Issue Date: 04/ 1/ 2025

Bids Due: April 30, 2025 before 12 noon Loveland City School District, Board of Education 757 South Lebanon Road Loveland, Ohio 45140

Project Manual Specifications

New Storage Buildings at the Loveland High School

for the Loveland City School District

Project Location:

Loveland High School 1 Tiger Trail Loveland, Ohio 45140

Owner:

Loveland City School District, Board of Education 757 South Lebanon Road Loveland, Ohio 45140

Prepared By:



VSWC Architects 414 Reading Road Mason, Ohio 45040 (513) 398-4931

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SECTION 00 2000

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.01 NOTICE TO BIDDERS

Sealed bids will be received by the Board of Education of the Loveland City School District until 12:00 noon on Wednesday, April 30, 2025 for the New Storage Buildings at the Loveland High School located at 1 Tiger Trail, Loveland, Ohio 45140. Sealed bids shall be delivered to Mr. Rich Bryant, Business Manager, located at the Loveland City School District Board Office, 757 South Lebanon Road, Loveland, Ohio 45140. The bids will be publicly opened and read.

Sealed bids will be received for the General Construction Contract. The probable contract cost for the base bid construction contract is \$ 500,000. Bids shall include all labor, materials, equipment, special tools, and services required to complete the work in accordance with the contract documents.

Plans and specifications for the Project may be obtained from VSWC Architects, 414 Reading Road, Mason, Ohio 45040; phone (513) 398-4931; email jim@vswc.com.

Each proposal shall contain the name of every person interested therein. Each proposal shall meet the regulations of Section 153.54 of the Ohio Revised Code. All bids must be accompanied by a Bid Guaranty in the form of either a Bid Guaranty and Contract Bond for the full amount of the bid (including add alternates) or a certified check, cashier's check, or an irrevocable letter of credit in an amount equal to 10% of the bid amount (including add alternates), in accordance with the Instructions to Bidders.

No bids may be withdrawn within thirty (30) days after the bid opening. The Loveland City School District Board of Education reserves the right to waive irregularities in bids, to reject any or all bids, and to conduct such review as necessary to determine the responsibility of any bidder submitting a bid for the Project.

The advertisement to bid is also posted on the Loveland City School District website at www. https://www.lovelandschools.org

By order of the Loveland City School District, Board of Education

John Espy Treasurer

1.02 OBTAINING DOCUMENTS

- A. Drawings and Specifications may be purchased by Prime Contractors and Sub-Contractors from Key Blue Prints, Inc., Cincinnati Office, 411 Elliott Avenue, Cincinnati, Ohio 45215; phone (513) 821-2111; website www.keycompanies.com. No refund for purchased Drawings and Specifications will be made. The responsibility of purchasing the exact drawings and specifications needed to prepare a bid shall rest with the purchaser. Partial sets are available if requested.
- B. Digital version of the Drawings and Specifications may be obtained from VSWC Architects, 414 Reading Road, Mason, Ohio 45040; phone (513) 398-4931; email brad@vswc.com.
- C. Drawings and Specifications may be reviewed at the offices of area plan rooms.
- D. Each Bidder is cautioned to become fully acquainted with all Contract Documents and the project site so as to fully understand and consider the entire scope of the work.

1.03 BID PROPOSAL FORM

DATE: _____, 2025

TO: Loveland City School District Board of Education 757 South Lebanon Road Loveland, Ohio 45140

FROM:

(Name of Bidder)

(Official Address of Bidder)

Having carefully read and examined the Contract Documents for the: **NEW STORAGE BUILDINGS AT THE LOVELAND HIGH SCHOOL FOR THE LOVELAND CITY SCHOOL DISTRICT** and having inspected the premises and all the conditions affecting the work, the undersigned proposes to furnish all materials, equipment, and perform all of the labor necessary to complete such item or items as are enumerated below, all to be in full accordance with the documents named above.

The undersigned further agrees that if any, or all, of said bids be accepted they will enter into a contract within thirty (30) days for faithful performance of labor and furnishing of materials, and will furnish a good and sufficient bond in an amount equal to 100 per cent of the contract price for the performance of such contract as required by law.

