsibility for the **Contractor's** failure to comply with agency having jurisdiction, building code and/or State of California requirements.
    4. The **Contractor** shall be responsible for adequate design and construction of all formwork, bracing and shoring required.
D. Safety Precautions:
    1. Perform demolition work in such a manner as to prevent damage to existing facilities to remain or to be salvaged and to prevent injury to public and workmen engaged on site under this or other contracts.

1.8 PROTECTION

A. Protect finish surfaces at all times from surfaces and material adjacent to them.
B. Finish work defaced with other materials on surface shall be replaced.
C. Protect work under this section from damage by other trades.
D. Protect and maintain existing vegetation as herein specified and/or indicated in contract documents.

1.9 GUARANTEE / WARRANTY

A. Refer to Division 1 for closeout submittal procedures.

1.10 RELATED WORK / SECTIONS

A. The following is related work including, but not limited to the following;

1. New Site Work
2. Coordination with Utility Companies
3. Coordination with Agencies
4. Acquisition of permits
5. Coordination with Owner
6. Surveying

B. Related Sections include, but are not limited to the following:

1. Division 1
2. Section 01 73 29 – Cutting and Patching
3. Section 01 81 13 – Project Sustainability Requirements [Specifier, applies to all Cal-Green, LEED and/or CHPS projects]
4. Section 01 33 00 – Submittal Procedures
5. Section 01 25 00 – Substitution and Deviation Procedures
6. Section 01 50 00 – Temporary Facilities and Controls
7. Section 01 74 19 – Construction Waste Management and Disposal/Recycling
8. Section 01 78 00 – Closeout Submittals
9. Section 01 74 00 – Protection and Cleaning
10. Section 02 00 1 – Site Work - General Requirements
11. Section 02 41 19 – Selective Building Demolition
12. Section 31 22 00 – Earthwork
13. Section 31 23 00 – Trenching and Backfill
14. Section 31 25 00 – Erosion and Sedimentation Control
15. Section 02275 – Dust and Emission Control

1.11 OPERATION AND MAINTENANCE DATA

A. Refer to Division 1 for closeout submittal procedures.

1.12 SEQUENCING AND SCHEDULING

A. General:

1. Schedule work and sequence with **General Contractor**.

a. Schedule required investigation, shutoff of utilities, etc., prior to commencing with demolition, etc.
b. Coordinate work with **Owner's** representative including, but not limited to:
1. Divisions 2 - 12

B. Existing Utilities:

1. Coordinate work of disconnecting & capping existing utilities including, but not limited to;

a. Gas
b. Domestic water
c. Fire service water
d. Sewer
e. Electrical
f. Cable TV

g. Low voltage cabling,
h. Etc,

C. Existing Vegetation:

1. Coordinate work of protecting and watering (maintaining) existing vegetation to remain with the following, but not limited to;

a. Site work, including but not limited to;

1) AC Paving
2) Concrete curbs
3) Flatwork
4) Vehicular paving
5) Ramps
6) Underground utilities

b. Excavation for underground devices, piping, etc.
c. Erosion control
d. Landscape documents
e. Civil documents

D. Notices:

1. **General Contractor** shall make the following notices to **Owner** in addition to Specifications and Division 1 including, but not limited to;

a. 72 hours prior to interruption of utilities.
b. 48 hours prior to demolishing and/or removing items/materials not specific all noted in drawings and/or specifications.

PART 2 - **PRODUCTS**

2.1 ACCEPTABLE MANUFACTURERS

A. Products are acceptable to use as intended for demolition work.
B. Refer to Division 1 for substitution, deviation and/or submittal procedures

2.2 MATERIALS

A. As necessary by **Contractor** to complete their work and used for the purpose of demolition, etc. as herein specified and additionally as indicated in contract documents.

2.3 COORDINATION

A. Refer to Division 1 for project coordination requirements.

2.4 OTHER MATERIALS

A. Provide other materials, not specifically described but required for complete and proper demolition activities, as selected by the **General Contractor** subject to the approval of the **Architect** and **Owner**.

PART 3 - **EXECUTION**

3.1 INSPECTION / EXAMINATION

A. Verification of Conditions:

1. Examine areas and conditions under which demolition work is to be performed.
2. Identify conditions detrimental to proper or timely completion of demolition work and coordinate with **General Contractor** to rectify.

B. Hazardous materials:

1. Any known or presumed hazardous material discovered shall be brought to the **Owner's** attention immediately.

3.2 COORDINATION

A. **General Contractor** shall coordinate demolition work as herein specified, in accordance with drawings and as required to complete scope of work with all related trades.
B. Protect all existing installations from damage.
C. Coordinate scope of work with, but not limited to; civil documents and landscape documents.
D. Take measures to prevent damage to existing items indicated to remain during the course of work under this specification.
E. All dimensions given to existing structure are approximate. Verify by field measurements the dimensions of the existing structure. Where actual conditions deviate from details shown on the drawings, notify the Structural Engineer for instructions before proceeding with work.

3.3 PREPARATION

A. Prepare work, substrates, etc. in accordance with required demolition practices.

3.4 DEMOLITION, DISPOSAL, REMOVAL, STORAGE, PROTECTION AND RECORD DRAWINGS

A. General:
1. Perform work in accordance with accepted demolition practices, as herein specified and in compliance with contract documents.
2. Pay all disposal fees
3. Coordinate all recycling procedures and documentation
4. Coordinate and get approval for demolition of all existing utilities with **Owner** and appropriate utility company/governmental jurisdiction.
5. Codes, regulations, agencies and jurisdictions:

a. Obtain all permits
b. Demolition work shall comply with;

1) Local ordinances having jurisdiction.
2) Appropriate utility company/governmental jurisdiction.
3) Safety Codes of State of California.
4) Rules and regulations of Industrial Accident Commission of State of California.

6. Perform demolition work in such manner as to prevent damage to existing facilities to remain or to be salvaged, and to prevent injury to students, public and workmen engaged on site under this or other contracts.
    a. Roofs and walls, or other building elements, shall be demolished in such manner that materials or units thereof shall fall within foundation lines of building being removed.
    b. Demolition debris shall not be allowed to accumulate on site.
    c. Hazardous work shall not be left standing or hanging overnight or weekends, but shall be knocked or pulled down at end of each day to avoid damage or injury to persons or existing facilities due to toppling or falling of such hazardous elements.
7. Wherever cutting and removal of portions of existing work is indicated, such work shall be sawn in manner that will produce neat and straight lines, parallel to adjacent surfaces or plumb for vertical surfaces.
    a. Grind smooth resulting edges of concrete slabs or walks.
    b. Neatly remove existing finish materials back to clean straight line or nearest support patches or repairs.
    c. Execute cutting and demolition by methods which will prevent damage to other work, and which will provide proper surfaces to receive installation of repairs and new work.
8. Any conflicting items not specifically shown (such as underground pipes, conduits, ect.) shall be brought to the attention of the Structural Engineer prior to further demolition.

B. Demolition:
1. General:
    a. Demolished items are to become the property of the **General Contractor** and removed from premises at **Contractor's** expense (typical, U.N.O.).
2. Remove and dispose of all items indicated in documents, including but not limited to;
    a. Concrete:
        1) Flatwork
        2) Curbs and gutters
        3) Vehicular paving
        4) Foundations – Refer to Section 02 41 19 – Selective Building Demolition
        5) Footings – Refer to Section 02 41 19 – Selective Building Demolition
    b. Electrical:
        1) Wiring
        2) Conduit
        3) Light fixtures
    c. Utilities
        1) Piping
        2) Abandoned piping
    d. Vegetation
        1) Trees
        2) Shrubs

3) Ground Cover
4) Lawn
5) Etc.

e. Miscellaneous

1) [fill in]
2) [fill in]
3) Signage
4) Items indicated in documents
5) Any other items required to facilitate new construction
6) Existing Pavement Marking:
7) Remove rubber deposits, existing markings and other coatings adhering to pavement with scrapers, wire brushing, sandblasting, approved chemicals or mechanical abrasion.

a) Where oil or grease exist, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application.

i. After cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through new paint.
ii. Paint new markings and striping in accordance with and under Section 32 17 23 - Pavement Markings.

C. Removal and Disposal

1. All materials resulting from demolition work, except those items specifically listed or shown to be retained by **Owner** or reinstalled, shall become property of **General Contractor** and shall be removed from premises.
2. HAUL ROUTES:

a. Establish haul routes in advance and post flagmen to assure safety of visitors, public and workers.
b. Keep streets and parking areas free of mud, rubbish, debris, etc.

1) **General Contractor** will assume responsibility for any damage resulting from hauling operations and hold **Owner** free and clear of any liability in connection therewith.

3. Appropriate utility company/governmental jurisdiction.

a. Coordinate with utility companies for and removed items that might be the property of said utility company.

D. Removal and Storage for **Owner** use:

1. Items to be retained for **Owner** shall be safely stored until said time the **Owner** requires delivery of items.

E. Removal and Storage for future Installation:

1. Items to be retained for **Owner** shall be safely stored until said time the **Owner** requires the items be installed.

F. As-Built Drawings:

1. **General Contractor** shall carefully document, photograph and provide hard copy of As-Built Drawings and Specifications of all removed items, capped off utilities and terminated utilities, conduits, etc. for as-built conditions after demolition is complete.
2. Keep record drawings in accordance with Section 01 78 00 – Closeout Submittals.

G. Protection and Maintenance of Existing Vegetation:

1. Prior to any construction or grading activities, contractor shall install vegetation & tree protection fencing, which will consist of four-foot tall plastic mesh fencing installed on six-foot poles spaced a maximum of 20 feet apart.

   a. The poles shall be installed with two feet of length below ground and four feet above ground.

2. The fencing shall encompass an area 150% of the drip line of the tree or as appropriate where curbs, walks or drive ways are installed within drip lines.

   a. In those cases, install fencing no more than 18" off back of curb or walk, and in no cases shall be less than 85% of the drip line of the tree being protected as approved by Landscape Architect.
   b. Tree protection fencing shall be installed and inspected by staff from the **Owner** prior to issuance of a permit.

3. Watering of Existing Trees

   a. Irrigation shall be applied to all existing vegetation & trees as required to maintain good health.

      1) **General Contractor** will be responsible for the health of the vegetation & trees and all materials and facilities to provide adequate water. **General Contractor** shall contact the **Owner** to determine a watering schedule and any specific care required.
      2) **General Contractor** will be liable for the replacement of like vegetation & trees in the event of death due to neglect or lack of protection by the **General Contractor**. In the event that any of the vegetation and trees begin to suffer, contact the Landscape Architect and **Owner** immediately.

3.5 FIELD QUALITY CONTROL

A. Product manufacturer shall provide field service support as requested by the Installer/Applicator

1. **General Contractor** and the product manufacturer shall make periodic on-site inspections to ensure that the materials are being installed in strict accordance with manufacturer's specifications.
2. The Applicator shall be responsible for the proper application of the materials.

B. The Applicator shall certify in writing the quality of work performed relative to the substrate system, details, installation procedures and workmanship is in accordance with project specifications and manufacturer's instructions.
C. Protection and maintenance of Existing Vegetation.

3.6 PROTECTION AND CLEAN UP

A. Refer to Division 1 for protection and cleaning requirements.

B. Subcontractor will keep the work areas in a clean and safe condition so their rubbish, waste, and debris do not interfere with the work of others and are removed from project.
C. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.
D. Perform work in accordance with manufacturer's recommendations, as herein specified and in accordance with drawings.
E. In the event of damage, immediately make all repairs and replacements necessary to the approval of the **Architect** and at no cost to the **Owner**.
F. After completion of work in this section, remove all erection equipment and implements of service, and debris.
    1. Leave entire area in a neat, clean, acceptable condition.
G. Provide Guarantee/Warranties and Bonds as required in this specification section and as listed in Division 1 closeout submittal procedures.
H. Provide record drawings in accordance with Division 1 closeout submittal procedures.
I. Close out, on-site inspection will be at the discretion of the **Architect** after he receives the **General Contractor's** NOTICE of "Certificate of Substantial Completion".

END OF SECTION 02 41 13

SECTION 02 41 19 - SELECTIVE BUILDING DEMOLITION AND PROTECTION

PART 1 - **GENERAL**

1.1 WORK INCLUDED THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.
B. Coordinate the work of this Section with related trades.
C. Verify applicable extents of work and dimensions at the jobsite.
D. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:

1. General:

a. Pay all disposal fees
b. Coordinate all recycling procedures and provide appropriate documentation
c. Obtain all permits
d. Coordinate and get approval for demolition of all existing utilities with Owner and appropriate utility company/governing jurisdiction.

2. Scope:

a. Including, but not limited to;

1) Demolition.
2) Concrete and metal deck saw cutting
3) Removal and Disposal.
4) Removal and Storage for Owner use.
5) Removal and Storage for Future Installation.
6) Recycling - Construction Waste Management and Recycling.
7) Waste - Construction Waste Management and Recycling.
8) Capping of piping as indicated in drawings.
9) Patching of concrete and reinforcing
10) Testing - Pressure testing of all capped piping.
11) Protection of materials and surfaces to remain after demolition is complete
12) Cleaning

a) Includes, but is not limited to;

i. Cleaning of interior face of glazing at Elevator and elevator enclosure
ii. Cleaning of interior and exterior sides of glazing at Elevator enclosure

13) As-Built drawings derived from Record Drawings keep at project during demolition and construction.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.

B. Title 24, California Code of Regulations, California Building Standards Commission
C. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission
D. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.
E. Title 24, Chapter 11 – California Green Building Standards Code

1. Non-residential new construction

a. All occupancy types

F. Leadership in Energy and Environmental Design (LEED), www.usgbc.org/LEED (United States Green Building Council (USGBC)

1. Refer to Division 1 for version of LEED Rating System and Reference Guide applicable to project.

G. Collaborative for High Performance Schools (CHPS), www.chps.net
H. American National Standards Institute (ANSI), www.ansi.org
I. American Society of Safety Engineers, www.asse.org
J. American Society For Testing and Materials (ASTM), www.astm.org
K. National Demolition Association, www.demolitionassociation.com
L. Occupational Safety and Health Administration (OSHA), United States Department of Labor, www.osha.gov

1. OSHA – Regulations Standards – 29 (CFR) as approved by State of California
2. OSHA – Regulations Standards – 29 (CFR), Section 1926 Occupational Safety and Health Standards for Construction as approved by State of California

M. Jurisdiction having authority (JHA)

1. Within project site property lines: Contra Costa County
2. Street and frontage outside project site property lines: City of Concord

1.3 PERFORMANCE, TESTING AND INSPECTION

A. **General**:

1. Comply with manufacturer's standards.
2. Comply with Building Code.

B. **Sustainability**:

1. Refer to Division 1 sustainability requirements.
2. Refer to product criteria identified herein.
3. Refer to Division 1 for construction waste management and disposal/recycling requirements

C. **Construction Testing**:

Item	Name of Test	Performance Results	Testing Std.
Capped piping – natural gas to remain capped	Pressure test	After capping piping, subject pipe to pressure testing and meet minimum standards.	Confirm requirements with gas company and jurisdiction having authority.

Capped plumbing – domestic water to remain capped	Water pressure test for all hot and cold water lines.	After capping piping, subject pipe to water pressure from local source and leave on for 24 hours to ensure there are not any leaks at each capped pipe location. Refit all leaking conditions and retest.	None
Capped plumbing – fire service water to remain capped	Water pressure test	After capping piping, subject pipe to pressure testing and meet minimum standards.	Fire department having jurisdiction.
Capped piping - sewer lines to remain capped	Cap	After capping sewer piping; Plug pipe discharge directly outside building at clean out or directly inside the building at closest location to exterior. Install cap at farthest location upstream from capped pipes and install cap to fit a water line to supply water pressure from local source and leave on for 24 hours to ensure there are not any leaks at each capped pipe location. Refit all leaking conditions and retest.	None
Capped line voltage and low voltage conduits to remain capped	Leak testing	Fit end of conduit with threaded type cap in material to match that of conduit.	None

1.4 SUBMITTALS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.
B. Submit O&M (Operation and Maintenance) manuals in accordance with Division 1 requirements and as herein specified.
C. Refer to Division 1 for sustainability requirements.
D. Submit a written list of all items to be as indicted below and organize in a spread sheet;

1. Demolition items/material
2. Removed and disposed of items/materials
3. Removed and stored items by contractor and supplied at later date to **Owner**
4. Removed and stored items to be installed at later date by contractor as directed by **Owner**

5. Acknowledgment of "As-Demolished" scope for As-Built Record Drawings to include markup of drawings and pdf files named specific to each drawing sheet for all final record keeping and included in construction as-built documents.
    a. This shall be included in as-built record drawings.
6. Protection and maintenance plan for existing vegetation.
7. Schedule of items to be tested

E. Submit shop drawings indicating the location for concrete saw cutting with extents indicated.

1.5 QUALITY ASSURANCE

A. Refer to Division 1 for quality control requirements.
B. **Contractor** shall have been in business for **five (5)** years providing demolition services for projects of similar size and complexity.
C. **Contracto**r shall be a member of the National Demolition Association in good standing.
D. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product delivery, storage and handling requirements.

1.7 JOB CONDITIONS

A. Field-verify that all work by others is installed correctly prior to proceeding with demolition work under this specification and drawings.
B. Retain and have all applicable permits obtained prior to commencing with work.
C. Hazardous materials:
    1. Any known or presumed hazardous material discovered shall be brought to the **Owner's** attention immediately.
    2. Any mold or mildew discovered shall be brought to the **Owner's** attention immediately.

1.8 PROTECTION

A. Protect finish surfaces at all times from surfaces and material adjacent to them.
B. Finish work defaced with other materials on surface shall be replaced.
C. Protect work under this section from damage by other trades.
D. Protect all materials to remain in place after demolition is complete, including, but not limited to as herein listed and indicated in drawings.

1.9 GUARANTEE / WARRANTY

A. Refer to Division 1 for closeout submittal procedures.

1.10 RELATED WORK / SECTIONS

A. The following is related work including, but not limited to the following;

1. New Site Work
2. Coordination with Utility Companies
3. Coordination with Agencies
4. Acquisition of permits
5. Coordination with Owner
6. Surveying

B. Related Sections include, but are not limited to the following:

1. Division 1
2. Section 01 73 29 – Cutting and Patching
3. Section 01 33 00 – Submittal Procedures
4. Section 01 25 00 – Substitution and Standard Deviation Procedures
5. Section 01 50 00 – Temporary Facilities and Controls
6. Section 01 74 19 – Construction Waste Management and Disposal/Recycling
7. Section 01 78 00 – Closeout Submittals
8. Section 01 74 00 – Protection and Cleaning
9. Section 02 41 13 – Selective Site Demolition

1.11 OPERATION AND MAINTENANCE DATA

A. Refer to Division 1 for closeout submittal procedures.

1.12 SEQUENCING AND SCHEDULING

A. General:

1. Schedule work and sequence with **General Contractor**.
2. Schedule required investigation, shutoff of utilities, etc., prior to commencing with demolition, etc.
3. Coordinate with any new work to follow or occur simultaneously.
4. Coordinate work with **Owner's** representative including Existing Utilities:

B. Coordinate work of disconnecting existing capped utilities which will be connected to as part of new construction including, but not limited to;

1. Gas
2. Domestic water
3. Fire service water
4. Sewer
5. Electrical
6. Cable TV
7. Low voltage cabling,
8. Etc,

C. Coordinate work of testing existing capped utilities which will remain capped after new construction including, but not limited to;

1. Gas
2. Domestic water
3. Fire service water
4. Sewer

5. Electrical
6. Cable TV
7. Low voltage cabling,
8. Etc.

D. Coordinate removal and disposal of the following including, but not limited to;

1. Light fixtures and required wiring for new construction

E. Coordinate reinstalling the following from demolition including, but not limited to;

1. Light fixtures

F. Recycling

1. Coordinate items and/or materials which will be recycled.

a. Refer to Division 1 for product delivery, storage and handling requirements
b. Refer to drawings.

G. Notices:

1. **General Contractor** shall make the following notices to **Owner** in addition to Specifications and Division 1 including, but not limited to;

a. 72 hours prior to interruption of utilities.
b. 48 hours prior to demolishing and/or removing items/materials not specifically noted in drawings and/.or specifications.

PART 2 - **PRODUCTS**

2.1 ACCEPTABLE MANUFACTURERS

A. Products are acceptable to use as intended for demolition work.
B. Refer to Division 1 for substitution, deviation and/or submittal procedures.

2.2 MATERIALS

A. As necessary by contractor to complete their work and used for the purpose of demolition, etc. as herein specified and additionally as indicated in contract documents.

2.3 OTHER MATERIALS

A. Provide other materials, not specifically described but required for complete and proper demolition activities, as selected by the **General Contractor** subject to the approval of the **Architect** and **Owner**.

PART 3 - **EXECUTION**

3.1 INSPECTION / EXAMINATION

A. Verification of Conditions:

1. Examine areas and conditions under which demolition work is to be performed.

2. Identify conditions detrimental to proper or timely completion of demolition work and coordinate with **General Contractor** to rectify.

B. Hazardous materials:

1. Any known or presumed hazardous material discovered shall be brought to the **Owner's** attention immediately.

3.2 COORDINATION

A. Refer to Division 1 for project coordination requirements.
B. **General Contractor** shall coordinate demolition work as herein specified, in accordance with drawings and as required to complete scope of work with all related trades.
C. Protect all existing installations from damage.
D. Coordinate scope of work with, but not limited to; civil documents and landscape documents.
E. Take measures to prevent damage to existing items indicated to remain during the course of work under this specification.

3.3 PREPARATION

A. Prepare work, substrates, etc. in accordance with required demolition practices.

3.4 INSTALLATION - DEMOLITION

A. General:

1. Perform work in accordance with accepted demolition and protection practices, as herein specified and in compliance with contract documents.
2. Pay all disposal fees
3. Coordinate all recycling procedures and documentation
4. Coordinate and get approval for demolition of all existing utilities with Owner and appropriate utility company/governmental jurisdictions having authority.
5. Codes, regulations, agencies and jurisdictions:

a. Obtain all permits
b. Demolition work shall comply with;

1) Local ordinances having jurisdiction.
2) Appropriate utility company/governmental jurisdiction.
3) Safety Codes of State of California.
4) Rules and regulations of Industrial Accident Commission of State of California.

6. Perform demolition and protection work in such manner as to prevent damage to existing facilities to remain or to be salvaged, and to prevent injury to public and workmen engaged on site under this or other contracts.

a. Roofs and walls, or other building elements, shall be demolished in such manner that materials or units thereof shall fall within foundation lines of building being removed.
b. Demolition debris shall not be allowed to accumulate on site.

c. Hazardous work shall not be left standing or hanging overnight or weekends, but shall be knocked or pulled down at end of each day to avoid damage or injury to persons or existing facilities due to toppling or falling of such hazardous elements.

7. Wherever cutting and removal of portions of existing work is indicated, such work shall be sawn in manner that will produce neat and straight lines, parallel to adjacent surfaces or plumb for vertical surfaces.

   a. Grind smooth resulting edges of concrete slabs or walks.
   b. Neatly remove existing finish materials back to clean straight line or nearest support patches or repairs.
   c. Execute cutting and demolition by methods which will prevent damage to other work, and which will provide proper surfaces to receive installation of repairs and new work.

B. Demolition:

1. General:

   a. Demolished items are to become the property of the **General Contractor** and removed from premises at **Contractor's** expense, typical, U.N.O.