The undersigned further agrees to hold his bid in effect for thirty (30) calendar days.

ADDENDA #	DATE RECEIVED:
ADDENDA #	DATE RECEIVED:
ADDENDA #	DATE RECEIVED:

Note: All deduct prices should be indicated in parenthesis and preceded by a "-" symbol. Amounts are assumed to be positive (additive) unless indicated otherwise. Alternates shall be listed on the bid proposal as the difference in cost between the cost of the base bid and the alternate.

BASE BID - GENERAL CONSTRUCTION CONTRACT:				
LABOR AND MATERIALS in the sum of	BASE BID \$			
Sum in words: \$				
ALTERNATE A1 - GENERAL CONSTRUCTION CONT (Additional 16'-0" (2) bays in the Athletic Storage Building LABOR AND MATERIALS in the sum of Sum in words: \$	RACT: 3) ALTERNATE BID \$			

In submitting this Bid, we, the undersigned, hereby understand that Owner reserves unrestricted privilege of rejecting any or all bids, or parts of bids, and to waive any informalities in bidding.

FIRM NAME:			
BY:	(Signatura)		
	(Print Name)		
TITLE:			
DATE:			
State whether a	a Corporation () Partnership ()	Sole Proprietorship ()	LLC ()
If a Corporation Corporation is o	n: organized in	(State Location)	
Corporation is a	authorized to do business in Ohio.	YesNo	
Telephone No.:		Fax No.:	
Contact Persor	n:		
Email Address:			
Website Addres	ss:		

A Bid Guaranty Bond is enclosed.

1.04 SUBSTITUTION SHEET

Refer to Substitutions and Standards, Paragraph 1.18 of the Instructions to Bidders regarding the use of materials or methods other than "Standards". All bids must be based on the standards specified.

The bidder is to list here any substitutions for which consideration is desired, showing the addition or reduction in price to be made for each if the substitution is accepted or stating "No Change in Price" if none is proposed.

BRAND OR MAKE SPECIFIED	E	PROPOSED SUBSTITUTIONS	ADD	DEDUCT
FIRM NAME:				
BY:	(Signature)			
TITLE:				
DATE:				

1.05 LIST OF SUBCONTRACTORS AND SUPPLIERS

If the Bidder intends to sub-contract any significant part of the work included in his Contract, the Bidder MUST list the firm name and address of each Subcontractor that is proposed for each of the various portions of the Work. This list shall be submitted to the Owner within three (3) business days of the Owner's receipt of the bids or such longer time as may be permitted in writing by the Owner.

After approval by the Owner, Architect, and Owner's Representative of the list of proposed Subcontractors, suppliers, and manufacturers submitted by the successful Bidder, the list shall not be changed unless written approval of the change is authorized by the Owner, Architect, and Owner's Representative.

TYPE OF WORK	NAME	ADDRESS
BY:	(Signature)	
TITLE:		
DATE:		

1.06 SUBMISSION OF BIDS

- A. Bids shall be submitted <u>IN DUPLICATE</u> on Bid Proposal Forms furnished. Contractors may make copies of the forms bound in the project manual.
- B. The Bid Proposal Form furnished with these documents SHALL BE COMPLETED IN FULL; in writing in ink (or typewritten) and signed in ink. All blank spaces shall be filled in, in ink or typewritten, in words and figures, and in figures only where no space is provided for words, and signed by the Bidder. The wording on the Bid Form shall be used without change, alteration, or addition. Any change in the wording or omission of specified accompanying documents may cause the bid to be rejected. If both numbers and words are requested for any bid item, the amount in words shall prevail if there is an inconsistency between the numbers and words written.
- C. Bidders shall note receipt of Addenda on the Bid Form. If the Bidder fails to acknowledge receipt of each Addendum, the Bid shall be deemed non-responsive, unless the Bid amount reflects receipt of the Addendum or the Addendum involves only a matter of form and does not affect the price, quantity or quality of the Work to be performed.
- D. The Bid Proposal Form shall be submitted in sealed envelopes addressed to: LOVELAND CITY SCHOOL DISTRICT BOARD OF EDUCATION 757 South Lebanon Road Loveland, Ohio 45140

and shall be marked: BID FOR: New Storage Buildings at the Loveland High School

- E. Bids are due at the location, time and date listed in the Notice to Bidders and will be publicly opened.
- F. List of Sub-Contractors and Suppliers shall be requested of apparent low bidder and shall be submitted within 72 hours of bid opening.

1.07 PROJECT BIDDING

- A. Lump Sum Bids from Prime Contractors shall be submitted for the appropriate items as listed on the Bid Proposal Form.
- B. Bidder may withdraw bid, in person only, at any time prior to the scheduled time for closing the receipt of bids. Withdrawals after the scheduled time for closing the receipt of bids will not be permitted for a period of thirty (30) days.
- C. Bid may require the Bidder to submit alternate prices and unit prices. It is essential for a complete bid that the Bidder submit alternate prices and unit prices when such are listed in the Bid Proposal Form.
- D. Bidders shall use complete sets of Bid Documents in preparing bids. Neither the Owner or the Architect assumes any responsibility for errors or misinterpretations resulting form the use of incomplete sets of Bid Documents.
- E. The Owner and the Architect, in making the Bid Documents available to contractors, subcontractors, and material suppliers, do so only for the purpose of obtaining bids on the work and do not grant license for any other use.

1.08 BONDS AND GUARANTEES

A. Bid Guaranty: Bidder shall furnish a Bid Guaranty, as prescribed in Sections 153.54, 153.57, and 153.571 of the Ohio Revised Code, in the form of either: (1) a bond for the full amount of the bid in the form of the Bid Guaranty and Contract Bond included in the Bid Documents; or (2) a certified check, cashier's check, or irrevocable letter of credit in an amount equal to 10% of the bid. Bid amount shall be the total of all sums bid, including all add alternatives, but excluding all deduct alternatives. The cost of the bond shall be included in the contractor's bid.

- B. Contract Bond: The successful Bidder who, as a Bid Guaranty, submits a certified check, cashier's check, or irrevocable letter of credit in an amount equal to 10% of the bid, shall furnish a Contract Bond in the form Contract Bond included in the Bid Documents in an amount equal to 100% of the Contract Sum.
- C. The bond must be issued by a surety company ("Surety") authorized by the Ohio Department of Insurance to transact business in the State of Ohio and acceptable to the Owner. The bond must be issued by a Surety capable of demonstrating a record of competent underwriting, efficient management, adequate reserves, and sound investments. These criteria will be deemed to be met if the Surety currently has an A.M. Best Company Policyholders Rating of "A-" or better and has or exceeds the Best Financial Size Category of Class VI. Other sureties may be acceptable to the Owner, in its sole discretion.
- D. All bonds shall be signed by an authorized agent of an acceptable Surety and by the Bidder.
- E. Bonds shall be supported by credentials showing the Power of Attorney of the agent, a certificate showing the legal right of the Surety to do business in the State of Ohio, and a financial statement of the Surety.
- F. The Bid Guaranty, as applicable, shall be in the name of or payable to the order of the Owner.
- G. The name and address of the Surety and the name and address of the Surety's Agent should be typed or printed on each bond.
- H. Checks will be returned to bidders upon execution of a contract with the successful bidder or rejection of bids.

1.09 PERSONAL PROPERTY TAX STATEMENT

- A. In accordance with the requirements of Ohio Revised Code Section 5519.042, before the Contract between the Owner and the selected bidder can be entered into, the bidder shall submit an affidavit stating that it was not charged at the time the bid was submitted with any delinquent personal property taxes on the general tax list of personal property in <u>Hamilton, Clermont or</u> <u>Warren County</u> or that it was charged with delinquent personal property taxes on such tax list. If the bidder was charged with such delinquent taxes, the affidavit must set forth the amount due plus unpaid penalties and interest thereon. If the affidavit indicates that the bidder was charged with any such taxes, a copy of the affidavit will be sent to the County Treasurer.
- B. Refer to Section 00 6200 for the Delinquent Property Tax Statement form.