2. Remove and dispose of all items indicated in documents.
3. Remove and dispose of all items herein indicated including, but not limited to;

   a. Concrete:

      1) Floor slabs and reinforcing
      2) Foundations and reinforcing
      3) Footings and reinforcing
      4) Portions of floor slabs for access to piping, etc.

   b. Electrical:

      1) Wiring
      2) Conduit
      3) Light fixtures
      4) Switching and power devices
      5) J-boxes and alike items

   c. Plumbing:

      1) Piping
      2) Plumbing fixtures

   d. Framing:

      1) Wall framing
      2) Ceiling and soffit framing

   e. Sheathing:

      1) Wall sheathing
      2) Ceiling sheathing

   f. Finishes:

1) Flooring and adhesive to bare substrate
2) Tile and adhesive and/or thinset to bare substrate

g. Miscellaneous

1) Vacuum Piping if not fully removed from previous work
2) Accessories
3) Stair Hand railings for new and remedial work, refer to drawings
4) Items indicated in documents
5) Insulation
6) Any other items required to facilitate new construction

C. Removal and Disposal

1. All materials resulting from demolition work, except those items specifically listed or shown to be retained by **Owner** or reinstalled, shall become property of **General Contractor** and shall be removed from premises.
2. HAUL ROUTES:

a. Establish haul routes in advance and post flagmen to assure safety of visitors, public and workers.
b. Keep streets and parking areas free of mud, rubbish, debris, etc.

1) **General Contractor** will assume responsibility for any damage resulting from hauling operations and hold **Owner** free and clear of any liability in connection therewith.

3. Appropriate utility company/governmental jurisdiction.

a. Coordinate with utility companies for and removed items that might be the property of said utility company.

D. Removal and Storage for Owner use:

1. Items to be retained for **Owner** shall be safely stored until said time the **Owner** requires delivery of items.

E. Removal and Storage for future Installation for Owner:

1. Items to be retained for Owner shall be safely stored until said time the **Owner** requires the items be installed.
2. Includes items as listed in drawings and also includes, but is not limited to;

a. Exterior tile wall veneer.

F. Removal and Storage for future Installation by Contractor:

1. Items to be retained and safely stored until said time it is deemed appropriate to be installed.
2. Includes items as listed in drawings and also includes, but is not limited to;

a. Exterior tile wall veneer.

G. Removal and Storage for future modification and/or replacement:

1. Items to be retained shall be safely stored until said time Contractor requires the items be modified replaced for installation.

H. Recycling - Construction Waste Management and Recycling:

1. Refer to Division 1 for product delivery, storage and handling requirements
2. Refer to drawings.

I. Waste - Construction Waste Management and Recycling:

1. Refer to Division 1 for product delivery, storage and handling requirements
2. Refer to drawings.

J. Capping of piping:

1. Refer to drawings
2. All capping shall be done with a threaded type assembly or approved adhesive method for pipe material.

K. Testing:

1. Pressure testing of all capped piping as herein indicted and/or noted in drawings.
2. Pressure testing of existing capped utilities.
3. In compliance with agency and/or utility having jurisdiction.

L. Protection:

1. Protect materials and surfaces to remain after demolition is complete.
    a. Repair to new condition all damaged materials.
2. Protect the following existing items/conditions and provide remedial repair as indicated in drawings and including, but not limited to;
    a. Batt insulation:
        1) Keep free of contaminants such as dust, dirt and moisture/water.
            a) If contaminated and/or damaged during demolition, then material shall be replaced in same type and thickness at a minimum of original insulation.
            b) Any insulation found to be contaminated prior to demolition work shall be immediately brought to Owner's attention, otherwise contractor shall replace at no cost to Owner.
    b. Fire Proofing:
        1) Keep free of contaminants such as dust, dirt and moisture/water.
            a) If contaminated and/or damaged during demolition, then material shall be replaced in same type and thickness at a minimum of original insulation.
            b) Any fire proofing found to be damaged and/or contaminated prior to demolition work shall be immediately brought to Owner's attention, otherwise contractor shall replace at no cost to Owner.
    c. Exterior wall finishes where new infill wall framing, sheathing and finishing occurs.
    d. Exterior wall framing where new infill framing for exterior walls will occur.
    e. Exterior awnings

f. Existing break shape metal flashing/infill at existing exterior windows when existing signage is removed.
g. EIFS exterior wall skin system when existing signage is removed.

M. Cleaning:

1. General:

a. Clean all remaining surfaces and materials after demolition is complete in accordance with Refer to Division 1 for protection and cleaning requirements.

N. Cutting of concrete and metal deck:

1. Concrete slab on grade:

a. Refer to drawings and details.
b. Saw cut floor to remove extent of slab, but not damage existing vapor barrier.

1) Replace /patch damaged vapor Barrier.

c. Sawn cut extent/widths shall be done as indicated and at a minimum to provide room to allow room to drill and install dowels into existing slab prior to install of new concrete.
d. Sawn cut extents of concrete/masonry shall be done to an extent necessary to remove piping, conduit, etc.
e. If water or moisture is discovered at sub base notify Architect immediately.
f. Schedule:

1) Demolition:
2) Schedule

a) Remove concrete only.

i. As herein specified
ii. Refer to drawings.

2. Concrete slab on metal decking:

a. Refer to drawings and details.
b. Saw cut concrete to remove extent of slab, but not damage existing metal decking.
c. Sawn cut extent/widths shall be done as indicated and at a minimum to provide room to allow room to drill and install dowels into existing slab prior to install of new concrete.
d. Sawn cut extents of concrete/masonry shall be done to an extent necessary to remove piping, conduit, etc.
e. Schedule:

1) Demolition:
2) Schedule:

a) Remove concrete only.

i. As herein specified
ii. Refer to drawings

3. Sequencing and Scheduling:
    a. Schedule work and sequence with General Contractor
    b. Schedule required testing, prior to the installation of materials, components, etc.
    c. Cutting of all exposed architectural finishes shall be performed under the supervision of the General Contractor, but executed by the affected finish trade subcontractor.
        1) Cutting and patching of existing architectural finishes shall be minimized to the extent possible through careful routing and placement of new work. The Architect shall have the authority to reject substandard or unacceptable patching.
4. Preparation:
    a. Provide shoring, bracing and support as required to maintain structural integrity of work.
    b. Provide protection for other portions of work.
    c. Provide protection from elements.
    d. Each Subcontractor shall make the field measurements necessary for their work and be responsible for its accuracy.
    e. Should any structural difficulties prevent a Subcontractor or tradesman from installing their material properly, the General Contractor shall be promptly notified so that the Architect may be consulted how best to resolve the difficulty.
    f. Cutting into the walls and floors, if necessary, shall be carefully and neatly performed and then be repaired in an approved manner.
    g. The Architect and Structural Engineer shall be consulted in all cases where cutting into a structural portion of the building is either desirable or necessary so that satisfactory reinforcement or other work may be provided/installed.

O. Waste Management:
1. Refer to Division 1 for construction waste management and disposal/recycling requirements.

P. As-Built drawings:
1. General:
    a. Carefully document, photograph and provide hard copy of As-Built Drawings and Specifications of all removed items, capped off utilities and terminated utilities, conduits, etc. for as-built conditions after demolition is complete.
        1) Include As-Demolished items also
2. Submit as-built drawings for demolition work including , but not limited to;
    a. As indicated in drawings
    b. Capped piping.
    c. Termination locations for all conduit, piping, etc.
    d. Items discovered which were not noted and/or indicated in demolition drawings.
3. Refer to Division 1 for closeout submittal procedures.

3.5 FIELD QUALITY CONTROL

A. Product manufacturer shall provide field service support as requested by the Installer/Applicator

1. General Contractor and the product manufacturer shall make periodic on-site inspections to ensure that the materials are being installed in strict accordance with manufacturer's specifications.
2. The Applicator shall be responsible for the proper application of the materials.

B. The Applicator shall certify in writing the quality of work performed relative to the substrate system, details, installation procedures and workmanship is in accordance with project specifications and manufacturer's instructions.

3.6 PROTECTION AND CLEAN UP

A. Refer to Division 1 for protection and cleaning requirements.
B. Subcontractor will keep the work areas in a clean and safe condition so their rubbish, waste, and debris do not interfere with the work of others and are removed from project.
C. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.
D. Perform work in accordance with manufacturer's recommendations, as herein specified and in accordance with drawings.
E. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no cost to the Owner.
F. After completion of work in this section, remove all erection equipment and implements of service, and debris.

1. Leave entire area in a neat, clean, acceptable condition.

G. Provide Guarantee/Warranties and Bonds as required in this specification section and as listed in Division 1 closeout submittal procedures.
H. Provide record drawings in accordance with Division 1 closeout submittal procedures.
I. Close out, on-site inspection will be at the discretion of the **Architect** after he receives the **General Contractor's** NOTICE of "Certificate of Substantial Completion".

END OF SECTION 02 41 19

SECTION 09 29 00 – GYPSUM BOARD AND SHEATHING SUBSTRATES
PART 1 - **GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.
B. Coordinate the work of this Section with related trades.
C. Verify applicable dimensions at the job site.
D. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:
   1. Interior: Gypsum wallboard and sheathing
   2. Horizontal metal Shaft walls – when not included as part of Section 05 41 00
   3. Exterior gypsum sheathing
   4. Joint treatment
   5. Surface treatment – Interior:
   6. Surface treatment and fastener treatment – Exterior:
   7. Sealants and Backer rod
   8. Drywall Primer / Sealer
   9. Related accessories
   10. Reveals

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.
B. (CCR) Title 24, (CBSC) Chapter 11 – California Green Building Standards Code
   1. Non-residential new construction
      a. All occupancy types
C. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.
D. Leadership in Energy and Environmental Design (LEED), www.usgbc.org/LEED (United States Green Building Council (USGBC)
   1. Refer to Division 1 for version of LEED Rating System and Reference Guide applicable to project.
E. Collaborative for High Performance Schools (CHPS), www.chps.net
F. American Society For Testing and Materials (ASTM) www.astm.org
   1. ASTM C 36 Specification for Gypsum Wallboard
   2. ASTM C 79 Specification for Gypsum Sheathing - Paper faced (Glass mat faced, see ASTM C1177)
   3. ASTM C 473 Standard Test Methods for Physical Testing of Gypsum Panel Products

4. ASTM C 475 Standard Spec for Joint Compound & Joint Tape for Finishing Gypsum Board
5. ASTM C 518 Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
6. ASTM C 840 Standard Spec for Application and Finishing of Gypsum Board
   a. Comply with applicable requirements including recommendations of manufacturer, and comply with more restringent specifications as herein specified.
7. ASTM C 931 Specification for Exterior Gypsum Soffit Board
8. ASTM C 1177 Standard Spec for Glass Mat Gypsum Substrate for Use as Sheathing
9. ASTM C 1178 Standard Spec for Glass Mat Water-Resistant Gypsum Backing Panel
10. ASTM C1396 Specification for Gypsum Board
11. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
12. ASTM E 72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
13. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials

G. Gypsum Association (GA) www.gypsum.org
1. GA-214 Recommended Levels of Gypsum Board Finish
2. GA-216 Specifications for the application and Finishing of Gypsum Board
3. GA-220 Gypsum Board Winter Related Installation Recommendations
4. GA-221 Repair of Gypsum Board Joint Ridging
5. GA-223 Gypsum Panel Products Types, Uses, Sizes, And Standards
6. GA-224 Installation of Predecorated Gypsum Board
7. GA-225 Repair of Fire-Rated Gypsum Board Systems
8. GA-226 Application of Gypsum Board To Form Curved Surfaces
9. GA-229 Shear Values for Screw Application OF Gypsum Board On Walls
10. GA-231 Assessing Water Damage to Gypsum Board
11. GA-232 Painting New Gypsum Board
12. GA-234 Control Joints For Fire-Resistant Rated Systems
13. GA-235 Gypsum Board Typical Mechanical and Physical Properties
14. GA-238 Guidelines for Prevention Of Mold Growth On Gypsum Board
15. GA 253 Application Of Gypsum Sheathing
16. GA-254 Fire-Resistant Gypsum Sheathing
17. GA-276 Gypsum Board Roof Underlayment Systems
18. GA-290 Gypsum Board Area Separation Walls
19. GA-530 Design Data - Gypsum Board
20. GA-600 Fire resistant Design Manual
21. GA-605 Proprietary Gypsum Panels Products For Use In UL Classified Systems
22. GA-610 Fire resistance Provided By Gypsum Board Membrane Protection
23. GA-618 Building and Inspecting Smoke Barriers
24. GA-620 Gypsum Area Separation Firewalls
25. GA-801 Handling and Storage of Gypsum Panel Products

H. International Code Council (ICC), www.iccsafe.org

I. United States Gypsum (USG) www.usg.com
1. SA927 Application And Finishing Of Gypsum Panel Products
2. SA923 Drywall/Steel Framed Systems

3. SA924 Drywall/Wood Framed Systems
4. SA925 USG Area Separation Fire Wall/Party Wall Systems
5. SA926 USG Cavity Shaft Wall Systems
6. SA933 "Sheetrock" Brand Textures and Finish Products

J. Federation of Societies for Coating Technology (FSCT) www.coatingssocietiesinternational.org
1. Coatings Encyclopedic Dictionary

K. Painting and Decorating Contractors of America (PDCA) www.pdca.org
1. Standard P1-92 Touch Up Painting and Damage Repair
2. Standard P4-94 Responsibility for Inspection and Acceptance of Surface Prior to Painting and Decorating
3. Standard P5-94 Benchmark Sample Procedures for Paint and Other Coating System
4. Glossary of Terms, Painting and Decorating Contractors of America, Fairfax, VA.

L. Drywall Finishing Council Incorporated (DWFC) www.dwfc.org
1. Recommended Specification for Preparation of Gypsum Board Surfaces Prior to Texture Application.
2. Interior Job Condition Specifications for the Application of Drywall Joint Compounds, Drywall Textures, and Paint/Coatings.

M. National Evaluation Report (NER)
1. NER 458 Code Compliance for Exterior Ceiling Sheathing (Soffit sheathing)
2. NER 258 USG Drywall Shaft Partition Systems

1.3 PERFORMANCE

A. **General:**
1. Comply with manufacturer's standards.
2. Comply with Building Code.
3. Job site inspections shall be done as herein specified and as listed in drawings.
4. Refer to Division 1 for additional requirements for DSA projects.

B. **Standards:**

Item	**Name of Test**	**Performance**	**Testing Std.**
Gypsum Board / Sheathing & Sound Board	Flatness Tolerance	1/8" offsets between planes of board faces and 1/8" in 10 feet or plumb, level, warp and bow. Tolerance variation shall not be collective.	Gypsum Association

Gypsum Board / Sheathing	Recommended Levels of Gypsum Board Finish	Comply or as herein specified, whichever is more restrictive	GA-214-07 ANSI A98-7.1
	Application and Finishing of Gypsum Panel Products		GA-216-07
	Gypsum Board Winter Related Installation Recommendations		GA-220-06
	Repair of Gypsum Board Joint Ridging		GA-221-00
	Repairing Screw or nail Pops		GA-222-08
	Gypsum Panel Products Types, Uses, Sizes and Standards		GA-223-04
	Installation of Pre-decorated Gypsum Board		GA-224-08
	Repair of Fire-Rated Gypsum Board Systems		GA-225-08
	Application of Gypsum Board to Form Curved Surfaces		GA-226-08
	Shear Values for Screw Application of Gypsum Board on Walls		GA-229-08
	Assessing Water Damage to Gypsum Board		GA-231-06
	Painting New Gypsum Board		GA-232-04
	Control Joints for Fire-Resistance Rated Systems		GA-234-08
	Gypsum Board Typical Mechanical and Physical Properties		GA-235-05
	Joint Treatment Under Extreme Weather Conditions		GA-236-00
	Guidelines for Prevention of Mold Growth on Gypsum Board		GA-238-03
	Water-Resistant Gypsum Backing Board For Ceramic Tile in Wet Areas		GA-239-04
	Application of Gypsum Sheathing		GA-253-07
	Fire-Resistant Gypsum Sheathing		GA-254-07
	Gypsum Board Roof Underlayment Systems		GA-276-05
	Gypsum Board – Area Separation Walls		GA-290-02
	Fire Resistance Design Manual		GA-600-06
	Proprietary Gypsum Panel Products For Use in UL Classified Systems		GA-605-08
	Fire Resistance Provided by Gypsum Board Membrane Protection		GA-610-02
	Building and Inspecting Smoke Barriers		GA-618-04
	Handling and Storage of Gypsum Panel Products: A Guide for Distributors, Retailers, and Contractors		GA-801-07
Exterior Gypsum sheathing	Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber	10 minimum	ASTM D 3273
Exposed interior Gypsum Sheathing	Smooth Wall		

Smooth Wall / Level 5	Smooth Wall with Darby full surface float		
Horizontal shaft wall assembly – Proprietary Design	Rated assembly testing for; • 2 hour horizontal and two hour vertical at Duct shafts/duct protection • 1 &2 hour horizontal and vertical Corridor ceilings • 1 & 2 hour horizontal and vertical Stair shaft ceilings	Comply Use National Gypsum, Gold Bond gypsum	Warnock Hersey WHI 694-0300.1
Shaftwalls	Assembly	Comply	ICC NER-258
Refer to drawings and as herein specified			

C. **Sustainability:**
1. Refer to Division 1 sustainability requirements.
2. Refer to product criteria identified herein.

D. Definitions
1. Levels of gypsum board finish: (Typical)
   a. **Scope.** The required level of finish of gypsum board wall and the ceiling surfaces is described with typical applications and is listed as a minimum allowable standard. All proposed deviations from these herein specifications shall be in written form of a request and approved by the **Architect** prior to installation.
   b. **Terminology.** The following definitions are applicable to this document.
      1. Accessories: Metal or plastic beads, trim or molding used to protect or conceal corners, edges or abutments of the gypsum board construction.
      2. Back Roll: Rolling a spray painted surface with a paint roller immediately following spray application.
      3. Coat: Paint, Varnish, or lacquer applied to a surface in a single application (one Layer) to form a properly distributed film when dry –ASTM
         Note: Shall be applied as installed per Painting specification.
      4. Critical (Severe) Lighting: A condition whereby interior surfaces are flooded by natural or artificial lighting at an oblique angle; such as lighting from large expanses of windows, glass curtain walls, skylights, or surface mounted light fixtures. Strong side lighting from windows or surface-mounted light fixtures. - ASTM
         Note: See "comments" section of this document.
      5. Drywall Primer: A paint material specifically formulated to fill the pores and minimize suction differences between gypsum board surfaces paper and the compound used on finished joints, angles, fastener heads, accessories, and over skim coating.
         Note: this shall be applied as part of gypsum board specification

6. Gloss: A subjective term used to describe the relative amount and nature of mirror like (specular) reflection.
   Note: FSCT
7. Joint Photographing (Telegraphing): The shadowing of the finished joint areas through the surface decoration and/or Smooth Wall
   Note: Syn telegraphing. – GA-214-96
8. Paint: Any pigmented liquid, liquefiable, or mastic composition designed for application to a substrate as a thin layer which is converted to an opaque solid film after application. Used for protection, decoration or identification or to serve some functional purpose, such as filling or concealing surface irregularities.
   Note: FSCT, shall be applied as part of painting specification
9. Properly Painted Surfaces: A surfaces that is uniform in appearance, color and sheen. It is one that is free of foreign material, lumps skins, runs, sags, holidays, misses, strike-through, or insufficient coverage. It is a surface, which is free of drips, spatters, spills, or overspray, which were caused by the **General Contractor's** work force. Compliance to meeting the criteria of a "Properly painted surface" shall be determined when viewed without magnification at a distance of five feet or more under normal lighting conditions and form a normal viewing position.
   Note: A surface uniform in appearance, color and sheen may not be achieved with a coat of primer or a single coat of topcoat. Shall be applied as part of Painting specification. – PDCA
10. Prime/Sealer: A gypsum board prime/sealer manufactured by company explicitly for priming gypsum board and formulated to fill the pores and equalize the suction difference between gypsum board surface paper and the compound used on finished joints, angles, fastener heads, and accessories, and over skim coatings. See "comments" section of this document.
    Note: Primer shall be provided by Gypsum board mfgr. and installed by gypsum board finisher in addition to "primer and finish paint as installed under separate specification Section 09 90 00."
11. Skim Coat: A thin coat of herein listed joint compound installed over the entire surface of the gypsum board to fill imperfections in the joint work, smooth the paper texture, and provide a uniform surface for a Smooth Wall appearance. Compound will be installed with Steel Trowel or Knife blade.
    Note: Spray application is not allowed
12. Spotting: To cover fastener head with joint compound.
13. Texture: A decorative treatment of gypsum board surfaces.
14. Texturing: Regular or irregular patterns typically produced by applying a mixture of joint compound and water, or proprietary texture materials including latex base texture paint, to a gypsum board surface previously coated with primer/sealer.
    Note: Refer to Heading 2.05
15. Top Coat: The finish coat(s) of a coating system, formulated for appearance and or environmental resistance.

Note: shall be applied as part of painting specification – PDCA

16. Wall covering: Any type of paper, vinyl, fabric, or specialty material that is pasted onto a wall or ceiling in a wide array of colors, patterns, textures, and performance characteristics, such as washability and abrasion resistance.
    Note: shall be applied as part of wall covering specification - FSCT
17. Wall covering Primer: Coatings formulated to seal the porosity of new drywall, joint compounds, and most surfaces. Also formulated to promote adhesion and serviceability under wall covering products.
    Note: Shall be applied as part of wall covering specification.

1.4 SUBMITTALS AND MOCK-UPS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.
B. Submit O&M (Operation and Maintenance) manuals in accordance with Division 1 requirements and as herein specified.
C. Refer to Division 1 for sustainability requirements
D. Submit Manufacturer's data and shop drawings.
    1. Drywall products
    2. Joint tapes for Interior and Exterior applications
    3. Joint topping material
    4. Skim coat joint compound material – Smooth wall Level 5
    5. Fasteners
    6. Tools for product application
    7. Texturing products
E. Submit samples.
    1. Three (3) each 20" square portable mockups on gypsum board that include:
        a. Finish taping, mud and primer
        b. Butt joint treatment
        c. Edge treatment
        d. Specific required finishes
F. Site mock up, refer to "Field Samples / Mock Up" heading.

1.5 QUALITY ASSURANCE

A. Refer to Division 1 for quality control requirements.
B. Contractor / Installer / Fabricator shall have been in business for **five (5)** years providing/installing/finishing similar size projects and complexity.
C. Manufacturer shall have been in business for **five (5)** years providing/installing/finishing similar size projects and complexity.
D. Lead Times:

1. **General Contractor** shall coordinate with supplier to verify product lead times during bids and at award of contract, and account for such lead times in their costs and schedules.
2. **General Contractor** shall provide an itemized list of materials which might have or are confirmed to have a lead time problem and what the anticipated lead time is.
3. **General Contractor** shall certify in writing that all materials have acceptable lead times as they relate to availability for sub-contractor and **General Contractor** to meet construction schedule and sequence of construction.
4. Material with lead times in question or confirmed to be in conflict with meeting the schedule and sequence of construction must me documented at time of bid.

E. Stipulations:
1. At proprietary assemblies use specified and tested manufacturer and specific products, including but not limited to the gypsum board, fastening, etc.

F. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
1. Agenda for meeting shall include, but not be limited to; review of Smooth wall, taping for various wall coverings and texture of wall.
2. **General Contractor** shall request meeting 5 days in advance of construction.

G. Manufacturer's Representative: Make arrangements necessary to have a trained employee of the manufacturer on-site periodically during installation membrane waterproofing work to review installation procedures. **[Specifier, indicate what is being done/installed]**

1. Manufacturer's representative shall review and certify all phases of construction to verify the complete work meets specification requirements.
2. Written certification of all phases of construction shall be sent to the **Architect** by the manufacturer's representative.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product delivery, storage and handling requirements.
B. Comply with manufacturers recommendations

1.7 JOB CONDITIONS

A. Field-verify that all components, substrates, backing, etc. provided by others are installed correctly before proceeding with installation of products as herein specified.

B. Environmental:
1. Interior: Do not install gypsum board, joint compounds, skim coats and textures if building temperature is below 55ºF or if proper ventilation is not provided to eliminate excessive moisture from building.
   a. Temperature shall be maintained after installation.
2. Exterior: Do not install gypsum board, joint compounds, skim coats and textures if the exterior temperature is below 45ºF.

1.8 PROTECTION

A. Protect finish surfaces at all times from surfaces and material adjacent to them.
B. Finish work defaced with other materials on surface shall be replaced.
C. Protect work under this section from damage by other trades.

1.9 GUARANTEE / WARRANTY

A. Refer to Division 1 for closeout submittal procedures.
B. Furnish initial **one (1)** year written warranty signed by manufacturer and installer agreeing to repair and/or replace work which has failed as a result of defects in materials or workmanship.
   1. Upon notification of **Owner** within the warranty period, such defects shall be repaired and replaced at no cost to the **Owner**.
C. Furnish manufacturer's additional [Fill in years] (fill in number) year warranty agreeing to repair and/or replace work which has failed as a result of defects in materials or workmanship.
   1. Upon notification of **Owner** within the warranty period, such defects shall be repaired and replaced at no cost to the **Owner.**

1.10 RELATED WORK/SECTIONS

A. Related work includes, but is not limited to, the following:
   1. Wall Framing
   2. Electrical/Low Voltage Wiring & Devices
   3. Wall Finish for Mechanical Work
   4. Wall coverings
   5. Rated wall penetrations
   6. Acoustical wall assemblies and penetrations
B. Related Sections include, but are not limited to, the following**: [Specifier, include sections that require a specific finish behind them such as FRP panels]**
   1. Division 1
   2. Section 05 40 00 – Cold-Formed Metal Framing
   3. Section 05 50 00 – Miscellaneous Metal Fabrications
   4. Section 09 22 16 – Non-Structural Metal Framing
   5. Section 09 90 00 – Paints and Coatings

1.11 OPERATION AND MAINTENANCE DATA

A. Submit as part of project closeout:
   1. Complete instructions regarding maintenance of the materials, finishes, etc.
   2. Refer to Division 1 for closeout submittal procedures.

1.12 SEQUENCING AND SCHEDULING

A. Schedule work and sequence with **General Contractor**.
B. Schedule required testing, prior to the installation of materials, components, etc.

PART 2 – **PRODUCTS**

2.1 ACCEPTABLE MANUFACTURERS

A. Single source responsibility, specified items shall be from one manufacturer for each product type.
B. Acceptable manufacturers shall be one of the following and as herein listed and in Drawings:
   1. Gypsum sheathing (Interior):
      a. Typical and as indicated:
         1) Georgia Pacific (GP), www.gp.com
         2) U.S Gypsum (USG), www.usg.com
         3) National Gypsum, Gold Bond www.national-gypsum.com
      b. Where indicated:
         1) U.S Gypsum (USG), www.usg.com
      c. Alternates where allowed:
         1) National Gypsum, Gold Bond & GridMarx, www.national-gypsum.com
         2) Pabco Gypsum, www.pabcogypsum.com
   2. Gypsum sheathing (Exterior):
      a. Typical and as indicated:
         1) Georgia Pacific (GP), www.gp.com
         2) U.S Gypsum (USG), www.usg.com
         3) National Gypsum, Gold Bond www.national-gypsum.com
      b. Where indicated:
         1) National Gypsum, Gold Bond, www.national-gypsum.com
   3. Sound Deadening sheathing (Interior):
      a. Homasote – Typical www.homasote.com
   4. Joint treatment & finishing (Interior & Exterior)
      a. U.S Gypsum (USG), www.usg.com
      b. National Gypsum, Gold Bond www.national-gypsum.com
      c. Georgia Pacific (GP), www.gp.com
      d. Bead-Ex www.usg.com
      e. Hamilton www.hamiltonnw.com
   5. Accessories:
      a. U.S Gypsum (USG), www.usg.com
      b. National Gypsum, Gold Bond & GridMarx, www.national-gypsum.com
      c. Superior Metal Trim www.superiormetaltrim.com
      d. Flannery, Inc., 818 837-7585, www.flannerytrim.com
      e. Fry Reglet www.fryreglet.com
      f. MILGO/BUFKIN, www.milgo-bufkin.com
   6. Reveals/End Caps:

a. Flannery, Inc., 818 837-7585, www.flannerytrim.com
b. Superior Metal Trim www.superiormetaltrim.com
c. Fry Reglet www.fryreglet.com
d. MILGO/BUFKIN, www.milgo-bufkin.com
e. Liquid applied waterproof membrane – Laticrete, www.Laticrete.com

7. Sealants:
   a. Pecora, www.precora.com
   b. Refer also to Sealant Specification Section 07 92 00.
8. Reviewed Equivalent by **Architect**.
   a. Substitutions and deviations shall require **Architect's** approval and shall be given in letterform.
   b. Refer to Division 1 for substitution, deviation and/or submittal procedures.
   c. Proposed alternate products must be equal in terms of chemical composition, color, finish, configuration, performance standards, etc.

C. All products and materials indicated shall be installed according to current listed specification requirements and manufacturers specifications/recommendations.
D. Refer to drawings, details, and other related specification section whether listed or not.
E. Details shall set basic requirements for size and configuration of systems.

2.2 MATERIALS

A. General
   1. Conform to American National Standards Institute Specifications and Gypsum Association for Gypsum Wallboard finishes.
   2. Sheathing type as herein specified and in accordance with manufacturer's recommendations.
   3. Wall board shall be fire-rated typical, Type "X" typical, U.N.O. and comply with specified and detailed wall construction types.

B. Wallboard & Ceiling Board Sheathing
   1. **INTERIOR SCHEDULE:**
      a. General:
         1) Type X Core, Fire Code C and/or Type XXX regarding if application is a rated assembly
      b. Interior walls, U.N.O.:
         1) Mfgr:
            a) Typical: Georgia Pacific
            b) Alternate 1: US Gypsum
            c) Alternate 2: Pabco
            d) Alternate 3: Nation Gypsum, Gold Bond
         2) Brand:
            a) Typical: ToughRock® Fireguard Type X
            b) Alternate 1: Sheetrock
            c) Alternate 2: Flame Curb

d) Alternate 3: Fire Shield

3) Product:
   a) Typical: Type "X" Core
   b) Alternate 1: Firecode "C" Core (if specific to approved design)
   c) Alternate 2: Type XXX
4) Size:
   a) Thickness:
      i. 5/8" typical
      ii. 1/2" as indicated per plan details
   b) Width x Length: 4'-0" wide x 8', 9', 10', 12' or 14' (size to minimize quantity of joints)
5) Material: Paper faced gypsum core board
6) Edge: Tapered
7) Standard: ASTM C36
8) Finish: As herein specified and indicated in drawings
9) Limitations:
   a) See body of this specification for specific product types for specific conditions.
   b) At interior face of Exterior walls use Dens Armour Plus Fireguard, High Performance Interior Panel as herein specified unless herein indicated otherwise or an herein approved alternate.

c. Interior Face of Exterior Walls:

1) Application: Wall Sheathing
   a) Full height from floor to underside of roof decking.
   b) Exposed and concealed conditions
2) Schedule: Full Height
   a) Material:
      i. Schedule:
         a. Mfgr: Georgia Pacific
         b. Product: Dens Armour Plus® Fireguard® Type X, High Performance Interior Panel
         c. Size: 5/8"x 4'-0"x 8' & 10'(size to minimize quantity of joints)
         d. Material: Gypsum sheathing with inorganic coated glass fiber mats on each face
         e. Edge: Tapered
         f. Rating: Type "X"
      ii. Alternate product:
         a. Mfgr: National Gypsum
         b. Product: [Fill in]
         c. Size: [Fill in]
         d. Material: Gypsum sheathing with inorganic coated glass fiber mats on each face

e. Edge: Tapered
f. Rating: Type "X"

b) Limitations:

i. Do not use at the following locations requiring other sheathing as herein specified under the 'Wallboard & Ceiling Board for Interior conditions.

a. Curved walls – Specialty board - Non rated:
b. Curved walls – Non rated:
c. Shaft wall sheathing:
d. Abuse-resistant Impact locations – Moderate Duty:
e. Abuse-resistant Impact locations – Heavy Duty:
f. Wet locations – Showers:
g. Shaft wall sheathing:
h. Veneer wall and ceiling – non shower locations
i. Cement Plaster substrate:
j. Fully adhered Natural Stone substrate
k. Sound Damping Wall board:
l. Sound Damping Ceiling board:
m. Modular Brick Substrate

3) Finish: As herein specified and indicated in drawings including skim coat over entire surface prior to finishing.

d. Curved walls – Specialty board - Non rated:

1) Mfgr:

a) Typical: US Gypsum
b) Alternate 1: National Gypsum

2) Brand:

a) US Gypsum: Sheetrock
b) National Gypsum: High Flex

3) Product:

a) Typical: Flexible Gypsum Panels
b) Alternate 1: High-Flex Wall Board

4) Size:

a) Thickness: 1/4"
b) Width x Length: 4'-0" wide x 8', 9', 10'

5) Material: Paper faced gypsum core board
6) Edge: Tapered
7) Radius Schedule: (minimum)

a) Lengthwise:

	Application:	Condition:	Bend Radii:	Max. Stud Spacing:
i.	Inside – Concave	Dry	32"	9" o.c.
ii.	Inside – Concave	Wet	20"	9" o.c.

iii.	Outside – Convex	Dry	32″	9″ o.c.
iv.	Outside – Convex	Wet	15″	6″ o.c.

b) Widthwise:

Application:	Condition:	Bend Radii:	Max. Stud Spacing:
i. Inside – Concave	Dry	20″	9″ o.c.
ii. Inside – Concave	Wet	10″	6″ o.c.
iii. Outside – Convex	Dry	11″	6″ o.c.
iv. Outside – Convex	Wet	7″	6″ o.c.

8) Finish: As herein specified and indicated in drawings
9) Limitations:

a) Inside face of exterior walls shall be type governed by this specific location requirements.
b) Damp and wet locations shall be type governed by this specific location requirements.
c) Tile and stone veneer locations shall be type governed by this specific location requirements.

e. Curved walls – Non rated:

1) Mfgr:

a) Typical: US Gypsum
b) Alternate 1: National Gypsum

2) Brand:

a) US Gypsum: Sheetrock
b) National Gypsum: Gold Bond

3) Size:

a) Thickness per sheet:

i. 1/4″ (2 layers minimum)

a. 3′- 0″ minimum radius with dry panel and panel installed with long direction perpendicular to framing.

ii. 3/8″ typical

a. 6′-0″ minimum radius with dry panel and panel installed with long direction perpendicular to framing.

iii. 1/2″ as allowed for wall curve by gypsum board mfgr:

a. 12′- 0″ minimum radius with dry panel and panel installed with long direction perpendicular to framing.

b) Width x Length:

i. 4′-0″ wide x 8′, 9′, 10′, 12′ or 14′ – 1/2″ & 3/8″ thick
ii. 4′-0″ x 8′ or 10′ – 1/4″ thick

4) Material: Paper faced gypsum core board
5) Edge: Tapered
6) Finish: As herein specified and indicated in drawings

7) Limitations:

a) Inside face of exterior walls shall be type governed by this specific location requirements.
b) Damp and wet locations shall be type governed by this specific location requirements.
c) Tile and stone veneer locations shall be type governed by this specific location requirements.

f. Curved walls - Rated:

1) Mfgr:

a) Typical: Georgia Pacific
b) Alternate 1: US Gypsum
c) Alternate 2: Pabco
d) Alternate 3: Nation Gypsum, Gold Bond

2) Brand:

a) Typical: ToughRock® Fireguard Type X
b) Alternate 1: Sheetrock
c) Alternate 2: Flame Curb
d) Alternate 3: Fire Shield

3) Product:

a) Typical: Type "X" Core
b) Alternate 1: Firecode "C" Core (if specific to approved design)
c) Alternate 2: Type XXX

4) Size:

a) Thickness:

i. 1/2"

a. 12'- 0" radius with dry panel and panel installed with long direction perpendicular to framing
b. 2 or more layers as required meeting wall design gypsum board thickness.

ii. 5/8"

a. 18'- 0" radius with dry panel and panel installed with long direction perpendicular to framing.
b. 2 or more layers as required meeting wall design gypsum board thickness.

b) Width x Length: 4'-0" wide x 8', 9', 10', 12' or 14'

5) Material: Paper faced gypsum core board
6) Edge: Tapered
7) Finish: As herein specified and indicated in drawings
8) Limitations:

a) Inside face of exterior walls shall be type governed by this specific location requirements.
b) Damp and wet locations shall be type governed by this specific location requirements.

c) Tile and stone veneer locations shall be type governed by this specific location requirements.

g. Damp locations: (Non tile veneer conditions)

1) Application:

a) Toilet room walls & ceilings
b) Janitor room walls & ceilings
c) Locker rooms
d) Lounges and other rooms within the extents of Shower/Locker rooms

2) Schedule: Full Height

a) Material:

i. Mfgr: Georgia Pacific
ii. Product: Dens Armour Plus® Fireguard® Type X, High Performance Interior Panel
iii. Size: 5/8″x 4′-0″x 8′ & 10′(size to minimize quantity of joints)
iv. Material: Gypsum sheathing with inorganic coated glass fiber mats on each face
v. Edge: Tapered
vi. Rating: Type "X"
vii. Joints: Self adhering fiberglass mesh tape and approved tapping compound

3) Limitations:

a) Maximum ceiling framing not to exceed 12″ o.c.
b) Do not use at shower ceilings, use Dens Shield Tile Guard (Backer Board)
c) Do not use at shower walls, use Dens Shield Tile Guard (Backer Board)

4) Standards: ASTM C630
5) Finish: As herein specified and indicated in drawings

h. Abuse-resistant Impact locations – Moderate Duty:

1) Schedule:

a) Where indicated on drawings
b) 4′-0″ above finish floor unless noted otherwise in;

i. Storage rooms
ii. Janitor rooms
iii. Mechanical rooms
iv. Kitchens

2) Mfgr: USG
3) Product:

a) Series: Fiberock
b) Model: Aqua-Tough
c) Rating: Type 'FRG-G'

i. Smoke Developed: 0
ii. Flame Spread: 5

4) Size:5/8" x 4'-0" wide x 8', & 12' (size to minimize quantity of joints)
5) Material: [Fill in]
    a) Characteristics:
        i. Abuse resistant
        ii. Water resistant
        iii. Mold resistant
        iv. Finishing flexible
6) Recycled content: 95%
7) Edge: Tapered
8) Limitations:
    a) Wall framing not to exceed 16" o.c. [Specifier, coordinate with wall schedule]
    b) Ceiling framing not to exceed 16" o.c. **[Specifier, coordinate with wall schedule]**
9) Standards: ASTM C630, C1178, D4977 and D5420
10) Finish: As herein specified and indicated in drawings

i. Abuse-resistant Impact locations – Heavy Duty:

1) Schedule:
    a) Where indicated on drawings
    b) 4'-0" above finish floor unless noted otherwise in;
        i. School Hallways
        ii. Garages
2) Mfgr: USG
3) Product:
    a) Series: Fiberock
    b) Model: VHI
    c) Rating: Type 'FRG-G'
        i. Smoke Developed: 0
        ii. Flame Spread: 5
4) Size:5/8" x 4'-0" wide x 8', & 12' (size to minimize quantity of joints)
5) Material: [Fill in]
    a) Characteristics:
        i. Abuse resistant
        ii. Water resistant
        iii. Mold resistant
        iv. Finishing flexible
6) Recycled content: 95%
7) Edge: Tapered
8) Limitations:
    a) Wall framing not to exceed 16" o.c. [Specifier, coordinate with wall schedule]
    b) Ceiling framing not to exceed 16" o.c. [Specifier, coordinate with wall schedule]
9) Standards: ASTM C630, C1178, D4977 and D5420

10) Finish: As herein specified and indicated in drawings

j. Wet locations – Showers and water walls:

1) Applications:

a) Shower room walls and ceilings with Tile veneer

i. Schedule:

a. Mfgr: Georgia Pacific
b. Product: Dens Shield® Fireguard® Type X Tile Backer
c. Size: 5/8" x 4'-0" wide x 4'', 5', & 8' (size to minimize quantity of joints)
d. Material: Surface coated fiberglass and silicone-treated core
e. Edge: Square
f. Joints: Self adhering fiberglass mesh tape and approved tapping compound
g. Rating: Type X, UL approved for 1-hour wall construction
h. Joints: Self adhering fiberglass mesh tape and approved tapping compound

ii. Note: Waterproof liquid applied membrane, joint mesh and accessories; refer to Tile specifications.

b) Shower ceilings without Tile veneer

i. Schedule:

a. Mfgr: Georgia Pacific
b. Product: Dens Shield Tile Guard (Backer Board)
c. Size: 5/8" x 4'-0" wide x 4'', 5', & 8' (size to minimize quantity of joints)
d. Material: Surface coated fiberglass and silicone-treated core
e. Edge: Square
f. Joints: Self adhering fiberglass mesh tape and approved tapping compound
g. Rating: UL approved for 1-hour wall construction
h. Finish: Skim Coat for Level 5 finish
i. Note: Water proof liquid applied membrane, joint mesh and accessories; refer to Tile specifications.

k. Shaft wall sheathing:

1) Application: Vertical, typical, u.n.o.
2) Design: WP-7008 Proprietary
3) Shaft wall panels at elevators and as indicated by Plan Document "Wall Types"
4) Mfgr: As herein listed
5) Material: Paper faced Gypsum core
6) Products:

a) Liner Board

i. SHEETROCK® Brand, USG

a. Edge: Square

b. Thickness: 1″
c. Width: 24″
d. Length: As required
e. Classification: UL Label

ii. Toughrock, Georgia Pacific

a. Edge: Square
b. Thickness: 1″
c. Width: 24″
d. Length: As required
e. Classification: Type X

b) Face Board

i. SHEETROCK® Brand, FIRECODE® USG

a. Edge: Tapered (SW)
b. Thickness: 1/2″, 5/8″ and ¾″
c. Width: 4′-0″
d. Length: As required
e. Classification: Firecode C Core

ii. Toughrock, Georgia Pacific

a. Edge: Tapered
b. Thickness: 1/2″ and 5/8″
c. Width: 4′-0″
d. Length: As required
e. Classification:

i). 5/8″: Type X
ii). 1/2″: Fireguard C

7) Finish: As herein specified and indicated in drawings

l. Thin Veneer Wall and Ceiling Sheathing – non shower locations

1) Application:

a) Ceramic Tile veneer
b) Slate veneer
c) Thin Brick veneer [Specifier, cement board is not acceptable]

2) Schedule Options:

a) Option 1:

i. Mfgr: Georgia Pacific
ii. Product: Dens Shield® Fireguard® Type X Tile Backer
iii. Size:5/8″ x 4′-0″ wide x 4′′, 5′, & 8′ (size to minimize quantity of joints)
iv. Material: Surface coated and silicone-treated core
v. Edge: Square
vi. Rating: Type X, approved for 1-hour wall construction
vii. Limitations: Maximum 16″ o.c. framing spacing at Restroom ceilings
viii. Finish: Level 4

ix. Joints: Self adhering fiberglass mesh tape and approved tapping compound

b) Option 2:

i. Mfgr: USG
ii. Product: Fiberock Aqua Tough Interior Panel
iii. Size:5/8" x 4'-0" wide x 4'', 8', & 12' (size to minimize quantity of joints)
iv. Material: High density paperless gypsum and cellulose wall panel
v. Edge: Tapered
vi. Tape: Sheetrock® brand joint tape – heavy use type
vii. Rating: UL approved for 1-hour wall construction
viii. Finish: Level 4 finish
ix. Joints: Self adhering fiberglass mesh tape and approved tapping compound

m. Cement Plaster substrate:

1) Application: Substrate for Cement Plaster assembly
2) Schedule:

a) Option 1:

i. Mfgr: Georgia Pacific
ii. Product: Dens Glass™ Fireguard® Type X Exterior Sheathing (formerly Dens Glass Gold)
iii. Size:5/8" x 4'-0" wide x 8', 9' and 10' (minimize quantity of joints)
iv. Material:

a. Face: Glass mat sides – gold color

v. Edge: Square
vi. Rating:

a. Designation: Type "X"
b. Flame spread: 0
c. Smoke developed: 10 or less

vii. Warranty:

a. Weather exposure: 12 months
b. Mfgr. defects: 5 years
c. Joints: Self adhering fiberglass mesh tape and approved tapping compound

b) Option 2:

i. Mfgr: National Gypsum
ii. Brand: Gold Bond®
iii. Product: eXP (formally e^2XP) Fire Shield® Extended Exposure Sheathing
iv. Size:5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
v. Material:

a. Faces: Coated Fiberglass Mat
b. Color: Purple

vi. Edge: Square
vii. Rating:

a. Designation: Type "X"

b. Flame spread: 0
c. Smoke developed: 10 or less

viii. Warranty:

a. Weather exposure: 12 months
b. Mfgr. defects: 5 years

ix. Joints: Self adhering fiberglass mesh tape and approved tapping compound

c) Option 3:

i. Mfgr: USG
ii. Product: Securock® Glass-Mat Sheathing
iii. Size:5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
iv. Material:

a. Faces: Coated Fiberglass Mat
b. Color: Lime Green

v. Edge: Square
vi. Rating:

a. Designation: Type "X"
b. Flame spread: 0
c. Smoke developed: 10 or less

vii. Warranty:

a. Weather exposure: 12 months
b. Mfgr. defects: 5 years

viii. Joints: Self adhering fiberglass mesh tape and approved tapping compound

3) Finish: Level 4

n. Fully adhered Natural Stone substrate: **[Specifier, coord. with 04 42 00]**

1) Application: Substrate for Fully adhered Natural Stone veneer
2) Schedule:

a) Option 1:

i. Mfgr: Georgia Pacific
ii. Product: Dens Glass™ Fireguard® Type X Exterior Sheathing (forme (formerly Dens Glass Gold)
iii. Size:5/8" x 4'-0" wide x 8', 9' and 10' (minimize quantity of joints)
iv. Material:

a. Face: Glass mat sides – gold color

v. Edge: Square
vi. Rating:

a. Designation: Type "X"
b. Flame spread: 0
c. Smoke developed: 10 or less

vii. Warranty:

a. Weather exposure: 12 months
b. Mfgr. defects: 5 years

viii. Joints: Self adhering fiberglass mesh tape and approved tapping compound

b) Option 2:

i. Mfgr: National Gypsum
ii. Brand: Gold Bond®
iii. Product: eXP (formally e²XP) Fire Shield® Extended Exposure Sheathing
iv. Size:5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
v. Material:

a. Faces: Coated Fiberglass Mat
b. Color: Purple

vi. Edge: Square
vii. Rating:

a. Designation: Type "X"
b. Flame spread: 0
c. Smoke developed: 10 or less

viii. Warranty:

a. Weather exposure: 12 months
b. Mfgr. defects: 5 years

ix. Joints: Self adhering fiberglass mesh tape and approved tapping compound

c) Option 3:

i. Mfgr: USG
ii. Product: Securock® Glass-Mat Sheathing
iii. Size:5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
iv. Material:

a. Faces: Coated Fiberglass Mat
b. Color: Lime Green

v. Edge: Square
vi. Rating:

a. Designation: Type "X"
b. Flame spread: 0
c. Smoke developed: 10 or less

vii. Warranty:

a. Weather exposure: 12 months
b. Mfgr. defects: 5 years

viii. Joints: Self adhering fiberglass mesh tape and approved tapping compound

3) Finish: Level 4

o. Sound Damping Wall board:

1) Mfgr: Homasote
2) Model: 440 Sound Barrier
3) Product: Sound Dampening Board
4) Size / R Value:
   a) Thickness:
      i. 5/8" typical x 1.33 R Value
      ii. 1/2" as indicated per Drawings x 1.2 R Value
      iii. 3/4" as indicated per Drawings x 1.4 R Value
   b) Width x Length: 4'-0" wide x 8', 9', 10', 12' or 14' (size to minimize quantity of joints)
5) Material: Paper faced gypsum core board
6) Edge: Square
7) Flame Spread: Class III (or C)
8) Standard: ASTM E84 & D1037

Note: This would be installed in conjunction with acoustical sealant directly over studs, then resilient channels and lastly the gypsum sheathing in accordance with manufacturer's recommendations.

p. Sound Damping Ceiling board:

1) Mfgr: Homasote
2) Model: 440 Sound Barrier
3) Product: Sound Dampening Board
4) Size / R Value:
   a) Thickness:
      i. 5/8" typical x 1.33 R Value
      ii. 1/2" as indicated per Drawings x 1.2 R Value
      iii. 3/4" as indicated per Drawings x 1.4 R Value
   b) Width x Length: 4'-0" wide x 8', 9', 10', 12' or 14' (size to minimize quantity of joints)
5) Material: Paper faced gypsum core board
6) Edge: Square
7) Flame Spread: Class III (or C)
8) Standard: ASTM E84 & D1037

[Note: Specifier, this would be installed directly over studs, then resilient channels and lastly the gypsum sheathing]

9) Finish: As herein specified and indicated in drawings

q. Sound Damping Floor sheathing:

1) Mfgr: Homasote
2) Model: 440 Sound Barrier
3) Product: Sound Dampening Board
4) Size / R Value:
   a) Thickness:

i. 5/8" typical x 1.33 R Value
ii. 1/2" as indicated per Drawings x 1.2 R Value
iii. 3/4" as indicated per Drawings x 1.4 R Value

b) Width x Length: 4'-0" wide x 8', 9', 10', 12' or 14' (size to minimize quantity of joints)

5) Material: Paper faced gypsum core board
6) Edge: Square
7) Flame Spread: Class III (or C)
8) Standard: ASTM E84 & D1037

[Note: Specifier, this would be installed over floor substrate]

r. Modular Brick Substrate:

1) Schedule: Substrate for Modular Brick assembly

a) Option 1:

i. Mfgr: Georgia Pacific
ii. Product: Dens Glass™ Fireguard® Type X Exterior Sheathing (formerly Dens Glass Gold)
iii. Size:5/8" x 4'-0" wide x 8', 9' and 10' (minimize quantity of joints)
iv. Material:

a. Face: Glass mat sides – gold color

v. Edge: Square
vi. Rating:

a. Designation: Type "X"
b. Flame spread: 0
c. Smoke developed: 10 or less

vii. Warranty:

a. Weather exposure: 12 months
b. Mfgr. defects: 5 years

viii. Joints: Self adhering fiberglass mesh tape and approved tapping compound

b) Option 2:

i. Mfgr: National Gypsum
ii. Brand: Gold Bond®
iii. Product: eXP (formally e^2XP) Fire Shield® Extended Exposure Sheathing
iv. Size:5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
v. Material:

a. Faces: Coated Fiberglass Mat
b. Color: Purple

vi. Edge: Square
vii. Rating:

a. Designation: Type "X"
b. Flame spread: 0
c. Smoke developed: 10 or less

viii. Warranty:

a. Weather exposure: 12 months
b. Mfgr. defects: 5 years

ix. Joints: Self adhering fiberglass mesh tape and approved tapping compound

c) Option 3:

i. Mfgr: USG
ii. Product: Securock® Glass-Mat Sheathing
iii. Size:5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
iv. Material:

a. Faces: Coated Fiberglass Mat
b. Color: Lime Green

v. Edge: Square
vi. Rating:

a. Designation: Type "X"
b. Flame spread: 0
c. Smoke developed: 10 or less

vii. Warranty:

a. Weather exposure: 12 months
b. Mfgr. defects: 5 years

viii. Joints: Self adhering fiberglass mesh tape and approved tapping compound

2. **EXTERIOR SCHEDULE:**
a. Walls

1) Exterior sheathing schedule:

a) <u>General, U.N.O.</u>

i. Option 1:

a. Mfgr: Georgia Pacific
b. Product: Dens Glass™ Fireguard® Type X Exterior Sheathing (formerly Dens Glass Gold)
c. Size: 5/8" x 4'-0" wide x 8', 9' and 10' (minimize quantity of joints)
d. Material:

i). Face: Glass mat sides – gold color
ii). Edge: Square

e. Rating:

i). Designation: Type "X"
ii). Flame spread: 0
iii). Smoke developed: 10 or less

f. Warranty:

i). Weather exposure: 12 months

ii). Mfgr. defects: 5 years

g. Joints: Self adhering fiberglass mesh tape and approved tapping compound

ii. Option 2:

a. Mfgr: National Gypsum
b. Brand: Gold Bond®
c. Product: eXP (formally e²XP) Fire Shield® Extended Exposure Sheathing
d. Size: 5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
e. Material:

i). Faces: Coated Fiberglass Mat
ii). Color: Purple

f. Edge: Square
g. Rating:

i). Designation: Type "X"
ii). Flame spread: 0
iii). Smoke developed: 10 or less

h. Warranty:

i). Weather exposure: 12 months
ii). Mfgr. defects: 5 years

i. Joints: Self adhering fiberglass mesh tape and approved tapping compound

iii. Option 3:

a. Mfgr: USG
b. Product: Securock® Glass-Mat Sheathing
c. Size: 5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
d. Material:

i). Faces: Coated Fiberglass Mat
ii). Color: Lime Green

e. Edge: Square
f. Rating:

i). Designation: Type "X"
ii). Flame spread: 0
iii). Smoke developed: 10 or less

g. Warranty:

i). Weather exposure: 12 months
ii). Mfgr. defects: 5 years

h. Joints: Self adhering fiberglass mesh tape and approved tapping compound

iv. Interior exposed face of exterior walls:

a. Refer to heading in INTERIOR SCHEDULE portion as herein specified.

b) Cement Plaster substrate: [Specifier select one of these or leave both in for GC option]

i. Option 1:

a. Mfgr: Georgia Pacific
b. Product: Dens Glass™ Fireguard® Type X Exterior Sheathing (formerly Dens Glass Gold)
c. Size: 5/8" x 4'-0" wide x 8', 9' and 10' (minimize quantity of joints)
d. Material:

i). Face: Glass mat sides – gold color

e. Edge: Square
f. Rating:

i). Designation: Type "X"
ii). Flame spread: 0
iii). Smoke developed: 10 or less

g. Warranty:

i). Weather exposure: 12 months
ii). Mfgr. defects: 5 years

h. Joints: Self adhering fiberglass mesh tape and approved tapping compound

ii. Option 2:

a. Mfgr: National Gypsum
b. Brand: Gold Bond®
c. Product: eXP (formerly e^{2}XP) Fire Shield® Extended Exposure Sheathing
d. Size: 5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
e. Material:

i). Faces: Coated Fiberglass Mat
ii). Color: Purple

f. Edge: Square
g. Rating:

i). Designation: Type "X"
ii). Flame spread: 0
iii). Smoke developed: 10 or less

h. Warranty:

i). Weather exposure: 12 months
ii). Mfgr. defects: 5 years

i. Joints: Self adhering fiberglass mesh tape and approved tapping compound

iii. Option 3:

a. Mfgr: USG

b. Product: Securock® Glass-Mat Sheathing
c. Size: 5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
d. Material:

i). Faces: Coated Fiberglass Mat
ii). Color: Lime Green

e. Edge: Square
f. Rating:

i). Designation: Type "X"
ii). Flame spread: 0
iii). Smoke developed: 10 or less

g. Warranty:

i). Weather exposure: 12 months
ii). Mfgr. defects: 5 years

h. Joints: Self adhering fiberglass mesh tape and approved tapping compound

c) EIFS assembly substrate:

i. Option 1:

a. Mfgr: Georgia Pacific
b. Product: Dens Glass™ Fireguard® Type X Exterior Sheathing (formally Dens Glass Gold)
c. Size: 5/8" x 4'-0" wide x 8', 9' and 10' (minimize quantity of joints)
d. Material:

i). Face: Glass mat sides – gold color

e. Edge: Square
f. Rating:

i). Designation: Type "X"
ii). Flame spread: 0
iii). Smoke developed: 10 or less

g. Warranty:

i). Weather exposure: 12 months
ii). Mfgr. defects: 5 years

h. Joints: Self adhering fiberglass mesh tape and approved tapping compound

ii. Option 2:

a. Mfgr: National Gypsum
b. Brand: Gold Bond®
c. Product: eXP (formally e^2XP) Fire Shield® Extended Exposure Sheathing
d. Size: 5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
e. Material:

i). Faces: Coated Fiberglass Mat
ii). Color: Purple

f. Edge: Square
g. Rating:

i). Designation: Type "X"
ii). Flame spread: 0
iii). Smoke developed: 10 or less

h. Warranty:

i). Weather exposure: 12 months
ii). Mfgr. defects: 5 years

i. Joints: Self adhering fiberglass mesh tape and approved tapping compound

iii. Option 3:

a. Mfgr: USG
b. Product: Securock® Glass-Mat Sheathing
c. Size: 5/8" x 4'-0" wide x 8', 9' & 12' (size to minimize quantity of joints)
d. Material:

i). Faces: Coated Fiberglass Mat
ii). Color: Lime Green

e. Edge: Square
f. Rating:

i). Designation: Type "X"
ii). Flame spread: 0
iii). Smoke developed: 10 or less

g. Warranty:

i). Weather exposure: 12 months
ii). Mfgr. defects: 5 years

h. Joints: Self adhering fiberglass mesh tape and approved tapping compound

d) Ceilings (Exposed application): [Specifier select this if the use of EIFS or Cement Plaster is not being used, this is not preferred application]

i. Mfgr: USG
ii. Product: Sheetrock Brand – Exterior Gypsum Ceiling Board
iii. Size: 5/8" x 4'-0" wide x 8'-0" and 12'-0" (minimize quantity of joints)
iv. Material: Beige color, water-repellant face paper
v. Edge: SW Tapered
vi. Rating: Firecode
vii. Testing: Flame Spread = 20, Smoke Developed = 0
viii. Limitations: Maximum framing at 12" o.c.

e) PVC Parapet assembly substrate:

i. Refer to Roofing specification

f) Roof Underlayment:

i. Schedule: Standing Seam Metal Roofing

a. Option 1:

i). Mfgr: Georgia Pacific
ii). Product: Dens Glass Sheathing (formally Dens Glass Gold)
iii). Type: Fireguard Type X Exterior Sheathing
iv). Size:5/8″ x 4′-0″ wide x 8′, 9′ and 10′ (minimize quantity of joints)
v). Material: Glass mat sides and silicone-treated gypsum core
vi). Edge: Square
vii). Rating: Type "X"
viii). Limitations: Maximum ceiling framing not to exceed 12″ o.c.

b. Option 2:

i). Mfgr: USG
ii). Product: Securock Glass Mat Sheathing
iii). Size:5/8″ x 4′-0″ wide x 4'', 8′, 9′ and 10′ (minimize quantity of joints)
iv). Material: Glass mat sides, Lime Green
v). Edge: Square
vi). Rating: Type "X"

a. Flame Spread: 0
b. Smoke developed: 10 or less

vii). Warranty:
c. 12 months weather exposure
d. Mfgr: 5 year

viii). Limitations: Maximum ceiling framing not to exceed 12″ o.c.

2.3 OTHER MATERIALS

A. Accessories: Trim accessories, including, but not limited to:
1. Joint treatment: Refer to Heading 2.04
2. Outside edge:
a. Mfgr: USG
b. Product: DUR-A-BEAD Corner Bead
c. Material: Standard galvanized steel units
d. Model: No.103 1-¼″ x 1-¼″
3. Inside corner:
a. Mfgr: USG
b. Product: Sheetrock Brand
c. Material: Paper Faced Metal Trim x 90-degree angle
d. Model: Tape on Trim No. B2
4. Offset Inside corner:
a. Mfgr: USG

b. Product: Sheetrock Brand
c. Material: Paper Faced Metal Trim x greater than 90 degree angle
d. Model: B2 OS

5. "Z" shape trim for edge of board at step back reveal:
   a. Mfgr: USG
   b. Product: Sheetrock Brand
   c. Material: Paper Faced Metal Trim Tape on trim x "Z" profile
   d. Model: B4 NB
6. "L" shape trim for edge of board at Acoustical tile ceiling:
   a. Mfgr: USG
   b. Product: Sheetrock Brand
   c. Material: Galvanized Metal Trim x "L" shape 90-degree angle
   d. Model: No. 200 – B x ½" and/or ⅝"
7. "J" shape trim for edge of board, typical:
   a. Mfgr: USG
   b. Product: Sheetrock Brand
   c. Material: Galvanized Metal Trim
   d. Model: No. 200 – A x ½" and/or ⅝"
8. Control Joint:
   a. Mfgr: USG
   b. Product: Sheetrock Brand
   c. Material: Zinc
   d. Model: No. 093
   e. Profile: ¼" opening x $^{7}/_{16}$" depth x 10'-0" length

9. Wall End Caps:
   a. Mfgr: Flannery,
   b. Product: Drywall End Cap
   c. Model: DWE
      1) Also known as: DMEC, DEC, SWC & 911-EC-xx
   d. Material: Mil Finish Aluminum



   e. Size:
      1) Widths: (Size to fit field condition)
         a) 3-3/4"
         b) 4-7/8"
      2) Length: 10'-0"
      3) Tape flange: 7/8" wide

10. Drywall "L" trim:

a. Mfgr: Flannery,
b. Product: Drywall "L"
c. Model: DWL
d. Material: Mil Finish Aluminum



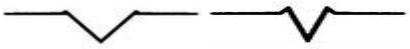
e. Size:

1) Width: ¼" thru 4-3/'4"

a) Size to fit field condition

2) Length: 10'-0"
3) Tape flange: 7/8" wide

11. "V" Reveal **[Specifier, this mfgr. has a large selection of product to use]**
a. Mfgr: Flannery
b. Product: "V" Reveal



c. Model:

1) DWV 375 x 3/8" wide reveal
2) DWV 100 x 1" wide reveal

d. Material: Mill Finish Aluminum
e. Size: 10' long

B. Substrate Fasteners
1. Nails (Wood framing)
a. Size (1-1/2") (1-3/4")

1) 11-gauge, hot-dipped galvanized roofing nails with nominal 7/16" diameter head for wood framing.

2. Screws: (Metal stud framing)
a. 1" Type S-12 Bugle Head Corrosion-Resistant Screws for application of sheathing to steel studs.
b. 1-1/4" Type S-12 Pancake Head Corrosion-Resistant Screws for application of self-furring metal lath or brick ties through sheathing to steel studs.

C. Reveals
1. Mfgr: Fry Reglet (FR)
a. Alternate: Flannery Trim (FT), www.flannerytrim.com
2. Product:
a. Schedule: **[Specifier, there are a great deal of available sizes and models]**

Type	Model	Size	Application

Drywall Reveal 	DRM 625-100 (FR) DWR 625-100 (FT)	5/8" deep x 1" wide	Field Reveal with gyp. Bd. Each side
Drywall "F" Reveal Mold 	DRMF 625-100 (FR) DWRF 625-100 (FT)	5/8" deep x 1" wide	Edge Reveal with gyp. Bd. one side and butt on other side with return reveal lip
Drywall "Z" Reveal Mold 	DWSM 625-100 (FT) DRMZ 625-100 (FR)	5/8" deep x 1" wide	Edge trim with gyp. Bd. one side and butt on other side without return reveal lip

3. Finish: Mill finish aluminum, painted.
4. Accessories: Alignment splices

D. Joint Treatment and Skim Coat Treatment - Interior
   1. Schedule:
      a. Applications:
         1) Typical, interior dry conditions, U.N.O
            a) Type:
               i. Drying: water evaporation type unless application is;
                  a. In cold weather
                  a. Required to be Setting Compound by type of tape such as mesh fiberglass
                  b. Required by application
                  c. Required by sheathing mfgr.
            b) Mfgr: USG
            c) Brand: Sheetrock
            d) Tape Product: Joint Tape – Heavy
            e) Treatment Compound:
               i. Product:
                  a. Initial installation of tape:
                     i). Product: Taping Compound
                  b. Secondary and final finishing compound:
                     i). Product: Toping Compound or Plus Three Compound
                  c. Skim Coat:
                     i). Product: Plus Three Compound
         2) Interior Face of All Exterior Walls:
            a) Substrate: Dens Armour Plus
               i. Mfgr: Georgia Pacific

b) Tape Product: Self adhering 10x10 x 2" wide woven glass mesh tape over all joints, inside corners and outside corners

i. Mfgr: Georgia Pacific
ii. Model: ToughRock, Fiberglass mesh tape

c) Treatment Compound:

i. Mfgr: USG
ii. Type: Setting Compound (chemical hardening)
iii. Product: **[Fill in]** _____
iv. Installation: Per manufacturers recommendations
v. Finish: Level 5

a. Includes as herein specified with the entire surface of sheathing skim coated.

3) Wet conditions - Interior: Tile veneer finish

a) Substrate: Dens Shield Tile Backer Board

i. Mfgr: Georgia Pacific

b) Tape Product: Self adhering 10x10 x 2" wide woven glass mesh tape over all joints, inside corners and outside corners

i. Mfgr: Georgia Pacific
ii. Model: ToughRock, Fiberglass mesh tape

c) Treatment Compound:

i. Mfgr: USG
ii. Type: Setting Compound (chemical hardening)
iii. Product: **[Fill in]** _____
iv. Installation: Per manufacturers recommendations

4) Wet conditions - Interior: Non tile veneer finish

a) Substrate: Dens Shield Tile Guard

i. Mfgr: Georgia Pacific

b) Tape Product: Self adhering 10x10 x 2" wide woven glass mesh tape over all joints, inside corners and outside corners

i. Mfgr: Georgia Pacific
ii. Model: ToughRock, Fiberglass mesh tape

c) Treatment Compound:

i. Mfgr: USG
ii. Type: Setting Compound (chemical hardening)
iii. Product: **[Fill in]** _____
iv. Installation: Per manufacturers recommendations
v. Finish: Darby float Skim coat for level 5 finish and paint

5) Damp conditions – Interior: Non-shower areas

a) Substrate: Aqua Tough

i. Mfgr: USG

b) Tape Product: Self adhering 10x10 x 2″ wide woven glass mesh tape over all joints, inside corners and outside corners

i. Mfgr: Georgia Pacific
ii. Model: ToughRock, Fiberglass mesh tape

c) Treatment Compound:

i. Mfgr: USG
ii. Type: Setting Compound (chemical hardening)
iii. Product: **[Fill in]** _____
iv. Installation: Per manufacturers recommendations
v. Finish: Darby float Skim coat for level 5 finish and paint

6) Concealed conditions within Access Floor Cavity– Interior:

a) Substrate: Continuation of Gypsum sheathing from above access floor panels
b) Mfgr: Match product used for wall above
c) Brand: Match product used for wall above
d) Tape Product: Match product used for wall above
e) Treatment Compound: Match application used for wall above

7) Ceiling (Soffit) Board - Exterior:

a) Exposed Ceiling (Soffit) Board.

i. Tape Product: Self adhering 10x10 x 2″ wide woven glass mesh tape over all joints, inside corners and outside corners

a. Mfgr: Georgia Pacific
b. Model: ToughRock, Fiberglass mesh tape

ii. Treatment Compound:

a. Mfgr: USG
b. Type: Setting Compound (chemical hardening)
c. Product: **[Fill in]** _____
d. Installation: Per manufacturers recommendations
e. Finish: Darby float Skim coat for level 5 finish and paint

E. Joint Treatment and Skim Coat Treatment – Exterior walls
1. Schedule:
a. Typical conditions

1) Option 1:

a) Application: Underlayment for wall finishes

i. Substrate: Dens Glass™ Fireguard® Type X Exterior Sheathing

a. Mfgr: Georgia Pacific

ii. Tape Product: Self adhering 10x10 x 2″ wide woven glass mesh tape over all joints, inside corners and outside corners

a. Mfgr: Georgia Pacific
b. Model: ToughRock, Fiberglass mesh tape

iii. Treatment Compound:

a. Mfgr: Pecora
b. Type: Latex Sealant
c. Product: AC-20 Acrylic Latex sealant
d. Installation: Per manufacturers recommendations

iv. Fastener treatment: Refer to INSTALLALATION heading

2) Options:

a) Application: Underlayment for wall finishes

i. As herein approved

F. Joint Treatment and Skim Coat Treatment – Exterior Ceilings
1. Schedule:
a. Exposed ceiling board

1) Mfgr: USG
2) Products: Refer to matrix:
3) Matrix of materials and Level of finish:

	Primer – Oil Base	Setting-Type Joint Compounds (Sheetrock Brand) Joint Prefill, Joint Taping, Fill Coat and Finish Coats		
	First Coat	Taping	Durabond®	Easy Sand™
Level 4				
Embedding		■	■	
Fill Coats		■	■	
Finish			■	■
Primer	■			

G. Wall finish, Texture Products and Schedule – Interior & Exterior
1. General: Comply with USG Design Guidelines SA923
2. Finish Schedule:
a. Finish Texture:
[Specifier select if required and/or use Level 5 Smooth wall / Skim coat]
1) Standard Texture:

a) Mfgr: USG
b) Texture designation:

i. Textured walls: Fine Orange Peel
ii. Smooth Wall Level Five: No texture

c) Schedule: At all walls and ceilings, U.N.O
d) Product Schedule:

i. Sealer / Primer:

a. Material: Gypsum board sealer/primer
b. Product: First Coat, Sheetrock brand
c. Application: Spray applied over entire surface Material

ii. Texture:

a. Material: Red Bag Wall Texture
b. Application: Spray applied
c. Coverage: Apply at rate of 20-40 pounds per square foot

2) Smooth Wall / Level 5 – Skim Coat

a) Mfgr: USG
b) Texture Designation: Smooth Wall, Level 5 - Darby
c) Schedule:

i. Locations indicated on Drawings, including , as herein listed:
[Specifier coord. w/ Drawings]

a. Showers without tile veneer
b. Skylight wells
c. Public spaces – walls and ceilings

i). Curved walls
ii). Curved soffits, vertical and horizontal

ii. As herein specified

a. Public spaces – walls and ceilings

i). Lobbies
ii). Corridors
iii). All conditions

d) Product Schedule:

i. Skim Coat – Smooth Wall Level 5

a. Material: Plus Three
b. Application: Steel Trowel applied over entire surface of board.

ii. Sealer /Primer Coat: Level 4 and 5 finish

a. Material: Gypsum board sealer/primer
b. Product: First Coat, Sheetrock brand
c. Application: Spray applied over entire surface
d. Note: This is in addition to painters primer to be installed per Section 09 90 00 – Painting and Coatings.

PART 3 - **EXECUTION**

3.1 INSPECTION/EXAMINATION

A. Verification of Conditions:

1. Examine areas and conditions under which work is to be performed.
2. Identify conditions detrimental to proper or timely completion of work and coordinate with **General Contractor** to rectify.

B. Surface:
1. Examine and verify that receiving conditions of substrate have no defects or errors, which would result in poor or potentially defective application or cause latent defects in workmanship.

3.2 COORDINATION

A. Refer to Division 1 for project coordination requirements.
B. **General Contractor** shall coordinate work as herein specified, in accordance with drawings and as required to complete scope of work with all related trades.

3.3 PREPARATION

A. Prepare work, substrates, etc. in accordance with manufacturer's recommendations.

3.4 MOCK-UP

A. Erect at location approved by **Architect**.
1. Mock-up shall be part of final construction once approved by **Architect**.
2. Mock-up shall comprise of all components and finishes as specified and indicated in Drawings.
a. Texture
b. Level 5 finish

B. Mock-up
1. Size: 6' x 6'
2. Qty: One (1) each for each wall surface condition and finish

3.5 INSTALLATION

A. General:
1. Perform work in accordance with manufacturer's recommendations, as herein specified and in accordance with drawings.
2. Perform work in accordance with herein listed standards.
3. Install with fiberglass tape at gypsum board requiring it as herein specified and required by mfgr.

B. Sheet arrangement layout: Conform to layouts and requirements indicated; use long sheets to restrict joints to minimum.
1. Edges of sheathing shall not align with the vertical and/or horizontal edges of window and/or door openings.