1.10 EQUAL EMPLOYMENT OPPORTUNITY / NON-DISCRIMINATION

A. Minority, female, and disadvantaged businesses will be afforded full opportunity to submit bids, and bidders will not be discriminated against on the grounds of race, color, religion, sex, age, handicap, ancestry, or national origin in the consideration of an award.

1.11 PROJECT ALTERNATES

A. State the additional cost to construct the additional 16'-0" of length, (2) bays, to the Athletic Storage Building. See the construction drawings for additional details.

1.12 UNIT PRICES

A. There are no Unit Prices being requested for this bid.

1.13 SALES TAX EXEMPTION

A. The Owner is a political subdivision of the State of Ohio and is exempt from taxation under the Ohio Sales Tax and Use Tax Laws. Building materials that the successful Prime Contactor purchases for incorporation into the Project, will be exempt from state sales and use taxes if the successful Prime Contractor provides a properly completed sales tax exemption certificate to the vendors or suppliers when the materials are acquired. The Owner will execute properly completed certificates on request.

B. A State of Ohio, Department of Taxation, Construction Contract Exemption Certificate is included in the Project Manual.

1.14 WAGE SCALE

A. Prevailing Wage Rates do <u>NOT</u> apply to this contract. All Contractors to include in their bid overtime, weekend, premium, holiday, and/or night-shift pay required to complete the project according to the project schedule.

1.15 EXAMINATION OF DOCUMENTS

- A. Each Bidder shall examine all Contract Documents, including the Plans and Specifications for all other divisions of the work as well as his own, noting particularly all requirements which will affect his work in any way. Failure of a Bidder to fully acquaint himself with the amount and nature of work required to complete his division of the work in conformity with all requirements for the project as a whole will not be considered subsequently as a basis for extra compensation.
- B. Should any requirements in the Plans and/or Specifications for the project, as a whole, appear to a Bidder to be in disagreement with those for the part of the work on which he proposed to bid, a request for clarification, in writing, should be addressed to the Project Architect as soon a discovered prior to the date set for opening bids. The Project Architect will reply to all such inquiries. Verbal interpretations will not be honored. In case of a discrepancy in the Plans and Specifications, an Addendum will be issued to clarify the matter. The Project Architect will forward copy of same to all individuals holding Plans and Specifications. If, in examining the Contract Documents, the Bidder discovers an apparent violation of the Ohio Building Code or other applicable statute or regulation, he shall report such apparent violation to the Project Architect promptly. However, this provision shall not be construed as imposing responsibility on the Contractor to insure conformity of the Plans and Specifications to the Ohio Building Code and other applicable regulation.
- C. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.
- D. If conflicting standards of material or product quality are discovered within the Contract Documents, the Bidder shall include in their bid the most stringent or highest standard of quality. If a difference between the drawings and specifications is discovered, the strictest requirements shall take precedence.
- E. Organization of the Specifications into divisions, sections and articles, and arrangement of the Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. Each Contractor is responsible for the entire set of Contract Documents for establishing the scope of Work.
- F. All Bidders shall be familiar with the existing conditions in the material and labor markets, as well as the conditions related to the Work, and the fact that a bid is submitted will be construed by the Owner as an agreement by the bidder to carry out the improvements in full conformance with the Specifications and other Contract Documents, notwithstanding the existing conditions.
- G. Each Bidder shall be responsible for coordinating its Work with the Work of other bid packages that require integration of the Bidder's Work.
- H. Failure of a Bidder to attend the pre-bid meeting, which failure to attend results in the Bidder not fully being familiar with the existing conditions and Project Requirements, shall not be considered a basis for additional compensation to the successful Bidder for the Work.

1.16 ADDENDA TO DRAWINGS AND SPECIFICATIONS

A. The Owner reserves the right to issue Addenda changing, altering, or supplementing Contract Documents prior to the time set for receiving bids. The Architect will issue the Addenda to clarify bidders' questions, to change, alter, or supplement the Contract Documents.