C. Interior Joints:
1. Perform work in accordance with gypsum board mfgr's requirements and to meet smooth wall and/or textured wall surface
2. Perform work in accordance with gypsum board mfgr's requirements and in accordance with wall veneer including, but not limited to;
a. Tile

b. Stone

D. Exterior Joints:

1. General: Gypsum sheathing:
   a. Butt sheets loosely together with tapered edges always placed together. Sand or kerf cut edges and mill ends to provide smooth jointing on exposed face.
      1) Stagger end joints.
2. Schedule: Dens Glass™ Fireguard® Type X Exterior Sheathing or approved option as herein approved:
   a. General:
      1) Install in accordance with sheathing manufacturers recommendations and as herein specified.
      4) The surface of framing and furring members to receive sheathing should not very more than 1/4" from the plane of faces of adjacent members.
         a) Make appropriate modifications and/or coordinate with **General Contractor** to meet out of plane criteria.
      5) End joints, if required, should be offset; joints should fit snugly and flashing installed around all openings.
         a) Except vertical joints at expansion conditions.
      6) Panels of the maximum lengths possible should be used to minimize the number of joints.'
         a) Edge joints must be located parallel to and with vertical orientations on framing.
         b) End joints of adjacent lengths of sheathing must be staggered.
         c) Except at expansion joints.
      7) Wood Framing: Sheathing must be attached to wood framing with nails spaced 4" o.c. at perimeter for racking shear resistance, 8" o.c. at perimeter where racking shear resistance is not required, and 8" o.c. along intermediate framing.
      8) Metal Framing: Sheathing must be attached to metal framing with screws spaced 8" o.c. at perimeter and 8" o.c. along intermediate framing.
      9) Fasteners must be driven so as to bear tight against and flush with surface of sheathing.
         a) Fasteners must NOT be countersunk.
      10) Fasteners must be located a minimum of 3/8" from edges and ends of sheathing panels unless approved otherwise by sheathing mfgr..
      11) Where sheathing is used in applications involving veneer systems, any joint treatment required should be in accordance with sheathing manufacturer's instructions and requirements of local governing authorities.
      12) Where sheathing is used in applications of painted ceilings and soffits, joint tape must be applied over joints and embedded in a specified setting type joint compound.
         a) For smooth finish, the surface should be skim coated with joint compound.
   b. Joint treatment:
      1) Schedule:

a) Typical: (1/8" – 3/8" maximum width)

i. 1st: Apply glass mesh joint tape to all joints, overlapping at intersections by the width of the tape.
ii. 2nd: Apply approximately a 3/8" bead of caulk along the joint.
iii. 3rd: Embed the caulk into the entire surface of the tape with a trowel.

a. Use backer rod for openings larger than 1/8"

b) Expansion Joints:

i. Hold edges of sheathing 3/8" apart.
ii. Install backer rod and sealant at the top of joint 6" long and at the bottom of the joint 6" long to ensure no gaps into wall cavity or joint.
iii. Install manufacturer approved primer along length of joint wide enough to extend 2" past the continuous strip of cold applied self-adhering membrane applied evenly spaced over joint and edge fasteners.

c. Fastener Treatment

1) Schedule:

a) Typical – except for expansion joints

i. Install manufacturer approved sealant over each fastener head and trowel smooth.
ii. Sealant shall be compatible with sheet applied and/or liquid applied vapor barriers and/or water proof membranes.

3. Ceiling Board Exterior gypsum sheathing:
a. Pre-fill joints with Setting-Type Joint compound.
b. Embed Joint Tape in Joint compound.
c. Install Joint compound over zinc, metal trims and beads.
d. Install Joint compound over all fastener heads.
e. Apply finish coats of Setting-Type Joint compound.
f. Skim coat as herein specified for shower ceilings without tile veneer finish.
g. Apply Primer –Sealer prior to texturing.
h. Apply texture
i. Finish paint

E. Typical:
1. Fasteners:
a. Place fasteners 3/8 inch from edges of boards, except when using washers or clips with fasteners in joint.
b. Install fasteners with heads dimpled slightly below surface; do not cut through skin.
c. Space fasteners in accordance with ASTM C840 and manufacturer's recommendations, except as otherwise required by CBC.
d. Install type of fastener and length in accordance with sheathing manufacturer.
e. All ends and edges of all gypsum wallboard shall occur over framing members, except when joints are at right angles to framing members.
2. Ceilings:
a. General:

1. Place boards with long dimension at right angles to supports and end joints occurring over supports.
2. Place perimeters of ceilings and edges of openings over solid bearing members.

b. Maximum joist spacing shall not exceed 12″ O.C.

3. Partitions: Place boards with long dimension either vertical or horizontal (but not combination of both) on studs. Stagger joints on opposite sides of partitions. Locate joints at least 12 inches from jambs of openings. Keep end joints to minimum. Fasten double layer gypsum board as required by code, stagger joints in second layer.
4. Caulking: Using double bead of specified material, install at floors, wall intersections, where walls abut other materials and at all electrical boxes. Install wherever caulking materials is indicated in connection with gypsum board. Apply in accordance with manufacturer's printed directions.
5. Cutting and scribing: Cut neatly to fit around outlets, switch boxes and other protrusions, using keyhole saw or specially designed cutting tool for opening of exact shape and size needed.
6. Trim: Edge exterior corners with bead set to true, plumb line. Where gypsum board joins or abuts any material other than gypsum board, cover end of board with metal casing, leaving joint sufficient for installation of caulking (refer to Article 3.03 F above).

F. Reveals

1. The **General Contractor** shall furnish all labor, materials, services and equipment necessary for, and reasonably incidental to the installation of the reveals as indicated on the contract documents and as herein specified.
   a. Reveals shall be installed with full length pieces and butt joints shall only occur at end conditions.
   b. Install with concealed mechanical fasteners.
   c. Install with prefabricated intersections.

G. Finishing

1. Matrix: Joint treatment and Skim coat treatment:
   a. USG matrix of materials and level of finish

      1) For other products indicated, match that manufacturer’s installation recommendations.

		Ready-Mixed Joint Compounds				Drying-Type Joint Compounds				Setting-Type Joint Compounds	
	First Coat	Taping	Topping	All-Purpose	Plus 3	Taping	Topping	All-Purpose	AP Lite	Durabond®	Easy Sand™
Level 0											
Not Used											
Level 1											
Embedding		■		■	■	■		■	■	■	■
Level 2											
Embedding		■		■	■	■		■	■	■	■
Fill			■	■	■		■	■	■	■	■

Level 3											
Embedding		■		■	■	■		■	■	■	■
Fill			■	■	■		■	■	■	■	■
Primer	■										
Level 4											
Embedding		■		■	■	■		■	■	■	■
Fill			■	■	■		■	■	■	■	■
Finish			■	■	■		■	■	■	■	■
Primer	■										
Level 5											
Embedding		■		■	■	■		■	■	■	■
Fill			■	■	■		■	■	■	■	■
Finish			■	■	■		■	■	■	■	■
Skim/Darby				■	■						
Primer	■										

2. Levels Schedule
   a. **Levels of Finish.** The following levels of finish are established as a guide for specific final decoration and/or Smooth Wall finish and are a minimum standard for each condition.
      1) Level 0:
         a) Not Used
      1) **Level 1**:
         a) Schedule:
            i. Plenum areas above ceilings, in attics, in areas where the assembly including, but not limited to;
               a. Joints
               b. Fastener heads
               c. Around all wall penetrations
            ii. All joints, exterior angles, reveals and interior angles shall have tape embedded in joint compound.
               a. Surface shall be free of excess joint compound.
               b. Tool marks and ridges are acceptable.
      2) **Level 2**:
         a) Schedule:
            i. Use where water resistant tile backing board is used as a substrate for tile.
            ii. All joints, fasteners, exterior angles, reveals and interior angles shall have fiberglass mesh tape embedded in joint compound and one additional separate

coat of joint compound applied over all joints, angles, fastener heads, and accessories. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.

iii. Primer/Sealer: yes, entire gypsum board surface including treated joints, exterior angles, interior angles, reveals, fasteners, etc. shall be coated with a primer/sealer prior to the application of final finishes.

iv. Gypsum board primer/sealer must be applied as a requirement of this specification section in addition to any and all requirements of primer and paint specified and installed under Section 09 90 00 – Painting and Coatings.

3) **Level 3:**

a) Schedule:

i. Use at conditions where a material will be adhesively applied to gypsum board.

a. Not for use at Tile applications.

ii. Texture: None

iii. Applications: **[Specifier, list applications here]**

a. Where indicated in drawings

b. FRP panel substrate

b) Application:

i. All joints and angles shall have tape embedded in joint compound and wiped with a joint knife leaving a thin coating of joint compound over all joints and angles.

a. Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.

ii. All fasteners heads and accessories shall be covered with a coat of joint compound and wiped with a joint knife leaving a thin coating of joint compound.

iii. Surface shall be free of excess compound.

iv. Tool marks and ridges are acceptable.

v. Primer/Sealer: yes, entire gypsum board surface including treated joints, exterior angles, interior angles, reveals, fasteners, etc. shall be coated with a primer/sealer prior to the application of final finishes.

a. Gypsum board primer/sealer must be applied as a requirement of this specification section in addition to any and all requirements of primer and paint specified and installed under Section 09 90 00 – Painting and coatings.

4) **Level 4:**

a) Schedule:

i. Use at all conditions unless noted and/or specified to be Smooth Wall, Level 5 as specified herein, refer to "Level 5 (Smooth Wall) heading and Drawings.

ii. Texture; refer to Heading 2.05 for required texture.

b) Application:

i. All joints, fasteners, exterior angles, reveals and interior angles shall have tape embedded in joint compound and **three** separate coats of joint compound applied over all joints, fasteners, angles, fastener heads, and accessories. All joint compounds shall be smooth and free of tool marks and ridges. Refer to Heading 2.04 for schedule of specific products.

a. Taping Compound width schedule:

iv). First coat: 8" wide
v). Second coat: 10" wide
vi). Third coat: 12" wide

b. Primer/Sealer: yes, entire gypsum board surface including treated joints, exterior angles, interior angles, reveals, fasteners, etc. shall be coated with a primer/sealer prior to the application of final finishes.

i). Gypsum board primer/sealer must be applied as a requirement of this specification section in addition to any and all requirements of primer and paint specified and installed under Section 09 90 00 – Painting and Coatings.

c) Limitations:

i. At un-backed vinyl wall covering apply a Level 5 finish to wall substrate

5) **Level 5: (Smooth Wall / Skim Coat)**

a) Schedule:

i. Use this level of finish at:

a. All locations herein listed (walls, ceilings and soffits)
b. All locations with G.P. Dens Armour Plus sheathing
c. All locations herein listed as indicated in drawings, including but not limited to;

i). Curved Walls
ii). Shower Ceilings without tile veneer
iii). Conference rooms
iv). Lobbies
v). Corridors.
vi). Shower ceilings without tile veneer
vii). All Barrel vaulted ceilings
viii). Other locations indicated on Drawings **[Specifier coordinate]**
ix). Locations herein specified

d. All High gloss painted surfaces

b) Application:

i. All joints, fasteners, exterior angles, reveals and interior angles shall be embedded in joint compound and three separate coats of specified compound applied over these conditions and one final "Skim Coat" of specified compound trowel applied over entire surface of gypsum board.

a. Taping Compound width schedule:

i). First coat: 8" wide
ii). Second coat: 10" wide
iii). Third coat: 12" wide
iv). Fourth: 12" wide to both sides of "Third coat"
v). Skim coat: Entire surface of board.

b. The thin "Skim Coat" of specified compound shall be applied to the entire gypsum board surface after the three separate applications of tapping compound have been installed at all joints, fasteners, exterior angles, reveals and interior angles.
   i). Sand only taped joints prior to application of thin skim coat.
   ii). Skim coat shall be applied prior to any sanding of non-taped board surface
c. Skim coat must be applied with a "Darby" steel trowel or knife blade.
   i). Install mud to thickness as required to fill imperfections in surface using "Darby" method to fill surface up to ¼" in thickness.
   ii). Use a minimum 4'-0" wide blade.
d. The surface shall be smooth and free of tool marks and ridges.

ii. Primer/Sealer: yes, entire gypsum board surface including treated joints, exterior angles, interior angles, reveals, fasteners, etc. shall be coated with a primer/sealer prior to the application of final finishes.
   a. Gypsum board primer/sealer must be applied as a requirement of this specification section in addition to any and all requirements of primer and paint specified and installed under Section 09 90 00 – Painting and Coatings.

3.6 PROTECTION AND CLEAN UP

A. Refer to Division 1 for protection and cleaning requirements.
B. Subcontractor will keep the work areas in a clean and safe condition so his rubbish, waste, and debris do not interfere with the work of others.
C. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.
   1. Clean adjacent surfaces free of caulking or sealant with mechanical action or solvent as necessary, avoiding damage to other materials.
D. Perform work in accordance with manufacturer's recommendations, as herein specified and in accordance with drawings.
E. In the event of damage, immediately make all repairs and replacements necessary to the approval of the **Architect** and at no cost to the **Owner**.
F. After completion of work in this section, remove all erection equipment and implements of service, and debris.
   1. Leave entire area in a neat, clean, acceptable condition.

G. Provide Guarantee/Warranties and Bonds as required in this specification section and as listed in Division 1 closeout submittal procedures.
H. Provide record drawings in accordance with Division 1 closeout submittal procedures.
I. Close out, on-site inspection will be at the discretion of the **Architect** after he receives the **General Contractor's NOTICE** of "Certificate of Substantial Completion".

END SECTION 09 29 00

SECTION 09 91 13 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Surface Preparation.
   2. Field application of paints, stains, varnishes, and other coatings (PTG, PTS).

1.3 SUBMITTALS

1. Product data - Submit product data sheets for each product.
2. Samples:
   a. Submit three painted samples (brush outs), illustrating selected colors and textures for each color and systems selected with specified coats cascaded.
   b. Submit on suitable backing, 8x10 inch size.

1.4 QUALITY ASSURANCE

A. Reference Standards:
   1. Title 19 CCR, Public Safety, State Fire Marshall Regulations
   2. Title 24 CCR, Part 1 - 2022 Building Standards Administrative Code
   3. Title 24 CCR, Part 2 - 2022 California Building Code, VOL. 1&2 (CBC) (2018 IBC, as Amended by CA
   4. Title 24 CCR, Part 3 - 2022 California Electrical Code (CEC) (2017 NEC, as Amended by CA)
   5. Title 24 CCR, Part 4 - 2022 California Mechanical Code (CMC) (2018 IAPMO UMC, as Amended by CA)
   6. Title 24 CCR, Part 5 - 2022 California Plumbing Code (CPC) (2018 IAPMO UPC, as Amended by CA)
   7. Title 24 CCR, Part 9 - 2022 California Fire Code (CFC) (2018 IFC, as Amended by CA
   8. Title 24 CCR, Part 10 - 2022 California Existing Building Code
   9. Title 24 CCR, Part 12 - 2022 California Reference Standards (Partial List)

10. 2010 ADA Standards for Accessible Design
11. Americans with Disabilities Act (ADA), Title II or Title III.

1.5 DELIVERY, STORAGE, AND PROTECTION

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
B. Provide lighting level of 80 ft candles measured mid-height at substrate surface.
C. Environment Requirements:
    1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be stored and applied.
    2. Stucco: Provide a PH test of the stucco that shows compliance with PH requirements of the paint manufacturer. Do not apply paint to stucco at PH levels over 10 or the max amount recommended by the paint manufacturer, whichever is less.
    3. Do not paint when there is a threat of rain within 24 hours or when surface or air temperatures are at or below 40 degrees.
    4. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC Content limit for coatings that do not meet the definitions for specialty coatings categories listed in Table 5.504.4.3 shall be determined by classifying the coating as a Flat, Non-flat or non-flat high gloss coating based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board, suggested Control Measure, and the corresponding Flat, Non-flat or Non-flat-High gloss VOC limit on Table 5.504.4.3 shall apply. *"TABLE 5.504.4.3-VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS"*

    Aerosol paints and coatings shall meet the PWMIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on the use of certain toxic compounds and ozone depleting substances. In Sections 94522(c)(2) and (d)(2) of the California Code of Regulations, Title 17, commencing with Section 94520 and in areas under the jurisdiction of the Bay Area Air Quality

Management District, (additionally) comply with the percent VOC by weight of product limits of Regulation 8 Rule 49. *"TABLE 5.504.4.3-VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS"*

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace paint that fails in materials or workmanship within specified warranty period.
   1. Warranty Period: 1 year.

B. Installer Warranty: 1 year.

1.8 EXTRA STOCK

A. Provide following with District's permission:
   1. Minimum 2 gallons of each product and each color in an original unopened or new 1 gallon cans.
      a. Color spot each lid.
      b. Identify with formula, location, product and date on the lid.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Paints:
   1. Sherwin Williams Pomar 200 (Basis of Design for VOC, color and quality).
   2. Frazee Paints
   3. Dunn-Edwards.
   4. ICI.
   5. Or equal (Reference substitution requirements in Section 01 60 00)

2.2 PAINTS AND COATINGS

A. Ready mixed, except field-catalyzed coatings.
B. Prepare pigments:
   1. To a soft paste consistency, capable of being readily and uniformly dispersed to a homogenous coating.
   2. For good flow and brushing properties.
   3. Capable of drying or curing free of streaks or sags.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.
B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application. Do not proceed unless substrate is suitable.
C. Test shop-applied primer for compatibility with subsequent cover materials.
D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
    1. Plaster and Gypsum Wallboard: 12 percent.
    2. Interior Wood: 15 percent, measured in accordance with ASTM D-4442.
    3. Exterior Wood: 15 percent, measured in accordance with ASTM D-4442.

3.2 PREPARATION OF SURFACE

A. General:
    1. Clean all exterior walls and surfaces of loose and scaly paint, dirt, dust, chalk, and other foreign matter by water-blasting using care not to damage substrate followed by hand scraping, sanding or wire brushing after surfaces are dry. Mildew must be treated with household bleach solution and rinsed thoroughly.
    2. Patch, caulk, set protruding nails and repair all surfaces and cracks where necessary with suitable patching materials and smooth off to match adjacent surfaces.
    3. Sand Glossy surfaces to dull surface and remove residue.
    4. Remove mildew from affected surfaces with a solution of Tri-Sodium Phosphate and bleach. Rinse with clean water and allow to dry completely.
    5. Existing surfaces to be recoated shall be thoroughly cleaned and de-glossed by sanding or other means prior to priming and painting. Patched and bare areas shall be spot primed with the same primer as specified for new work.
    6. Rusty metal: Scrape, sand or wire wheel, feathering edges to sound coating. Dust surfaces. Topcoat.
    7. Remove soil and body oils completely from surfaces, including handrails, door edges and posts. Treat with Liquid Sandpaper or Dull-N-Bond.
    8. Remove hardware, accessories, plates, fixtures and similar items not to be finished. Reinstall at completion.
    9. Paint edges of sink cut-outs.

B. Galvanized Surfaces: Remove all oils and contamination from galvanized surfaces scheduled to be painted by washing with a compliant solvent wash.
C. Ferrous Metal: Remove grease, rust, scale, dirt and dust from ferrous metal surfaces. Primer coat shall be applied not less than 30 minutes, nor more than 3 hours after preparation of surface.
D. Primed Metal: Sand and scrape shop primed metal to remove loose primer and rust. Touch-up bare, abraded and damaged areas with metal primer. Feather edges to make touch-up patches inconspicuous.
E. Wood Surfaces:
    1. Remove dust, grit and foreign matter from wood surfaces. Sand surfaces and dust clean. Spot prime knots, pitch streaks and sappy sections with a stain blocking primer where surfaces are to be painted. Fill nail holes, cracks and other defects after priming and spot prime repairs after patching material has fully cured.
    2. Wood surfaces with peeling areas are to have edges of broken paint film sanded to a feather edge.
    3. Back prime wood trim. Paint tops, bottoms, edges and cut-outs of doors.

F. Plaster Surfaces:
    1. Plaster surfaces shall be dry and free from efflorescence, encrustations and foreign matter. Fill cracks, holes and imperfections, smoothing repairs to match adjacent texture. Allow repairs to fully cure before priming.
    2. Prime plaster surfaces with specified primer. Caulk all cracks.

G. Gypsum Board: Gypsum board shall be dusted clean and free from encrustations and other foreign matter.
H. Preparation of other surfaces shall be performed following specific recommendations of the coating manufacturer.

3.3 APPLICATION

A. Apply products in accordance with manufacturer's instructions.
B. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
D. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless otherwise approved

E. Sand wood surfaces lightly between coats to achieve required finish.
F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust particles just prior to applying next coat.
G. Stipple all edges and corners to conceal brush marks.
H. Doors: Paint entire door unless otherwise noted, including door top and bottom edge surfaces.
I. Paint entire trim element. Painting of faces only is unacceptable. Trim surfaces must be wrapped with the trim color and not "faced off" or "Hollywooded".
J. Tinting: Tint each primer a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint primer to match the color of the finish coat, but provide sufficient differences in shade of primer to distinguish each separate coat.

3.4 PROTECTION

A. Protect work of other trades and items not intended to receive paint. Install "wet paint" signs to protect newly painted surfaces.

3.5 CLEANING

A. Protection - Carefully protect areas where work is in progress from damage.
   1. Provide and spread clean drop cloths when and where required to provide the necessary protection.
   2. Immediately clean-up all accidental spatter, spillage, misplaced paint and restore the affected surface to its original condition.

B. Clean-up:
   1. At completion of work, remove all materials, supplies, debris and rubbish and leave each area in a clean, acceptable condition.
   2. Collect waste material which may constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.6 SURFACES TO BE FINISHED

A. Paint all new work and areas affected by new work, unless noted otherwise.
B. Do not paint or finish the following items:
   1. Items fully factory-finished unless specifically noted.

2. Fire rating labels, equipment serial number and capacity labels.

C. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.
1. Paint all insulated and exposed pipes occurring in finished areas to match background surfaces, unless otherwise indicated.
2. Paint shop primed items occurring in finished areas.
3. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint.
4. Paint dampers exposed behind louvers, grilles and convector and baseboard cabinets to match face panels.

3.7 PAINT SYSTEMS – EXTERIOR

Satin *(#B33W200) Semi-gloss (#B35W200) Hi-Gloss, (#B35W200)*

A. Paint New Plaster/Stucco, Cement Siding, Shingles, Common Brick and Concrete Walls, Low Sheen (Satin) Finish. 3 coat:
1. 1st Coat: S-W Loxon Concrete & Masonry Primer Sealer, A24W0300 (8 mils wet, 3.2 mils dry).
2. 2nd Coat: S-W #A89W00507 *(#B33W200)* Acrylic Low sheen (4 mils wet, 1.5 mils dry per coat)
3. 3rd Coat: S-W #A89W00507 *(#B33W200)* Acrylic Low sheen (4 mils wet, 1.5 mils dry per coat)

B. Paint New Plaster/Stucco, Cement Siding, Shingles, Common Brick and Concrete Walls,
1. 1st Coat: S-W Loxon Concrete & Masonry Primer Sealer, A24W0300 (8 mils wet, 3.2 mils dry).
2. 2nd Coat: S-W #B35W200 Acrylic Hi-Gloss (4 mils wet, 1.5 mils dry per coat)
3. 3rd Coat: S-W #B35W200 Acrylic Hi-Gloss (4 mils wet, 1.5 mils dry per coat)

C. Paint New Plaster/Stucco, Cement Siding, Shingles, Common Brick and Concrete Walls, Hi-gloss Finish. 3 coats:
1. 1st Coat: S-W Loxon Concrete & Masonry Primer Sealer, A24W0300 (8 mils wet, 3.2 mils dry).
2. 2nd Coat: S-W #B35W200 Acrylic Hi-Gloss (4 mils wet, 1.5 mils dry per coat)
3. 3rd Coat: S-W #B35W200 Acrylic Hi-Gloss (4 mils wet, 1.5 mils dry per coat)

D. Paint New Plaster/Stucco, Cement Siding, Shingles, Common Brick and Concrete Walls, Low Sheen (Satin) Finish. 3 coat:
1. 1st Coat: S-W Loxon Concrete & Masonry Primer Sealer, A24W0300 (8 mils wet, 3.2 mils dry).
2. 2nd Coat: S-W #B33W200 Acrylic Low sheen (4 mils wet, 1.5 mils dry per coat)
3. 3rd Coat: S-W #B33W200 Acrylic Low sheen (4 mils wet, 1.5 mils dry per coat)

E. Paint New Wood Satin Finish, Latex, 3 coat:
1. 1st Coat: S-W Exterior Latex Wood Primer, B42W8041 (4 mils wet, 1.4 mils dry).
2. 2nd Coat: S-W #B33W200 Latex Satin, (4 mils wet, 1.52 mils dry per coat).
3. 3rd Coat: S-W #B33W200 Latex Satin, (4 mils wet, 1.52 mils dry per coat).