- B. Any explanation, interpretation, correction or modification of the Bid Documents will be issued in writing in the form of an Addendum, which shall be the only means considered binding. Explanations or interpretations made by any other means shall NOT be legally binding. All Addenda shall become a part of the Contract Documents as if originally bound herein.
- C. Bidders must submit questions to the Architect in sufficient time in advance of the bid opening to allow the Architect to respond. All Addenda will be issued, except as hereinafter provided, and mailed or otherwise issued to persons who have obtained Contract Documents for the Project, at least seventy-two (72) hours prior to the published time for the opening of bids, excluding Saturdays, Sundays and legal holidays. If any Addendum is issued within such seventy-two (72) hour period, then the time for opening of bids shall be extended one (1) week with no further advertising of bids required.
- D. Copies of each Addendum will be sent only to the Contractors to whom Contract Documents have been issued. Receipt of Addenda shall be indicated by Bidders in the space provided on the Bid Proposal Form. Bidders are responsible for acquiring issued Addenda in time to incorporate them into their bid.
- E. If a Bidder fails to indicate receipt of all Addenda issued by the Architect on its Bid Form, the bid of such Bidder will be deemed to be responsive only if:
 - 1. The bid received clearly indicates that the Bidder received the Addendum, such as where the Addendum added another item to be bid upon and the Bidder submitted a bid on that item; or
 - 2. The Addendum involves only a matter of form or is one that has either no effect or merely a trivial or negligible effect on price, quantity, quality, or delivery of the item bid upon.

1.17 EXAMINATION OF SITE

- A. Each bidder is requested to visit each site and to inform himself of all conditions. Failure to visit the site will in no way relieve the successful bidder from necessity of furnishing all material and labor necessary to complete work in accordance with plans and specifications.
 - 1. A pre-bid site meeting has been scheduled and prospective contractors are invited to attend.
 - 2. The existing school is unavailable for site visits by prospective contractors during normal school hours. Contractors shall not disrupt or interfere with the school's activities. Additional site visits may be coordinated with the Business Manager.

1.18 SUBSTITUTIONS AND STANDARDS

- A. Those articles, devices, materials, forms of construction fixtures, etc., named in the Specifications to denote the kind and quality required, whether or not the words "or equal" are used, shall be known as "Standards" and all Proposals shall be based on same.
- B. Bidders desiring consideration for the use of material, equipment, etc., not named in the Specifications may submit a Proposal for the substitution using the "Substitution Sheet" attached to the Proposal form, and listing, for each proposed change: (1) the "Standard" specified; (2) the substitution; and (3) the change in bid price (or "no change"). Complete Specifications and description of any proposed substitution being considered for acceptance shall be furnished to the Project Architect promptly upon request.
- C. Any substitution accepted will be incorporated in the Contract. <u>No substitution shall be allowed</u> <u>after the award of the Contract</u>.
- D. A substitution shall not affect determination of the lowest bid.
- E. Other than voluntary suggested substitutions listed on the substitution sheet at the time of bidding, substitutions will only be considered when a Product becomes unavailable through no fault of the Contractor.

1.19. OWNER'S RESERVATIONS

A. The Owner reserves the unrestricted privilege to reject any, part of any, or all of the bids received and to waive any informalities in the bidding.

- B. The Owner reserves the right to accept Alternates in any order or combination and to determine which bid is the lowest responsible bid on the basis of the base bid and the Alternates accepted.
- C. No bid nor any obligation hereunder to be assumed by the Owner, shall be considered as accepted until such time as the Owner, or Owner's representative, may deposit in the U.S. Mail, or hand to the Bidder, personally, written notice addressed to Bidder at the address given on the bid, or acceptance of bid.
- D. By submitting its bid, the Bidder agrees that the Owner's determination of whether a defect or irregularity affects the amount of the bid in any material respect or otherwise gives the Bidder a competitive advantage will be final and conclusive; and the Bidder will pay the Owner's attorneys and consultants' fees related to any challenge to the bid procedure or process, brought directly or indirectly by the Bidder and/or any of its affiliates, which is unsuccessful.

1.20 AWARD OF CONTRACT

- A. All bids shall remain open for acceptance for sixty (60) days following the day of the bid opening, but the Owner may, in its sole discretion, release any bid and return the Bid Guaranty prior to that date. The Bid Guaranty shall be subject to forfeiture, as provided in the Ohio Revised Code, if a bid is withdrawn during the period the bids are being held.
- B. The Owner reserves the right to reject any, part of any, or all bids and to waive any informalities and irregularities. The Bidder expressly acknowledges this right of the Owner to reject any or all bids, or to reject any incomplete or irregular bid. The Owner will award a single contract for each of the Construction Contracts listed on the Bid Proposal Form or one or more combined contracts for combinations of the Construction Contracts. Bidders must furnish all information requested on or accompanying the Bid Proposal Form. Failure to do so may result in disqualification of the bid.
- C. Determination of Lowest Responsible Bid. Subject to the right of the Owner to reject any or all bids, the Owner will Award the Contract for the Work to the Bidder submitting the lowest responsible bid, taking into consideration accepted alternates. The Owner, in its sole discretion, will determine whether a bid or bidder is responsible. In evaluating Bids, the Owner shall consider the qualifications of the bidders, whether or not the bids comply with the prescribed requirements, and alternatives and unit prices, if requested, in the Bid Proposal Form. The Owner may also consider the qualifications and experience of suppliers and distributors. The Owner may conduct such investigations as are deemed necessary to establish the responsibility, qualifications and financial ability of the Bidders, proposed distributors and other persons and organizations to do the work in accordance with the Contract Documents to the Owner's satisfaction within the prescribed time. The Owner reserves the right to reject the bid of any Bidder that does not pass any such evaluation to the Owner's satisfaction. The factors to be considered by the Owner in making its determination as to whether a Bidder is a responsible bidder include the following as the Owner, in its discretion, deems appropriate; the Owner may give such weight to each factor as it deems appropriate:
 - The Bidder's work history. The Bidder should have a record of consistent customer satisfaction and of consistent completion of projects, including projects which are comparable to or larger and more complex than the Owner's Project, on time and in accordance with the applicable Contract Documents. If the Bidder's management operates or has operated another construction company, the Owner may consider the work history of that company in determining responsibility of the Bidder.

The Owner will consider the Bidder's prior experience on other projects of the Owner, Architect, and Owner's Representative, including the Bidder's demonstrated ability to complete its work on these projects in accordance with the Contract Documents and on time, and its ability to work with the Owner, Owner's Representative and Architect.

The Bidder authorizes the Owner and its representatives to contact the owners and design professionals (and construction managers, if applicable) on projects on which the Bidder has worked, and authorizes and requests such owners and design professionals (and construction managers) to provide the Owner with a candid evaluation of the bidder's performance. By submitting its bid, the Bidder agrees that if it or any person, directly or

indirectly, brings an action against any of such owners or design professionals (or construction managers) or the employees of any of them as a result of or related to such candidate evaluation and such action is not successful, the Bidder will reimburse such owners, design professionals and construction managers, and the employees of each of them, for all legal fees and expenses incurred by them related to such legal action. This obligation is expressly intended for the benefit of such owners, design professionals, and construction managers, and the employees of each of such owners, design professionals, and construction managers, and the employees of each of them.