F. Paint New Unpainted Masonry Satin Finish, Latex, 3 coat:
1. 1st Coat: S-W Exterior Acrylic Masonry Primer, A24W00300 (50-100 sq ft/gal).
2. 2nd Coat: S-W Super Paint Exterior Acrylic Latex Satin Finish. A89W00507 (4 mils wet, 1.52 mils dry per coat
3. 3rd Coat: S-W Super Paint Exterior Acrylic Latex Satin Finish. A89W00507 (4 mils wet, 1.52 mils dry per coat

G. Paint New Unpainted CMU Satin Finish, Latex, 3 coat:
1. 1st Coat: S-W Heavy Duty Acrylic Block Filler Primer, B42W00046 (50-100 sq ft/gal).
2. 2nd Coat: S-W Super Paint Exterior Acrylic Latex Satin Finish. A89W00507 (4 mils wet, 1.52 mils dry per coat
3. 3rd Coat: S-W Super Paint Exterior Acrylic Latex Satin Finish. A89W00507 (4 mils wet, 1.52 mils dry per coat

H. Paint New Wood, Satin Finish. Acrylic Latex, 3 coat:
1. 1st Coat: S-W A-100 Exterior Oil Wood Primer, Y24W00020 (8 mils wet, 3.2 mils dry).
2. 2nd Coat: S-W S-W Super Paint Exterior Acrylic Latex Satin Finish. A89W00507 (4 mils wet, 1.52 mils dry per coat
3. 3rd Coat: - S-W Super Paint Exterior Acrylic Latex Satin Finish. A89W00507 (4 mils wet, 1.52 mils dry per coat).

I. Stain New Wood Siding, Shingles (non-roof) and Trim, Semi-Transparent, 2 coat:
1. 1st Coat: S-W Woodscapes Exterior Polyurethane Semi-Transparent Stain A15W00211
2. 2nd Coat: S-W Woodscapes Exterior Polyurethane Semi-Transparent Stain A15W00211

J. Stain New Wood Siding, Shingles (non-roof) and Trim, Opaque Finish, 2 coat:
1. 1st Coat: S-W Woodscapes Exterior Polyurethane Semi-Transparent Stain A15W00211
2. 2nd Coat: S-W Woodscapes Exterior Polyurethane Semi-Transparent Stain A15W00211

K. Paint Ferrous Metals Semi-Gloss, Acrylic, 3 coat:
1. 1st Coat: S-W Kem-Bond HS Universal Metal Primer (Off White) B50WZ0004 (5.0 mils wet, 2.0 mils dry). *(If pre Primed: Show compatibility of primer and this coat can be deleted.)*

2. 2nd Coat: S-W DTM Acrylic Coating Semi-Gloss, B66W00211 (4 mils wet, 1.5 mils dry per coat).
3. 3rd Coat: S-W DTM Acrylic Coating Semi-Gloss, (4 mils wet, 1.5 mils dry per coat).

L. Paint New Galvanized Metals, Semi-Gloss, Acrylic, Latex 2 coat:
1. 1st Coat: Jasco Metal Etch (5.0 mils wet, 2.0 mils dry).
2. 2nd Coat: S-W DTM Acrylic Coating Semi-Gloss, B66W00211 (4 mils wet, 1.5 mils dry per coat).
3. 3rd Coat: S-W DTM Acrylic Coating Semi-Gloss, (4 mils wet, 1.5 mils dry per coat).

M. Elastomeric Coating:
1. 1st Coat - S-W, VIP
2. 1st and 2nd Coats: Minimum (2 mil each coat)

3.8 PAINT SYSTEMS -INTERIOR

A. Paint New – Wood, Trim, Doors, Composite Wood Panels, Semi-gloss Latex, 3 coat:
1. 1st Coat: Pro-Mar white lacquer Undercoater White B44WT0001
2. 2nd Coat: S-W ProMar 200 Interior Latex, Semi-Gloss, Extra white B31W02251. (4 mils wet, 1.3 mils dry per coat)
3. 3rd Coat: S-W ProMar 200 Interior Latex, Semi-Gloss, Extra white B31W02251. (4 mils wet, 1.3 mils dry per coat)

B. Paint Ferrous Metals Semi-Gloss, Acrylic, 3 coat:
1. 1st Coat: S-W Kem-Bond HS Universal Metal Primer (Off White) B50WZ0004 (5.0 mils wet, 2.0 mils dry). *If pre-Primed: Show compatibility of primer and this coat can be deleted.*
2. 2nd Coat: S-W DTM Acrylic Coating Semi-Gloss, B66W00211 (4 mils wet, 1.5 mils dry per coat).
3. 3rd Coat: S-W DTM Acrylic Coating Semi-Gloss, (4 mils wet, 1.5 mils dry per coat

C. Paint New Gypsum Board (All Areas except Public Areas , Restrooms and wet Areas) Satin Finish - Latex, 3 coat:
1. 1st Coat: S-W Pro High Holdout Primer, B28WY2000 Series (5.0 mils wet, 2.0 mils dry)
2. 2nd Coat: S-W ProMar 200 Interior Latex Lo-Sheen ES Enamel Extra White, (4 mils wet, 1.7 mils dry per coat).
3. 3rd Coat: S-W ProMar 200 Interior Latex Lo-Sheen ES Enamel Extra White, (4 mils wet, 1.7 mils dry per coat).

D. Paint New Gypsum Board (Public Areas , Restrooms and wet Areas)Semi-Gloss Finish - Latex, 3 coat:

1. 1st Coat: S-W Pro High Holdout Primer, B28WY2000 Series (5.0 mils wet, 2.0 mils dry)
2. 2nd Coat: S-W ProMar 200 Interior Latex Semi-Gloss Extra White, B20W011251 (4 mils wet, 1.7 mils dry per coat).
3. 3rd Coat: S-W ProMar 200 Interior Latex Semi-Gloss Extra White, B20W011251 (4 mils wet, 1.7 mils dry per coat).

E. Paint New Plaster/ Concrete (Public Areas , Restrooms and wet Areas) Semi-Gloss Finish - Latex, 3 coat:
1. 1st Coat: PrepRite Classic Interior Latex Primer, B28W00101 (5.0 mils wet, 2.0 mils dry)
2. 2nd Coat: S-W ProMar 200 Interior Latex Semi-Gloss Extra White, B31W02251 (4 mils wet, 1.7 mils dry per coat).
3. 3rd Coat: S-W ProMar 200 Interior Latex Semi-Gloss Extra White, B31W02251 (4 mils wet, 1.7 mils dry per coat).

F. Paint New Galvanized Metals, Semi-Gloss, Acrylic, Latex 2 coat:
1. 1st Coat: Jasco Metal Etch (5.0 mils wet, 2.0 mils dry).
2. 2nd Coat: S-W DTM Acrylic Coating Semi-Gloss, B31W02251 (4 mils wet, 1.5 mils dry per coat).
3. 3rd Coat: S-W DTM Acrylic Coating Semi-Gloss, B31W0225 (4 mils wet, 1.5 mils dry per coat).

3.9 COLORS

A. To be selected by Architect from Manufacturers standard color palette and as scheduled on the “Finish Schedule” provided in the plans.

END OF SECTION 09 91 00

SECTION 27 00 00
COMMUNICATIONS BASIC REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies the common administration basic requirements and common methods for all low voltage systems installation work included under Division 27 and 28 and where those requirements differ from the requirements of this section, the more stringent shall govern.

1.02 STANDARDS, REGULATIONS, AND CODES REFERENCES

A. The following Standards, Regulations and Codes apply to work specified in the Contract Documents.

1. Applicable State and Local Codes.
2. California Building Code and California Electrical Code, Current Editions.
3. BICSI TDMM (Telecommunications Distribution Methods Manual), 11th Edition 2006.
4. ANSI/TIA/EIA-568-B.1. Commercial Building Telecommunications Cabling Standard,
5. ANSI/TIA/EIA-568-B.1-2. Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements, Addendum 2, Grounding and Bonding Specifications for Screened Balanced Twisted-Pair Horizontal Cabling.
6. ANSI/TIA/EIA-568-B.1-3. Commercial Building Telecommunications Cabling Standard.
7. ANSI/TIA/EIA-568-B.1-4. Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements, Addendum 4, Recognition of Category 6 and Category Cat 6A and 50 nm Laser-Optimized 50/125 um Multimode Optical Fiber Cabling.
8. ANSI/TIA/EIA-568-B.1-2. Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted-Pair Cabling Components.
9. ANSI/TIA/EIA-568-B.2-1. Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted-Pair Cabling Components, Addendum 1,Transmission Performance Specifications for 4-Pair 100 Ohm Category 6 Cabling.
10. ANSI/TIA/EIA-568-B.2-10 (draft 2.0). Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted-Pair Cabling Components, Addendum 10, Transmission Performance Specifications for 4-Pair 100 Ohm Augmented Category 6 Cabling.
11. ANSI/TIA/EIA-568-B3.3 Optical Fiber Cabling Components Standard.
12. TIA-569-B. Commercial Building Standard for Telecommunications Pathways and Spaces.
13. ANSI/TIA/EIA-606-A. Administration Standard for Commercial Telecommunications Infrastructure.

14. ANSI/TIA/EIA-607-A. Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.
15. TIA/EIA TSB-67 Transmission Performance Specifications for Field Testing of Unshielded Twisted-Pair Cabling Systems.
16. TIA/EIA TSB-72 Centralized Optical Fiber Cabling Guidelines.

1.03 DEFINITIONS

A. The following is a list of abbreviations generally used in Divisions 27 & 28:
1. ADA - Americans with Disabilities Act
2. AHJ - Authority Having Jurisdiction
3. ANSI - American National Standards Institute
4. APWA - American Public Works Association
5. ASTM - American Society for Testing and Materials
6. CBC - California Building Code
7. CEC - California Electrical Code
8. CFC - California Fire Code
9. FCC - Federal Communications Commission
10. HVAC - Heating, Ventilating and Air Conditioning
11. IEC - International Electro-technical Commission
12. IEEE - Institute of Electrical and Electronics Engineers.
13. IETA - International Electrical Testing Association
14. FM - FM Global
15. NEMA - National Electrical Manufacturers Association
16. NFPA - National Fire Protection Association
17. OSHA - Occupational Safety and Health Administration
18. UL - Underwriters Laboratories Inc.

B. Provide: To furnish and install, complete and ready for the intended use.

C. Furnish: Supply and deliver to the project site, ready for unpacking, assembly, and installation.

D. Install: Includes unloading, unpacking, assembling, erecting, installing, applying, finishing, protecting, cleaning and similar operations at the project site to complete items of work furnished by others.

E. Following is a list of commonly used terms in Division 27:
1. Active Equipment: Electronic equipment used to develop various WAN and LAN services.

2. Backbone: Collective term sometimes used to describe the campus and vertical distribution subsystem facilities and media interconnecting service entrances, communications rooms, and communications cabinets.
3. Bonding: Permanent joining of metallic parts to form an electrically conductive path which will assure electrical continuity and the capacity to safely conduct currents likely to be imposed on it.
4. Cabinet: Wall-mounted modular enclosure designed to house and protect electronic equipment.
5. Cable Tray: Vertical or horizontal open supports, usually made of aluminum or steel, that are fastened to a building ceiling or wall. Cables are laid in and fastened to the trays. A cable tray is not a raceway.
6. Campus: Grounds and buildings of a multi-building premises environment.
7. Channel: The end-to-end transmission path between two points at which application specific equipment is connected; may include one or more links, cross-connect jumper and/or patch cords, and work area station cords. Does not include connection to active equipment.
8. Cross-Connect: Equipment used to terminate and tie together communications circuits.
9. Cross-Connect Jumper: A cluster of twisted-pair conductors without connectors used to establish a circuit by linking two cross-connect termination points.
10. Fiber Optic Distribution Unit (FDU): Cabinet with terminating equipment used to develop fiber optic cross-connect facilities. Also known as LIU.
11. Grounding: a conducting connection to earth, or to some conducting body that serves in place of earth.
12. Hinged Cover Enclosure: Wall-mounted box with a hinged cover that is used to house and protect electrical devices.
13. Horizontal: Pathway facilities and media connecting the MDF or IDF to Telecommunications Outlets.
14. Intermediate Distribution Frame (IDF): Data networking equipment rack and/or location that serves an individual area, floor or building. Downstream from the MDF.
15. Jack: Receptacle used in conjunction with a plug to make electrical contact between communications circuits, e.g., eight-position/eight-contact modular jacks.
16. Link: A transmission path between two points, not including terminal equipment, work area cables, and equipment cables; one continuous section of conductors or fiber, including the connecting hardware at each end.
17. Local Area Network (LAN): Data transmission facility connecting several communicating devices, typically Ethernet and the network is limited to a single campus.
18. Main Distribution Frame (MDF): Initial (main) data network equipment rack and/or location. Only one MDF occurs per site and may serve many downstream IDFs.
19. Media: The type of cable (e.g., twisted-pair, coaxial, or fiber optic) used to provide signal transmission paths.

20. Minimum Point of Entry (MPOE): The location where the service provider hands off connection and responsibility for service to on premise customer owned equipment.
21. Modular plug: An eight-position, eight-conductor end-of-wire electrical connector used with Category rated cable.
22. Passive Equipment: Non-electronic hardware and apparatus, e.g., equipment racks, cable trays, electrical protection, wiring blocks, FDUs, etc.
23. Patch Cord: A length of copper or fiber cable with connectors on both ends used to join communications circuits at MDF/IDF and end stations.
24. Patch Panel: System of terminal blocks or connectors used with patch cords that facilitate the administration of cross-connect fields.
25. Pathway: Facility for the placement of communications cable. A pathway facility can be composed of several components including conduit, wireway, cable tray, surface raceway, underfloor systems, raised floor, ceiling support wires, etc.
26. Protectors: Electrical protection devices used to limit foreign voltages on metallic communications circuits.
27. Raceway: An enclosed channel designed expressly for holding wires or cables; may either conductive metal or insulating plastic. The term includes conduit, tubing, wireway, underfloor raceway, and surface raceway; does not include cable tray.
28. Rack: An open or enclosed structure, typically made of aluminum or steel, used to mount equipment; usually referred to as an equipment rack. Maybe freestanding and floor mounted or a wall mounted cabinet. Industry standard 19" width spacing.
29. Wiring Block: Punch down terminating equipment used to develop twisted pair cross-connect facilities.

1.04 PRODUCT AVAILABILITY

A. Products with long lead times are to be brought to the attention of the project manager.

1.05 PRODUCT SUBMITTALS

A. See Division 01 Submittals for more requirements

1.06 SUBSTITUTION LIMITATIONS

A. Equivalent product(s) may be considered for substitution for those products specified, however, the equivalent product(s) must be approved, and show demonstrated and documented equivalence to the product(s) specified. Documentation includes but is not limited to product samples, data sheets, and actual test data. The request for product substitution, and supporting documentation, must be submitted, in writing to the Project Manager/Designer.

B. See Division 01 Substitutions for more requirements

1.07 QUALITY ASSURANCE

A. Conform to requirements of the CEC, latest adopted version with amendments by local AHJs.

B. Conform to the latest adopted version of the CBC with amendments by local AHJs.

C. Obtain and pay for electrical permits, plan review, and inspections from local AHJs.

D. Furnish products listed by UL or other testing firm acceptable to AHJ.

E. Conform to requirements of the serving electric, telephone, broadband and cable television utilities.

F. Contractor Qualifications:
1. Minimum of five years' experience in the design, installation, testing, and maintenance of low-voltage systems.
2. Maintain a local service facility which stocks spare devices and/or components for servicing systems.
3. Have performed successful installation and maintenance of at least three projects similar in scope and size. Be able to provide project references for these three projects, including scope of Work, project type, owner/user contact name and telephone number.
4. The contractor selected for this project must be certified by the manufacturer of the products and utilize these components for completion of work.
5. Holds and maintains a valid California C-7 or C-10 State Contractors License and can exhibit validity upon request.
6. A list of test equipment proposed for use in verifying the installed integrity of copper and fiber optic cable systems used.
7. A technical resume of experience for the contractor's Project Manager and on-site installation supervisor who will be assigned to this project.
8. A list of technical product training attended by the contractor's personnel that will install the specified manufacturer system.
9. List of Sub-Contractor(s) who will assist the contractor in the performance of this work.

1.08 SEQUENCING AND SCHEDULING

A. For the proper execution of the work, cooperate with other tradecrafts and contracts as needed.

B. To avoid installation conflicts, thoroughly examine the complete set of Contract Documents. Resolve conflicts with Project Manager/Designer prior to installation.

C. Prior to installation of communications cable to equipment requiring connections, examine the manufacturer's shop drawings, wiring diagrams, product data, and installation instructions. Verify that the electrical characteristics detailed in the Contract Documents are consistent with the electrical characteristics of the actual equipment being installed. When inconsistencies occur request clarification from Project Manager/Designer.

1.09 SHOP DRAWINGS

A. Shop Drawings: When required by individual Specification Sections, provide shop drawings which include physical characteristics, electrical characteristics, device layout plans, point-to-point wiring diagrams for all connections, and the like. Refer to individual Specification Sections for additional requirements for the shop drawings.

1.10 WARRANTY

A. Provide an extended manufacturer’s warranty on the Backbone and Horizontal Communications systems as specified in other sections of Division 27.

1.11 CLOSE OUT DOCUMENTS

A. Final coordination drawings, with as-built information added, are to be submitted as record drawings at completion of project.

B. Record Drawings:
   1. Show changes and deviations from the Construction Drawings. Include written Addendum and change order items.
   2. Show exact routes of pathway facilities and service entrance conduits.
   3. Show the exact location of racks, cabinets, mounting frames and the like.

C. Operation and Maintenance Documentation: Provide copies of certificates of code authority acceptance, product data, guarantees, warranties, installation guides, maintenance guides and the like.

D. Inspection and/or testing: Submit testing reports for testing that was performed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Provide like items from one manufacturer, such as wire/cable, jacks, modular plugs, patch panels, equipment connection cords, wall plates, and the like. See individual sections for detailed information.

2.02 MATERIALS

A. Provide new electrical materials of the type and quality detailed, listed by UL, bearing their label wherever standards have been established. Indicated brand names and catalog numbers are used to establish standards of performance and quality.

B. Provide material and equipment that is acceptable to AHJ as suitable for the use indicated. For example, provide plenum rated cable in ceilings that are utilized as air return plenums.

C. Include special features, finishes, accessories, and other requirements as described in the Contract Documents regardless of the item's listed catalog number.

D. Provide incidentals not specifically mentioned herein or noted on Drawings, but needed to complete the system, in a safe and satisfactory working condition.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Construction Documents:
1. Drawings are diagrammatic with symbols representing communications equipment, outlets, and wiring.
2. Electrical symbols indicating wiring and equipment shown in the Contract Documents are included in the Contract unless specifically noted otherwise.
3. Examine the entire set of Drawings to avoid conflicts with other systems. Determine exact route and installation of communications wiring and equipment with conditions of construction.

3.02 INSTALLATION

A. Install communications equipment completely as directed by manufacturer's installation instructions. Obtain installation instructions from manufacturer prior to rough-in of the communications equipment, examine the instructions thoroughly. When requirements of the installation instructions conflict with the Contract Documents, request clarification from Project Manager/Designer prior to proceeding with the installation.

B. Do not install communications equipment in obvious passages, doorways, scuttles, or crawl spaces which would impede or block the passage's intended usage.

C. Do not install communications equipment in locations where it would obviously be subject to damage during normal usage.

3.03 FIELD QUALITY CONTROL

A. Tests: Conduct tests of equipment and systems to demonstrate compliance with requirements specified in Division 27 & 28. Refer to individual Specification Sections for required tests. Document tests and include in Closeout Documents.

3.04 CLEANING

A. Remove dirt and debris caused by the execution of the communications work.

B. Leave the entire communications system installed under this Contract in a clean, dust-free, and proper working order.

C. Vacuum clean interiors of new and modified electrical signal and communication equipment enclosures.

END OF SECTION

SECTION 27 05 00
COMMON WORK RESULTS FOR COMMUNICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. This section specifies the basic materials and methods for all low voltage pathways installation work included under Division 27 and 28 and where those requirements differ from the requirements of this section, the more stringent shall govern.

B. This section adds refinements to Division 26 that apply to Communications and extra-low-voltage systems.

1.02 SCOPE

A. Materials and/or methods for the following.
1. Communication services
2. Grounding
3. Fasteners
4. Hangers and supports
5. Conduits/Backboxes/Raceways
6. Underground
7. Sleeves and penetrations

1.03 SUBMITTALS

A. Submittals shall be done in accordance with District submittal procedures, see Division 01 Submittals for requirements.

1.04 RELATED REQUIREMENTS

A. Division 07 – Thermal and Moisture Protection

B. Division 26 – Electrical

C. 27 00 00 – Communications Basic Requirements

1.05 REFERENCES

A. ANSI American Nation Standards Institute

B. NFPA 70 – National Electrical Code

C. UL Underwriters Laboratory

D. California Building Code (CBC)

E. California Electrical Code (CEC)

1.06 WARRANTY

A. Refer to Division 01 -– Warranties

PART 2 – PRODUCTS

2.01 All products used on this project shall bear the label and be approved by Underwriters Laboratories unless otherwise approved in writing by District.

2.02 FASTENERS

A. Mounting hardware and anchors recommended by the manufacturer of any material that shall be mounted to the building or structure.
   1. Sheet rock / drywall / wall board: Easy Anchor, toggle bolt, other spread type anchor with load distribution, or approved equal.
   2. Concrete / cinder block / solid masonry: Expanding compression type lag, expanding compression type bolt, expanding compression type, all-thread with nuts, or approved equal.
   3. Tile / Stucco / hollow masonry: Toggle bolts or approved equal.
   4. Wood: Lag screws, wood screws, or approved equal.
   5. Metal: Beam clamps, sheet metal screws, self-drilling screws or approved equal.

2.03 HANGERS AND SUPPORT

A. D-RINGS
   1. Commercial grade

B. J-HOOKS
   1. Panduit J-Pro

2.04 SURFACE RACEWAY

A. Existing: Match raceway already installed in facility, unless otherwise instructed in project documentation.
B. New: Wiremold 2300 and 5400 raceway systems are acceptable.

2.05 CONDUITS AND ACCESSORIES

A. CONDUITS
1. See Division 26 for requirements.

2. Conduit for Fire Alarm applications shall be red in color (non-accessible areas are excluded).

3. All new conduits shall be sized accordingly to achieve a 40% maximum fill ratio with initial cables installed.

4. Underground conduits shall be Schedule 40 PVC.

B. INNERDUCT
1. Orange corrugated HDPE (High Density Polythylene) Innerduct shall be used for fiber optic cable protection in interior locations.

2. Fabric multi-cell innerduct is approved for underground conduits 2” and larger.

C. FITTINGS:
1. See Division 26 for requirements.

2. Conduit bodies, condulets, “LBs”, pulling elbows, and any sharp bend fittings are strictly prohibited for communication Cat6A and fiber optic cables. Appropriate conduit sweeps are required.

D. PULL LINE
1. Minimum 1/8" diameter, or larger braided line of polypropylene or continuous fiber polyolefin. The minimum breaking strength of 1/8 in. line is 200 lbs.

2.06 BACKBOXES, JUNCTION BOXES AND FLOOR BOXES

A. Galvanized one-piece or welded pressed steel type. Boxes shall be at least 2-1/8" deep, 4" square for 1 or 2 gang devices, with device rings. Boxes mounted in wall or ceiling finishes shall be furnished with device rings to match wall surface depth. Provide blank cover for all boxes without fixture or device.

B. Provide blank cover for all surface boxes without a device, sized to match the surface box. No edge of a blank cover shall extend past the edge of a surface box.

C. Junction boxes, larger than 8", located indoors shall be hinged, NEMA-1 rated.

D. Junction boxes, larger than 8", located on exterior walls, or in wet or damp locations shall be hinged, NEMA-3R.

E. Junction boxes of any size located on rooftops (including canopy rooftops) shall be hinged, NEMA 4.

F. Provide and install tamper-proof screws for all exterior boxes.

G. Junction boxes used for Fire Alarm systems are to be red in color with red colored cover plates.

2.07 GROUND BOXES

A. See Division 26 and below for requirements.

B. Approved manufactures are Jensen, Christy or approved equal.

C. All ground boxes shall have metal traffic-rated lids with permanent factory markings of COMM or COMMUNICATIONS.

D. Minimum size is 17" x 30"

E. For AT&T service feeds the requirement is for 30"x48" Intercept Pullboxes. Jensen SKU 100020251/Mod # K304836AT was referenced by AT&T.

F. For Comcast - Christy B2436 at service tie in and B1730 as an inline pullboxes are acceptable.

2.08 PENETRATION SEALING

A. Firestopping: Provide UL Listed Firestopping materials for all penetrations through rated assemblies (walls / floors). See Division 07 for more information.

B. Draft stopping: Foam sealant for use around conduit penetrations (in non-rated assemblies) to prevent passage of air, smoke, and/or toxic gas. See Division 07 for more information.

C. Weatherproofing: Weatherproof sealant for use around conduit penetrations in exterior walls to prevent the intrusion of water. See Division 07 for more information.

2.09 GROUNDING BUS BAR

A. Copper bus bar 2″x10″x1/4″ minimum size with stand-off brackets and insulators, pre-drilled and threaded mounting holes (hole qty. 12 or greater) for equipment grounding lug attachment.

PART 3 - EXECUTION

3.01 COMMUNICATION SERVICES

A. Install inground boxes, conduits, and terminal cabinets per service provider requirements.

3.02 GROUNDING

A. Ground fittings shall be UL approved for each application and installed and/or connected to system in accordance with current CEC Code requirements.

B. See Division 26 for additional requirements.

H. Install grounding bus bar per manufacturer's instructions and in each MDF and IDF.
C.
I. All network equipment, racks, cabinets, and pathways shall be bonded to the grounding bus bars as described in the TIA 607 series of standards.

3.03 HANGERS AND SUPPORTS

A. Install hangers and supports per manufacturer's written instructions.

B. Hanger spacing shall be 48″ or less and within 12″ of sleeves and/or junction/back boxes.

3.04 LOW VOLTAGE PATHWAY/RACEWAYS

A. EMT conduit may be used at following locations:
   1. In dry locations in furred spaces.
   2. In partitions other than concrete or solid masonry.

B. Rigid steel conduit and fittings shall be used for vertical risers and on all roofs, overhangs, walkways, canopies, or any other location exposed to direct weather.

C. Furnish and install pull lines in all unused (empty) conduits or raceways. All pull lines shall be permanently tagged with identification at both ends.

D. Install exposed conduit neatly, parallel to or at right angles to structural members. Maintain a minimum of 12 inches of clearance from steam or hot water pipes. All installed strut channel supports should allow for future conduit attachments. The width of strut channel to match the width of the closest attached junction box. See design document details for attachment requirements.

E. Supports: Support conduit with two-hole straps or strut channel where shown in design documents and/or specified. Single-hole straps are prohibited. Coordinate supports with architectural details. Secure to wood structure by means of bolts or lag screws, to metal by means of shallow self-tapping screws, to concrete by means of insert or expansion bolts, to brickwork by means of expansion bolts, and to hollow masonry or stucco by means of toggle bolts.

F. Spacing for all EMT and rigid steel conduit supports shall be as follows unless otherwise specified in design documents details:

1. Surface conduit spacing and supports and unless otherwise specified or shown on drawing details:
    a. EMT – Size 3/4″ to 2″ – 4′ maximum spacing (3 each supports per 10′ conduit length) and 12″ from each end of conduit at coupling, connector or 90-degree bend.

    b. Rigid steel – Size 3/4″ to 2″ – 4′ maximum spacing (3 each supports per 10′ conduit length) and 12″ from each end of conduit at coupling, connector or 90-degree bend.

G. If conduit is designated for low voltage use, no more than a total of 360 degrees of conduit bend radius will be allowed between pull boxes.

H. All junction boxes shall be connected to conduits using appropriate connecting hardware (i.e. box connectors).

I. Clean, prep and paint with white primer all exposed conduit, junction boxes, channel strut, fittings, and accessories.

J. Before pulling any conductors into an underground PVC conduit (new or existing), the conduit shall be first be proofed by pulling through a mandrel of a diameter ¼ in. smaller

than the conduit inside dia., followed by a swab of the same diameter as the conduit inside diameter.

K. Non-metallic raceway to be installed with mechanical fasteners only, do not remove adhesive tape backing.

L. Capping

1. Cap conduits during construction with manufactured seals. Swab out conduits before installing wires.

2. Cap all empty conduits below grade and in pull boxes with manufacturer's caps to prevent entrance of debris, attach pull string to cap.

M. Underground Conduit

1. Service provider conduits shall be:
   a. AT&T - 1-4" (fiber only) or 2-4" (fiber and copper)

   b. Comcast - 1-2"

2. #10 tracer wire or tracer tape is required for all underground Division 27 PVC conduits.

3.05 J-BOXES

A. Screws shall be used to attach boxes, and must be accurately placed for finish, independently and securely supported by adequate wood backing or by manufactured adjustable channel type heavy-duty box hangers.

1. Boxes shall be attached to metal studs with metal box hangers.

2. Boxes installed in masonry tile or concrete block construction shall be secured with auxiliary plates, bars or clips and be grouted in place.

B. Locate outlets at the following heights unless otherwise noted on Drawings, Specifications, current CBC or as required to meet ADA handicap requirements.

1. Data Outlets: Same height as electrical outlets

2. Telephone Wall Outlets: Above counter/backsplash height or at light switch height.

C. Low Voltage boxes shall be placed within 18" of electrical outlets.

D. For sound control, separate outlets on opposite sides of walls 16" minimum. Where outlets are less than 16" or in sound rated walls, seal airtight with fire rated sheet putty pads.

Fill gap between junction box and wall with acoustical sealant all around perimeter of junction box. Fill conduits larger than 1 1/4" with fire rated putty.

E. Installation of conduit and outlet boxes in fire-resistive walls, floors, floor-ceiling or roof-ceiling assemblies shall comply with Title 24, Part 2, Section 713.

3.06 GROUND BOXES

A. To be installed per Division 26 requirements.

B. Provisions to be made for supporting cables from the box sides (i.e., j-hooks, d-rings)

C. Install a 30" x 48" for service provider AT&T at service tie-in location and/or a 24" x 36" for service provider Comcast at service tie-in location. If less than 360-degrees of bends and less than 200 feet it is acceptable to stub in to the MPOE directly. If greater for 360-degree for bends or 200 feet for length then additional in-line ground boxes are required (30" x 48" for AT&T, 17" x 30" for Comcast). See section Part 2 – Products for more information.

3.07 SLEEVES AND CONDUIT PENETRATIONS

A. Where conduit passes through walls, ceilings, or floors with connection points to junction boxes or raceways mounted to the same wall as the penetration provide a threaded conduit and secured in place with locking rings on both sides. Bend radius requirements shall be maintained where penetrations are made through the back of raceways; junction boxes with adequate depth shall be installed to comply with this requirement.

B. Where conduit passes through walls, ceilings, or floors with connection points to junction boxes or raceways not mounted to the same wall as the penetration, provide EMT conduit and secured in place with strut channel. Box connectors shall always be used to connect EMT to junction boxes and raceways.

C. All wire and cable passing through metalwork shall be sleeved with an appropriate grommet or bushing.

D. FIRE STOPPING
1. Seal all conduit penetrations through fire rated walls and floors fire and smoke tight in conformance with current CBC and current CEC. See Division 07 for more information.

E. DRAFT STOPPING

1. All non-fire rated walls must be draft stopped and sealed. Submit method to be used for approval by inspector and/or project manager. Mineral wool is one product that may be used. See Division 07 for more information.

F. WEATHER SEALING

1. All exterior penetrations shall be sealed watertight. The contractor shall use silicone rubber caulk or other approved methods and materials. Submit method and material with inspector and/or project manager. See Division 07 for more information.

3.08 CLEANING

A. Clean all work prior to concealing, painting, and acceptance. Performed in stages if directed.

B. Clean and repair soiled or damaged painted exposed work and match adjoining work before final acceptance.

C. Remove debris from inside and outside of equipment and enclosures.

3.09 FINAL DOCUMENT SUBMITTALS

A. See 27 00 00 for more information.

END OF SECTION

SECTION 27 10 00
STRUCTURED CABLING

PART 1 – GENERAL

1.01 SUMMARY

A. This section specifies equipment, accessories, materials, installation, configuration, and testing requirements for a complete and operable Structured Cabling communications system. The system shall provide highly reliable and high-performance data communication from main distribution frame (MDF) through each intermediate distribution frame (IDF) to end points requiring fiber optics and/or copper cabling and associated equipment.

B. This section condenses sections 27 11 00 – Communications Equipment Room Fittings, 27 13 00 – Communications Backbone Cabling, 27 15 00 – Communications Horizontal Cabling and 27 16 00 – Communications Connecting Cords into one comprehensive section.

1.02 SCOPE

A. The work will include but not be limited to the following objectives:
1. Contractor shall furnish and install all required components and accessories as outlined in the design documents for a complete and operable turn-key system.
2. Quality workmanship is a high priority for the District and the Contractor shall be held to a high-level of professional workmanship. Contractors unfamiliar with the District's standards shall familiarize themselves with the standards and requirements prior to beginning work.
3. The Contractor shall furnish and install fire-treated ¾" (three quarter inch) plywood for the MDF room (all walls, from floor level to 8' high) and IDF locations (as required or indicated in the design documents).
4. The Contractor shall furnish and install a ground bus bar at the MDF and IDF rooms.
5. The Contractor shall furnish and install all required racks and cabinets.
6. The Contractor shall install owner-provided uninterruptable power supply(ies) (UPS) for the MDF and/or IDF racks.
7. The Contractor shall furnish and install all newly required conduit/raceway.
8. The Contractor shall furnish and install all wire/cable (copper/fiber optic) as required.
9. The Contractor shall terminate all strands of fiber at each fiber enclosure.
10. The Contractor shall furnish and install termination all end-point equipment (patch panels, jacks, wallplates, enclosures, etc.).
11. The Contractor shall furnish and install all patch cords (copper/fiber).
12. The Contractor shall test and certify (for warranty) the installed cable plant.

1.03 RELATED REQUIREMENTS

A. Section 01 – General Requirements

B. Section 27 00 00 – Communications

C. Section 27 05 00 – Common Work Results for Communication Systems.

1.04 INDUSTRY GUIDELINES AND STANDARDS

A. California Electrical Code (CEC) – Current adopted version

B. California Building Code (CBC) – Current adopted version.

C. ANSI/TIA-568.0-D – Generic Communications Cabling for Customer Premises.

D. ANSI/TIA-568.1-D – Commercial Building Communications Cabling Standard Part 1: General Requirements.

E. ANSI/TIA 568-C.2 – Balanced Twisted-Pair Telecommunications Cabling and Components Standards

F. ANSI/TIA 568.3-D – Optical Fiber Cabling Components Standard

G. ANSI/TIA-569-D – Commercial Building Standard for Telecommunications Pathways and Spaces.

J. ANSI/TIA-606-B – Administration Standard for the Commercial Telecommunications Infrastructure.

K. ANSI/JSTD-607-C – Commercial Building Bonding and Grounding (Earthing) Requirements for Telecommunications.

1.05 QUALIFICATIONS

A. The contractor shall possess a California C7 or C10 license.

B. The Contractor or Subcontractor shall have 5 years' documented experience.

C. The Contractor and installers shall be certified by the product manufacturer.

D. Contractor shall be a current Panduit One Partner, Platinum, that has completed the Structured Cabling Deployment training (Panduit Certified Installer). A copy of the corporate Panduit manufacturer certification shall be included with all quotes/bids/proposals.

1. At least 30 percent of the technicians installing low-voltage copper systems on the job shall have a current Panduit Certified Copper Technicians certificate.
2. At least 30 percent of the technicians installing any Fiber Distribution Systems shall have a current Panduit Certified Fiber Technicians certificate.
3. Contractor Project Manager on site shall have completed the Panduit Structured Cabling Deployment training and hold certificates for both copper and fiber.

1.06 SYSTEM REQUIREMENTS

A. Any new installations or existing system modifications shall seamlessly integrate into the site's existing data cable plan system.

1.07 CONTRACTOR "SHOP DRAWINGS" DESIGN REQUIREMENTS

A. See section 27 00 00 for requirements.

B. Shop Drawings shall be required for this section.

1.08 SUBMITTALS

A. See section 27 00 00 for requirements.

B. Submittals shall be required for this section.

1.09 WARRANTY

A. Refer to Division 01 Warranty section.

B. See section 27 00 00 for additional requirements.

C. Contractor shall provide a 25-year Panduit Certification Plus System Warranty on all copper and fiber installations.

1.10 CLOSEOUT DOCUMENTS

A. See section 27 00 00 for requirements.

PART 2 – PRODUCTS

2.01 GENERAL

A. See Appendix A at the end of this document for pre-approved materials.

B. All products shall be new, unused and without blemishes and shall be of manufacturer's current and standard production.

C. Contractor shall confirm all equipment part numbers with the Project Manager or District prior to ordering equipment and updating submittals as required.

D. Drawings and Specifications indicate major system components, and may not show every component, connector, module, or accessory that may be required to support the operation specified. The Contractor shall provide all components needed for complete and satisfactory installation and operation.

E. Install mounting hardware and anchors as recommended by the Manufacturer of the equipment that requires mounting to the building or structure and adhere to all code requirements. See section 27 05 00 for requirements.

F. Product Availability
1. Contractor, prior to submitting a proposal, shall determine product availability and delivery time, and shall include such considerations into his proposed Contract Time.

2.02 MANUFACTURERS AND PRODUCTS

A. See Appendix A at the end of this document for pre-approved materials.

B. Substitutions require proof of equivalence and approval by District and/or its representative.

C. For maintenance and consistency with the existing installed base, data connectivity components (copper and fiber) shall be Panduit.

2.03 COPPER/FIBER OPTIC CABLES AND COMPONENTS

A. All copper cables and components shall be Cat6A rated.
   1. Cable to be reduced diameter, blue jacket.
   2. Jacks to be keystone style.

B. Data jacks system/color:
   1. Data = Blue color
   2. AP = Green color
   3. CCTV = Purple color
   4. Clock/Intercom/BMS/HVAC/Lighting = Black color
   5. Access Control = Orange color
   6. Fire Alarm/Intrusion Alarm = Red color

C. Copper patch cable color: match jack

D. 45 degree angled data jacks shall be utilized at raceway and flush box locations.

E. All fiber optic cables and components shall be single single-mode OS2 rated.

F. Fiber optic cable terminations shall be LC-Duplex style.

PART 3 – EXECUTION

3.01 ACCEPTABLE INSTALLERS

A. The components making up the structure cabling system shall only be installed by Contractors who are qualified to install, service and maintain the system.

B. Cable terminations (copper or fiber) shall be installed by manufacturer certified technicians.

C. The Contractor (or subcontractor listed at time of bid) must have at least five (5) years' experience before the Bid Opening Date.

3.02 EXAMINATION

A. The Contractor shall be required to visit the installation site(s) prior to job bidding. The Contractor acknowledges that the failure to visit the site(s) will not relieve the Contractor of the responsibility for accurate bidding and performance of the Work.

B. The Contractor shall report any discrepancies between the Specifications, Drawings, and Site Examination prior to the Bid Opening Date.

3.03 PREPARATION

A. The Contractor shall order all required parts and equipment upon receipt of approved product submittals.

B. The Contractor shall verify the availability of power where required.

3.04 SHOP DRAWINGS

A. The Contractor shall create "Shop Drawings" per section 27 00 00 for this section.

B. Submit drawings for review and approval by the Project Manager and/or Designer.

3.05 INSTALLATION

A. ENTRANCE FACILITIES

1. Contact telecommunications service provider and arrange for installation of demarcation point, protected entrance terminals, and housing when so directed by service provider.

2. Install underground or aerial pathways complying with recommendations in TIA/EIA-569-A, "Entrance Facilities" Article.

B. UNDERGROUND ENTRANCE PATHWAY

1. Install underground entrance pathway complying with Division 26.

C. EQUIPMENT RACKS, CABINETS, ENCLOSURES AND ACCESSORIES

1. Backboards:

a. Shall be installed behind the rack or cabinet if the cabinet is not able to be directly attached to two vertical wall studs or blocking.
b. Backboards shall be made of fire retardant or treated materials, squarely cut, and with sanded edges.
c. Backboards shall be a minimum ¾" thick.
d. The "FIRE RATED" stamp shall be visible.
e. Backboards shall be fastened with ¼" lag bolt and washer, non-recessed, with maximum spacing of 18" into 2 vertical studs. 1-1/2" embedment.
f. Visible portions (outside of cabinet) of Backboards shall be painted.

2. All data & voice communications racks and cabinets shall be anchored in accordance with manufacturer's specifications, project specifications and/or drawn details, to walls and floors and grounded to building ground grid (not to water pipes etc.).

3. Securely mount equipment cabinet and racks to the building structure. A proper quantity of support fasteners shall be utilized. Typically lag bolts for wood installations,

wedge anchors for concrete flooring. Submit data sheets for mounting fasteners for approval before installation. Mount equipment per DSA approved drawings/details.

4. Equipment cabinet mounted on or against walls will have 3-foot clearance in front of deepest component and accessible to rear for service.

5. MDF and all IDFs shall have at least one dedicated 208V 20-amp (L6-20R) receptacle.

6. Patch Panels: Mount patch panels into the cabinet/rack.

7. Cable Management: Secure the cable bundle(s) to the rack strain relief and cable management behind the patch panels and cross connect block panels. Install horizontal cable management panels and brackets for routing and management of patch cables. Maintain TIA/EIA and BICSI standards on bundling, supporting and bend radius.

8. Surge Protected Outlet Strips: Required in MDF rack. Mount surge protected outlet strips per Manufacturer's directions. Refer to details on the Drawings for mounting location.

9. Install owner-provided UPS in MDF/IDF racks per design documents.

D. MDF/IDF GROUNDING

1. Refer to Section 27 05 00 Grounding for more requirements.

2. Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch (50-mm) clearance behind the grounding bus bar. Connect grounding bus bar with a minimum No. 6 AWG grounding electrode conductor from grounding bus bar to suitable electrical building ground.

3. Bond metallic equipment (including ladder rack) to the grounding bus bar, using not smaller than No. 6 AWG equipment grounding conductor.

3.06 WORKMANSHIP

A. Quality workmanship is a high priority for the District and the Contractor shall be held to a high-level of professional workmanship.

B. The District' Project or Construction Manager will have the authority to reject Work which does not conform to the Drawings and Specifications.

C. Comply with highest industry standards, except when specified requirements indicate more rigid standards or more precise workmanship.

D. Perform Work with persons experienced and qualified to produce workmanship specified.

E. Maintain quality control over suppliers and Subcontractors.

3.07 WIRE/CABLE (COPPER/FIBER OPTIC)

A. Design, layout, size, and plan new cable runs as required.

B. All wire and cable passing through metalwork shall be sleeved by an approved grommet or bushing.

C. Conduit/raceway fill shall not exceed 40 percent of interior cross-sectional area.

D. Neatly dress and tie (Velcro) all cabling.

E. UTP cabling shall conform to a 6-foot separation requirement from the main power panel, transformers, switchgear and/or starter motors adjacent to the MDF, IDF and termination locations.

F. Fiber optic cable shall be installed directly from the MDF to each IDF.

G. Orange corrugated HDPE (High Density Polythylene) Innerduct shall be used for fiber optic cable protection in all interior locations.

H. Spicing of fiber optic cable shall be done with fusion splices.

J. Maintain proper bend radius for all cable installations.

K. Do not exceed cable manufacturer's instructions for installation pull load. Any cable damaged by excessive pull force shall be replaced by the installing contractor.

3.08 LABELING

A. MDF/IDF - Identification number in large font on front of cabinet.

B. MDF, Fiber Optic LIU Ports – IDF number and room number

C. MDF/IDF, Copper Patch Panel – Panels labeled P1, P2, P3, etc., ports labeled with room number.

D. LAN Outlet – IDF number, patch panel number, patch panel port number.

E. Cables to be labeled both ends with unique identifiers and from/to location identifiers. For Copper Cat cable IDF number, patch panel number, patch panel port number.

F. T-bar ceilings shall have device labels attached next to the device for ceiling mounted equipment and at the tile for above ceiling equipment with device type and device ID points/IP address.

3.09 CONDUIT AND RACEWAY INSTALLATION

A. See Division 26 and section 27 05 00 for requirements.

B. Conduit bodies and any other sharp bend fittings are strictly prohibited for communications cabling (copper/fiber).

C. Install proper radius conduit sweeps where required.

3.10 FIELD QUALITY CONTROL AND TESTING

A. Upon reaching substantial completion, perform a complete test and inspection of the system. If found to be installed and operating properly, notify District of your readiness to perform the formal Test & Inspection of the complete system.

B. Submit the Record Drawings (as-builts) to District for review prior to inspection.

C. During the formal Test & Inspection (Commissioning) of the system, the Contractor shall have personnel available with tools and equipment to inspect wiring, devices, and system operation.

D. If corrections are needed, the Contractor will be provided with a Punch-List of all discrepancies. Perform the needed corrections in a timely fashion.

E. Notify the District when ready to perform a re-inspection of the installation.

F. Provide 25-year manufacturer's warranty/certification documentation for all copper and fiber cable plant installations.

3.11 CLOSEOUT DOCUMENTS

A. See section 27 00 00 for requirements.

APPENDIX A – Pre-Approved Materials

DESCRIPTION	MFG	PART NUMBER
Telecommunications Rack, 4 Post 45RU	Panduit	AR4PCN
Concrete Floor Anchor Kit	Panduit	RFAKIT
Vertical Cable Manager	Panduit	PR2VFD06
Wall Cabinet 26U, 30” Deep	Panduit	PZWMC2630W
Fan Kit for Wall Cabinet	Panduit	PZCFK
Ground Kit for Wall Cabinet	Panduit	PZWMCGK
Vertical Wall Cabinet 3RU/3RU	Panduit	WME3BL
Vertical Wall Cabinet 6RU/6RU	Panduit	WME6BL
Fan Kit for Vertical Wall Cabinet	Panduit	PZAEFAN
Ground Kit for Vertical Wall Cabinet	Panduit	WMEGK
Fiber Bracket for Vertical Wall Cabinet	Panduit	FWME1BL
19” Horizontal Cable Manager 1-RU	Panduit	NCMHF1
Patch Panel 24-port 1-RU (Black)	Panduit	CPPL24M6BLY
Patch Panel Cable Management Support Bar	Panduit	SRB19BLY
Faceplate, 2-port (White)	Panduit	CFPL2WHY
Faceplate, 4-port (White)	Panduit	CFPL4WHY
Surface Mount, 2-port (White)	Panduit	CBX2WH-AY
Faceplate, 1-port w/ phone hanger and Cat6A data jack (blue)	Panduit	KWPY with: NK6X88MBU
Cat6A Cable, Plenum (Blue)	Panduit	PUP6AHD04BU-G

Cat6A Cable, In-door/Outdoor (Black)	**Panduit**	**PUO6AS04BL-G**
Cat6A Cable, Outdoor (Black)	**Panduit**	**PFO6X04BL-CEG**
Cat6A Data Jacks (White)	**Panduit**	**CJ6X88TGWH**
Cat6A Data Jacks (Green)	**Panduit**	**CJ6X88TGGR**
Cat6A Data Jacks (Blue)	**Panduit**	**CJ6X88TGBU**
Cat6A Data Jacks (Yellow)	**Panduit**	**CJ6X88TGYL**
Cat6A Data Jacks (Black)	**Panduit**	**CJ6X88TGBL**
Cat6A Data Jacks Angled (White)	**Panduit**	**CJUDCAPBU-WH**
Cat6A Data Jacks Angled (Green)	**Panduit**	**CJUDCAPBU-GR**
Cat6A Data Jacks Angled (Blue)	**Panduit**	**CJUDCAPBU-BU**
Cat6A Data Jacks Angled (Yellow)	**Panduit**	**CJUDCAPBU-YL**
Cat6A Data Jacks Angled (Black)	**Panduit**	**CJUDCAPBU-BL**
Cat6A Patch Cord Slim (col-or to match jack)	**Panduit**	**UTP28X**
Fiber Optic LIU 1-RU	**Panduit**	**FRME1U**
Fiber Optic LIU 2-RU	**Panduit**	**FRME2U**
Fiber Adapter Panel (12 pair)	**Panduit**	**FAP12WBUDLCZ**
Fiber Adapter Panel Blank	**Panduit**	**FAPB**
Fiber Optic Cable Single-Mode OS2, Indoor/Outdoor	**Panduit**	**FSLP924**
Fiber Optic Patch Cord, OS2 LC/LC 1 meter	**Panduit**	**F92ERQ1Q1SNM001**

END OF SECTION

SECTION 27 21 00
DATA COMMUNICATIONS NETWORK EQUIPMENT

PART I - GENERAL

1.01 SUMMARY

A. This section specifies equipment, accessories, materials, installation, configuration, and testing requirements for a complete and operable data network system. The system shall provide reliable and high-performance data communication throughout the site.