- 2. The Bidder's financial ability to complete the Contract successfully and on time, without resort to its Surety.
- 3. The Bidder's prior experience with similar work on comparable or more complex projects;
- 4. The Bidder's equipment and facilities;
- 5. The adequacy, in numbers and experience, of the Bidder's work force to complete the Contract successfully and on time;
- 6. The Bidder's compliance with federal, state, and local laws, and regulations, including but not limited to the Occupational Safety and Health Act; and
- 7. The ability of the Subcontractors the Bidder intends to use on the Project to meet these same criteria.
- The Bidder's participation in a drug-free workplace program acceptable to the Owner, and the Bidder's record for both resolved and unresolved findings for recovery as defined in Ohio Revised Code Section 9.24; and/or
- 9. Depending upon the type of the Work, other relevant factors, as the Owner may determine.
- D. Within three (3) business days after the Owner's receipt of the bids, the apparent low bidder will complete and submit to the Architect, AIA Document A305, Contractor Qualifications Statement for review. Additionally, upon request from the Architect, the apparent low bidder will provide additional information as requested regarding the Bidder's responsibility. A Bidder will submit any requested information within three (3) business days of the date of the request. The failure to submit requested information on a timely basis may result in the determination that the Bidder is not responsible.
- E. By submitting its bid, the Bidder agrees that the Owner's determination of responsibility shall be final and conclusive, and that if the Bidder or any person challenges such determination in any legal proceeding and such challenge is not successful, the Bidder will reimburse the Owner for all legal fees and expenses incurred by the Owner that are related to such challenge, including the cost of collection.
- F. Within three (3) business days of the Owner's receipt of the bids or such longer time as may be permitted in writing by the Owner, the apparent low bidder will submit the following:
 - 1. A list of all proposed Subcontractors, suppliers, and manufacturers. After approval by the Owner, Architect, and Owner's Representative of the list of proposed Subcontractors, suppliers, and manufacturers submitted by the successful Bidder, the list shall not be changed unless written approval of the change is authorized by the Owner, Architect, and Owner's Representative.
 - 2. A breakdown of labor and material for the Project, including the sum of each.
 - 3. Affidavit as to Property Taxes. The successful Bidder will be required to submit, prior to the time of the entry into the Contract for the Work, an affidavit in the form required by Section 5719.042, Ohio Revised Code, regarding the status of the Bidder's personal property taxes. A copy of the form of affidavit is included in the Contract Documents.

- 4. Insurance Certificates.
- 5. Valid Worker's Compensation Certificate.
- G. The Owner reserves the right to disqualify bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices on the part of the bidder.

1.21 MODIFICATION / WITHDRAWAL OF BIDS

- A. Modification. A Bidder may modify its bid by written communication to the Owner addressed to the Owner, attention of the Treasurer, at any time prior to the scheduled closing time for receipt of bids, provided such written communication is received by the Treasurer prior to the bid deadline. The written communication shall not reveal the bid price, but should provide the addition or subtraction or other modification so that the final prices or terms will not be known until the sealed bid is opened. If the Bidder's written instructions with the change in bid reveal the bid amount in any way prior to the bid opening, the bid may be rejected as non-responsive.
- B. Withdrawal Prior to Bid Deadline. A Bidder may withdraw its bid at any time for any reason prior to the bid deadline established in the Notice to Bidders. The request to withdraw shall be made in writing and submitted to the Owner, attention of the Treasurer. The request for withdrawal must be received by the Treasurer prior to the time of the bid opening.
- C. Withdrawal After Bid Deadline.
 - 1. All bids shall remain valid and open for acceptance for a period of at least sixty (60) days after the bid opening; provided, however, that a Bidder may request withdrawal its bid from consideration after the bid deadline when all of the following apply:
 - a. The price bid was substantially lower than the other bids;
 - b. The reason for the bid being substantially lower was a clerical mistake, rather than a mistake in judgment, and was due to an unintentional and substantial error in arithmetic or an unintentional omission of a substantial quantity of work, labor, or material;
 The bid use substantial is need forth.
 - c. The bid was submitted in good faith;
 - d. The Bidder provides written notice to the Owner, to the attention of the Treasurer, within two (2) business days after the bid opening for which the right to withdraw is claimed.
- D. No bid may be withdrawn under this provision if the result would be the awarding of the contract on another bid for the bid package from which the Bidder is withdrawing its bid to the same Bidder.
- E. If a bid is withdrawn under this provision, the Owner may award the Contract to another Bidder determined by the Owner to be the lowest responsible bidder or the Owner may reject all bids and advertise for other bids. In the event the Owner advertises for other bids, the withdrawing Bidder shall pay the costs incurred in connection with the rebidding by the Owner, including the cost of printing new Contract Documents, required advertising, and printing and mailing notices to prospective bidders, if the Owner finds that such costs would not have been incurred but for such withdrawal.