1.02 SCOPE

A. The work will include but not be limited to the following objectives:

Provide, coordinate, and install all required equipment and accessories as outlined in the design documents for a complete and operable system.

Labor and Materials: The Contractor shall provide and pay for all labor, supervision, materials, accessories, components, equipment, tools, utilities, construction equipment and machinery, transportation, and other facilities and services necessary for the proper execution, operation, and completion of a turn-key system to the District.

Data Communications Network Equipment: Includes, but is not limited to:
Routers
Firewalls
Networking Switches
Wireless Access Points
VoIP Phone Equipment
Uninterruptible Power Supplies (UPS)

1.03 RELATED REQUIREMENTS

A. Division 01 - General Requirements

B. Section 27 00 00 - Communications

C. Section 27 05 00 - Common Work Results for Communication Systems.

D. Section 27 10 00 - Structured Cabling

1.04 QUALIFICATIONS

A. Contractor shall be located within 50 miles or less from the project site to support 2-hour response time.

B. Five years' experience installing data network equipment and systems.

1.05 SYSTEM REQUIREMENTS

A. Any new installations or existing system modifications shall seamlessly integrate into the site's existing data network infrastructure.

1.06 CONTRACTOR "SHOP DRAWINGS" DESIGN REQUIREMENTS

A. See section 27 00 00 for requirements.

B. Shop Drawings shall be required for this section.

1.07 SUBMITTALS

A. See section 27 00 00 for requirements.

B. Submittals shall be required for this section.

1.08 WARRANTY

A. Refer to Division 01 Warranty section.

B. See section 27 00 00 for additional requirements.

1.09 CLOSEOUT DOCUMENTS

A. See section 27 00 00 for requirements.

PART 2 - PRODUCTS

2.01 GENERAL

A. See Appendix A at the end of this document for pre-approved materials.

B. All products shall be new, unused and without blemishes and shall be of manufacturer's current and standard production.

C. Drawings and Specifications indicate major system components, and may not show every component, connector, module, or accessory that may be required to support the operation specified. Contractor shall provide all components needed for complete and satisfactory installation/operation.

D. Product Availability

1. Contractor, prior to submitting a proposal, shall determine product availability and delivery time, and shall include such considerations into his proposed Contract Time.

2. Subject to compliance with these specifications, products and systems included in this section are to be installed as specified by the manufacturer of the system or engineer approved equal.

2.02 EQUIPMENT

A. The District's preferred manufacturer for:
1. Routers - Aruba
2. Firewalls - Aruba
3. Networking Switches – Aruba
4. Wireless Access Points - Aruba
6. UPS – N1C

B. Substitutions require proof of equivalence and approval by District and/or its representative.

PART 3 - EXECUTION

3.01 ACCEPTABLE INSTALLERS

A. The equipment shall only be installed by Contractors who are qualified to install and maintain the system.

B. The Contractor (or subcontractor listed at time of bid) must have at least five (5) years' experience installing data network equipment before the Bid Opening Date.

3.02 EXAMINATION

A. The Contractor shall be required to visit the installation site(s) prior to bidding for the job. The Contractor acknowledges that the failure to visit the site(s) will not relieve the Contractor of the responsibility for observing and considering those conditions which a Contractor would have observed and considered during a site visit, estimating properly the difficulty

and cost of successfully performing the Work or proceeding to perform the Work without additional cost to District.

B. The Contractor shall report any discrepancies between the Specifications, Drawings, and Site Examination prior to the Bid Opening Date.

3.03 PREPARATION

A. The Contractor shall verify materials are readily available prior to submitting product submittals and notify the Project Manager of long lead time items.

B. The Contractor shall order all required parts and equipment only after receipt of approved product submittals from the Project Manager.

C. The Contractor shall coordinate with the District's Technology Services department for needed IP addresses at least 2 weeks prior to configuration/installation.

3.04 SHOP DRAWINGS

A. The Contractor shall create "Shop Drawings" per section 27 00 00.

3.05 WORKMANSHIP

A. Quality workmanship is a high priority for the District and the Contractor shall be held to a high-level of professional workmanship.

B. The District's Project or Construction Manager will have the authority to reject Work which does not conform to the Drawings and Specifications.

C. Comply with highest industry standards, except when specified requirements indicate more rigid standards or more precise workmanship.

D. Perform Work with persons experienced and qualified to produce workmanship specified.

E. Maintain quality control over suppliers and Subcontractors.

3.06 PATHWAY AND EQUIPMENT INSTALLATION

A. Install all conduit and pathway per design documents. Refer to 27 05 00 for additional information/requirements.

B. Install all Cat6A cable per design documents. Refer to 27 10 00 for additional information/requirements.

C. Equipment to be installed per manufacturer's instructions.

D. Devices requiring PoE power shall be connected to a PoE switch in the MDF/IDF data rack – verify with Technology Services for available PoE power.

3.07 CONFIGURATION

A. Any information needed from the District for configuration of equipment (i.e. VLAN, etc.) needs to be requested in writing 2 weeks prior.

B. All equipment to be fully configured and tested for functionality by the Contractor prior to District acceptance testing.

3.08 FIELD QUALITY CONTROL AND TESTING

A. Upon reaching substantial completion, perform a complete test and inspection of the system. If found to be installed and operating properly, notify the District of readiness to perform the formal Test & Inspection of the complete system by the District or its representative. Make all adjustments/changes required from District/representative review.

B. Submit the Record Drawings (as-builts) to District for review prior to inspection.

C. During the formal Test & Inspection (Commissioning) of the system and have personnel available with tools and equipment to inspect wiring, devices, and system operation.

D. If corrections are needed, the Contractor will be provided with a Punch-List of all discrepancies. Perform the needed corrections in a timely fashion.

E. Notify the District when ready to perform a re-inspection of the installation.

3.10 AS-BUILT DRAWINGS

A. See section 27 00 00 for requirements.

APPENDIX A – Pre-Approved Materials

DESCRIPTION	MFG	PART NUMBER
Network Switch (48G/4SFP+)	**Aruba**	**OFCI**
SFP+ Transceiver	**Aruba**	**OFCI**
Core Switch	**Aruba**	**OFCI**
Wireless Access Point (In-door, Ceiling)	**Aruba**	**OFCI**
Wireless Access Point (In-door, Ceiling, High Density)	**Aruba**	**OFCI**
Wireless Access Point (Out-door)	**Aruba**	**OFCI**
Mount for indoor Wireless Access Point (ceiling)	**Aruba**	**S0J40A**
Mount for indoor Wireless Access Point (right angle for beam/wall)	**Oberon**	**1006-ARAP635**
Mount for outdoor Wire-less Access Point	**Aruba**	**R9H97A**
UPS (MDF and IDF)	**N1C**	**OFCI**
Wall Mount Kit for VOIP Phone	**Poly**	**2200-47470-001**

SECTION 27 51 23.50
EDUCATIONAL INTERCOM SYSTEMS

PART I - GENERAL

1.01 SUMMARY

A. This section specifies equipment, accessories, materials, wire, installation, configuration, and testing requirements for a complete and operable Intercom/Public Address/Bell system. This system shall provide the ability to bi-directionally communicate with an individual room, broadcast to defined speaker zone(s) and ring bell tones on a predefined schedule. For sites that utilize IP clock/speaker combination devices, this section will supplant the use of section 27 53 13 Clock Systems.

1.02 SCOPE

A. The work will include but not be limited to the following objectives:

1. Labor and Materials: The Contractor shall provide and pay for all labor, supervision, materials, accessories, components, equipment, tools, transportation, and other facilities and services necessary for the proper installation of a turn-key Educational Intercom system to the District.

2. The contractor will coordinate with the District in writing for any needed information (i.e. IP addresses, etc.) 10 business days prior to the date the information is needed.

B. The District has standardized on the Bogen Nyquist E7000 system. The installing Contractor shall be Bogen authorized.

C. Not used.

D. The Contractor shall be responsible for furnishing and installing all pathway, cabling, terminations, signal terminal cabinets, backboard, mounts, and backboxes.

E. The contractor shall be responsible for programming the Bogen Intercom System.

F. The contractor shall coordinate with site staff for bell schedule and programming requirements.

G. The contractor shall review the proposed final system programming, functionality, and expectations with the District Representative and Architect/Engineer/Designer prior to final programming.

H. After completion of the installation and pretest of the system a satisfactory final test of the entire system shall be made in the presence of the inspector of record (IOR) and District or the District's representative.

I. The Contractor shall adjust any analog (25V) speaker levels to the appropriate level as determined in system testing.

J. Existing systems shall remain operable until the new system is accepted and approved by the District or the District's representative.

K. The contractor is responsible for user/operator training (4 hours).

K. The Contractor shall complete all required project closeout documentation in a timely fashion.

1.03 RELATED REQUIREMENTS

A. Division 01 – General Requirements

B. Section 27 00 00 - Communications

C. Section 27 05 00 – Common Work Results for Communication Systems.

E. Section 27 10 00 – Structured Cabling

1.04 REFERENCES

A. See section 27 00 00 for requirements.

1.05 DEFINITIONS

A. See section 27 00 00 for requirements.

1.06 SYSTEM REQUIREMENTS

A. Any new installations or existing system modifications shall seamlessly integrate into the site's existing intercom system when applicable.

1.07 SUBMITTALS

A. See section 27 00 00 for requirements.
B. Submittals shall be required for this section.

1.08 CONTRACTOR "SHOP DRAWINGS" DESIGN REQUIREMENTS

A. See section 27 00 00 for requirements.
B. Shop drawings are required for this section.

1.09 QUALIFICATIONS

A. Contractor shall be located within 50 miles or less from the project site to support 2-hour response time.

B. Five (5) years' experience installing educational intercom equipment.

C. The contractor shall possess a California a C7 or C10 license.

D. The Contractor or Subcontractor shall be Bogen authorized to provide and install equipment with 5 years documented experience.

1.10 CERTIFICATIONS

A. Installers shall be manufacturer certified.

1.11 WORKMANSHIP

A. Quality workmanship is a high priority for the District and the Contractor shall be held to a high-level of professional workmanship.

B. The District's Project or Construction Manager will have the authority to reject Work which does not conform to the Drawings and Specifications.

C. Comply with highest industry standards, except when specified requirements indicate more rigid standards or more precise workmanship.

D. Perform Work with persons experienced and qualified to produce workmanship specified.

E. Maintain quality control over suppliers and Subcontractors.

F. Contractor shall be responsible for scheduling Subcontractors in a timely fashion.

1.12 WARRANTY

A. Refer to Division 01 Warranty section.

B. See section 27 00 00 for additional requirements.

1.13 CLOSEOUT DOCUMENTS

A. See section 27 00 00 for requirements.

PART 2 – PRODUCTS

2.01 GENERAL

A. The approved manufacturers for the project are:
1. Control unit and related accessories: Bogen
2. Speakers: See Appendix A for different installation types
3. Wire, cable, and accessories: See Appendix A.

B. All products shall be new, unused and without blemishes and shall be of manufacturer's current and standard production.

C. Drawings and Specifications indicate major system components, and may not show every component, connector, module, or accessory that may be required to support the operation specified. The Contractor shall provide all components needed for complete and satisfactory installation and operation.

D. Product Availability

1. The Contractor, prior to submitting a proposal, shall determine product availability and delivery time, and shall include such considerations into his proposed Contract Time.

2. Subject to compliance with these specifications, products and systems included in this section are to be installed as specified by the manufacturer of the system or engineer approved equal.

2.02 EQUIPMENT

A. See Appendix A at the end of this document for pre-approved materials.

B. Substitutions require proof of equivalence and prior approval by District and/or it's representative before ordering.

PART 3 - EXECUTION

3.01 ACCEPTABLE INSTALLERS

A. The equipment shall only be installed by Contractors who are qualified and certified by the manufacturer to install and maintain the system.

B. The Contractor (or subcontractor listed at time of bid) must have at least five (5) years' experience installing educational intercom equipment before the Bid Opening Date.

3.02 EXAMINATION

A. The Contractor shall be required to visit the installation site(s) prior to bidding the job. The Contractor acknowledges that the failure to visit the site(s) will not relieve the Contractor of the responsibility for observing and considering those conditions which a Contractor would have observed and considered during a site visit, estimating properly the difficulty and cost of successfully performing the Work or proceeding to perform the Work without additional cost to District.

B. The Contractor shall report any discrepancies between the Specifications, Drawings, and Site Examination prior to the Bid Opening Date.

3.03 PREPARATION

A. The Contractor shall verify materials are readily available prior to submitting product submittals and notify the District's Project Manager of long lead time items.

B. The Contractor shall order all required parts and equipment only after receipt of approved product submittals from the District's Project Manager.

C. Submit and receive approval for shop drawings prior to work commencement.

3.04 PATHWAY INSTALLATION

A. See Division 26 and Section 27 05 00 for requirements and more information.

B. Existing Construction:
   1. Refer to design documents.
   2. Surface raceway and components shall be Wiremold 2300.

3.05 EQUIPMENT INSTALLATION

A. Equipment to be wired and installed per manufacturer's instructions.

B. Installation shall be in accordance with applicable codes (i.e. NEC, NFPA 72) local and state codes, as shown on the drawings, and as recommended by the major equipment manufacturer.

C. Perform all Work as indicated in the Drawings and Specifications.

D. All low voltage cables shall be kept away from power circuits.

3.06 LABELING/SCHEDULES

A. All labels are to be machine generated black letters on white adhesive label stock that is appropriate for the installation environment (interior/exterior).

B. Label all analog speaker cables with port ID.

C. Label all analog speakers with speaker ID.

D. Label all IP speakers with MDF/IDF, patch panel and jack numbers.

3.09 CONFIGURATION

A. All equipment to be fully configured and tested for functionality prior to testing.
B. With two weeks advanced notice, contractor shall request IP addressing information via the District Representative
   a. All Nyquist devices will operate in a dedicated Vlan
   b. The Nyquist controller shall be assigned a static IP address
   c. All other equipment shall be set to DHCP
C. The contractor shall review the proposed final system programming, functionality, and expectations with the District Representative and Architect/Engineer/Designer two weeks prior to final programming.

3.10 FIELD QUALITY CONTROL AND TESTING

A. Upon reaching substantial completion, perform a complete test and inspection of the system. If found to be installed and operating properly, notify District of your readiness to perform the formal Test & Inspection of the complete system.

B. Submit the Record Drawings (as-builts) to District for review prior to inspection.

C. During the formal Test & Inspection (Commissioning) of the system the Contractor shall have personnel available with tools and equipment to inspect wiring, devices, and system operation.

D. If corrections are needed, the Contractor will be provided with a Punch-List of all discrepancies. Perform the needed corrections in a timely fashion.

E. Notify the District when ready to perform a re-inspection of the installation.

F. District or its representative to provide final sign-off for acceptance.

3.11 AS-BUILT DRAWINGS

A. See section 27 00 00 for requirements.

B. As-built drawings shall be required for this section.

APPENDIX A – Pre-Approved Materials

INTERCOM COMMUNICATION UNIT:

DESCRIPTION	MANUFACTURER	PART NUMBER
System Controller	Bogen	Nyquist NQ-SYSCTRL
I/O Controller	Bogen	Nyquist NQ-E7010
Matrix Mixer Pre Amp	Bogen	Nyquist NQ-P0100
Admin telephone set	Bogen	Nyquist NQ-T1100

INTERCOM SYSTEM COMPONENTS:

DESCRIPTION	MANUFACTURER	PART NUMBER
Exterior speaker A. Speaker B. Back box C. Interior Box D. IP Module	 A. Lowell C. FSR D. Bogen	 A. VRG-LUH15TX B. CB84-SGBPO C. SMWB-4G-W D. NQ-GA10
Classroom combo clock/speaker setup: A. Speaker/Clock Combo w/ surface backbox	 A. Bogen	 A. NQ-S1810WBC

INTERCOM CABLING AND TERMINATION COMPONENTS:

DESCRIPTION	MANUFACTURER	PART NUMBER
Intercom speaker cable, 2-conductors., 22 AWG, solid, shielded 1-pair, interior (non-plenum)	WestPenn	292

END OF APPENDIX A

[END OF 27 51 23]

SECTION 28 20 00

VIDEO SURVEILLANCE

PART I - GENERAL

1.01 SUMMARY

A. This section specifies software, equipment, accessories, wire, materials, installation, configuration, and testing requirements for a complete and operable Video Surveillance system. The system shall provide electronic recording/playback and monitoring of digital cameras installed at the site.

1.02 SCOPE

A. The work will include but not be limited to the following objectives:
1. Labor and Materials: The Contractor shall provide and pay for all labor, supervision, materials, accessories, wire, components, equipment, tools, transportation, and other facilities and services necessary for the proper installation of a turn-key Video Surveillance system to District.

1.03 RELATED REQUIREMENTS

A. Division 01 - General Requirements

B. Section 27 00 00 - Communications

C. Section 27 05 00 - Common Work Results for Communication Systems.

C. Section 27 10 00 - Structured Cabling

1.04 QUALIFICATIONS

A. Contractor shall be located within 50 miles or less from the project site to support 2-hour response time.

B. Five years' experience installing Video Surveillance equipment systems.

1.05 SYSTEM REQUIREMENTS

A. Any new installations or existing system modifications shall seamlessly integrate into the site's existing Video Surveillance system.

1.06 CONTRACTOR "SHOP DRAWINGS" DESIGN REQUIREMENTS

A. See section 27 00 00 for requirements.

B. Shop drawings are required for this section.

1.07 SUBMITTALS

A. See section 27 00 00 for requirements.

B. Submittals are required for this section.

1.08 WARRANTY

A. Refer to Division 01 Warranty section.

B. See section 27 00 00 for additional requirements.

1.09 CLOSEOUT DOCUMENTS

A. See section 27 00 00 for requirements.

PART 2 - PRODUCTS

2.01 GENERAL

A. See Appendix A at the end of this document for pre-approved materials.

B. All products shall be new, unused and without blemishes and shall be of manufacturer's current and standard production.

C. Drawings and Specifications indicate major system components, and may not show every component, connector, module, or accessory that may be required to support the operation specified. Contractor shall provide all components needed for complete and satisfactory installation/operation.

D. Product Availability

1. Contractor, prior to submitting a proposal, shall determine product availability and delivery time, and shall include such considerations into his proposed Contract Time.

2. Subject to compliance with these specifications, products and systems included in this section are to be installed as specified by the manufacturer of the system or engineer approved equal.

2.02 EQUIPMENT

A. The District’s preferred manufacturer for CCTV equipment is Axis.

B. The District’s preferred manufacturer for video intercom is Aiphone.

C. Substitutions require proof of equivalence and approval by District and/or its representative.

D. All exterior cameras to be IP67 rated or better.

PART 3 - EXECUTION

3.01 ACCEPTABLE INSTALLERS

A. The equipment shall only be installed by Contractors who are qualified to install and maintain the system.

B. The Contractor (or subcontractor listed at time of bid) must have at least five (5) years' experience installing Video Surveillance equipment before the Bid Opening Date.

3.02 EXAMINATION

A. The Contractor shall be required to visit the installation site(s) prior to job bidding. The Contractor acknowledges that the failure to visit the site(s) will not relieve the Contractor of the responsibility for observing and considering those conditions which a Contractor would have observed and considered during a site visit, estimating properly the difficulty and cost of successfully performing the Work or proceeding to perform the Work without additional cost to District.

B. The Contractor shall report any discrepancies between the Specifications, Drawings, and Site Examination prior to the Bid Opening Date.

3.03 PREPARATION

A. The Contractor shall verify materials are readily available prior to submitting product submittals and notify the Project Manager of long lead time items.

B. The Contractor shall order all required parts and equipment only after receipt of approved product submittals from the Project Manager.

C. The Contractor shall coordinate with the District's Technology Services department for needed IP addresses at least 2 weeks prior to configuration/installation.

3.04 SHOP DRAWINGS

A. The Contractor shall create "Shop Drawings" per section 27 00 00.

3.05 WORKMANSHIP

A. Quality workmanship is a high priority for the District and the Contractor shall be held to a high-level of professional workmanship.

B. The District's Project or Construction Manager will have the authority to reject Work which does not conform to the Drawings and Specifications.

C. Comply with highest industry standards, except when specified requirements indicate more rigid standards or more precise workmanship.

D. Perform Work with persons experienced and qualified to produce workmanship specified.

E. Maintain quality control over suppliers and Subcontractors.

3.06 PATHWAY AND EQUIPMENT INSTALLATION

A. Install all conduit and pathway per design documents. Refer to 27 05 00 for additional information/requirements.

B. Install all Cat6A cables per design documents. Refer to Section 27 10 00 for additional information/requirements.

B. Equipment to be installed per manufacturer's instructions.

C. Devices requiring PoE power shall be connected to a PoE switch in the MDF/IDF data rack – verify for adequate PoE power capacity.

3.07 CONFIGURATION

A. Program cameras and/or NVR with network IP address using information provided by the District's Technology Services department.

B. All equipment to be fully configured and tested for functionality prior to District acceptance testing.

3.08 CAMERA VIEW

A. Adjust view aim, zoom, and focus camera to show intended view from design documents. Contractor to coordinate with District for final acceptance of camera views.

3.09 FIELD QUALITY CONTROL AND TESTING

A. Upon completion of network programming and initial view setting, notify District of your readiness to perform the formal camera view review with District or its representative. Make all adjustments required from District review.

B. Submit the Record Drawings (as-builts) to District for review prior to inspection.

C. During the formal Test & Inspection (Commissioning) of the system, Contractor to have personnel available with tools and equipment to inspect wiring, devices, and system operation.

D. If corrections are needed, the Contractor will be provided with a Punch-List of all discrepancies. Perform the needed corrections in a timely fashion.

E. Notify the District when ready to perform a re-inspection of the installation.

3.10 AS-BUILT DRAWINGS

A. See section 27 00 00 for requirements.

APPENDIX A – Pre-Approved Materials

DESCRIPTION	MFG	PART NUMBER
Multidirectional Network Camera (4x2MP)	**Axis**	**OFCI**
Panoramic Network Camera (2x5MP)	**Axis**	**OFCI**
Dome Network Camera, Outdoor (5MP)	**Axis**	**OFCI**
Pendant Kit for Multidirectional Camera	**Axis**	**T94N01D**
Wall Mount for Multidirectional Camera	**Axis**	**T91H61**
Corner Bracket for Multidirectional Network Camera	**Axis**	**T91A64**
Conduit Adapter 3/4" for Panoram-ic Network Camera	**Axis**	**5505-541**