1.22 CONTRACT FORM

- A. The Successful Bidder shall execute a Contract with the Owner on American Institute of Architects (AIA) Document A101, Standard Form of Agreement Between Owner and Contractor (Stipulated Sum), Latest Edition. A draft copy of the contract form is included in the Contract Documents.
- B. The Contract between the Owner and Contactor shall include the American Institute of Architects (AIA) Document A201, General Conditions of the Contract for Construction (Latest Edition).
- PART 2 PRODUCTS (Not Used)
- PART 3 EXECUTION (Not Used)

SECTION 00 6000

PROJECT FORMS

PART 1 GENERAL

1.01 SUMMARY

- A. Directly following This Section are the following documents for included for reference.
 - 1. Bid Guaranty and Contract Bond
 - 2. Contractor's Personal Property Tax Affidavit
 - 3. AIA A101-2017: Standard Form of Agreement Between Owner and Contractor (Sample Copy)
 - 4. AIA A201-2017: General Conditions of the Contract for Construction (Sample Copy)
 - 5. AIA G702-1992: Application for Certificate for Payment (Sample Copy)
 - 6. AIA G703-1992: Continuation Sheet (Sample Copy)
 - 7. AIA G704-2000: Certificate of Substantial Completion (Sample Copy)
 - 8. AIA G706-1994: Contractor's Affidavit of Payment of Debts and Claims (Sample Copy)
 - 9. AIA G706A-1994: Contractor's Affidavit of Release of Liens (Sample Copy)
 - 10. AIA G707-1994: Consent of Surety to Final Payment (Sample Copy)
- PART 2 PRODUCTS (Not Used)
- PART 3 EXECUTION (Not Used)

END OF SECTION

BID GUARANTY AND CONTRACT BOND (O.R.C. § 153.571)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned

("Contractor") as principal and as surety are hereby held and

firmly bound unto the Loveland City School District, located in Hamilton, Clermont, Warren County, Ohio, as obligee in the penal sum of the dollar amount of the bid submitted by the principal to the obligee on ______, 202___, to undertake_____

__ [INSERT BID PACKAGE

NUMBER(S) AND DESCRIPTION(S)] in connection with the construction of the New Storage Buildings at the Loveland High School (the "Project"). The penal sum referred to herein shall be the dollar amount of the principal's bid to the obligee, incorporating any additive or deductive Alternates made by the principal on the date referred to above to the obligee, which are accepted by the obligee. In no case shall the penal sum exceed the amount of ______ Dollars (\$______

). (If the foregoing blank is not filled in, the penal sum will be the full amount of the principal's bid, including add Alternates. Alternatively, if the blank is filled in the amount stated must not be less than the full amount of the bid including add Alternates, in dollars and cents. A percentage is not acceptable.) For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the above named principal has submitted a bid for work on the Project.

Now, therefore, if the obligee accepts the bid of the principal and the principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the principal pays to the obligee the difference not to exceed ten percent (10%) of the penalty hereof between the amount specified in the bid and such larger amount for which the obligee may in good faith contract with the next lowest bidder to perform the work covered by the bid; or in the event the obligee does not award the contract to the next lowest bidder and resubmits the project for bidding, the principal pays to the obligee the difference not to exceed ten percent (10%) of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising, and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect; if the obligee accepts the bid of the principal and the principal within ten (10) days after the awarding of the contract enters into a proper contract in accordance with the bid, plans, details, specifications, and bills of material, which said contract is made a part of this bond the same as though set forth herein.

Now also, if the said principal shall well and faithfully do and perform the things agreed by said principal to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, material men, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any materialman or laborer having a just claim, as well as for the obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; and surety shall indemnify the obligee against all damage suffered by failure of the principal to perform the contract according to its provisions and in accordance with the plans, details, specifications, and bills of material therefor and to pay all lawful claims of subcontractors, material men, and laborers for labor performed or material furnished in carrying forward, performing, or completing the contract and surety further agrees and assents that this undertaking is for the benefit of any subcontractor, materialman, or laborer having a just claim, as well as for the obligee; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said surety hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of the said contract or in or to the plans or specifications therefore shall in any wise affect the

obligations of said surety on its bond, and does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

Signed and sealed this _____ day of _____, 202____.

(PRINCIPAL)
Ву:	
Printed Name & Title:	
(SURETY)	
Ву:	
Printed Name & Title:	
Surety's Address:	
·	
Surety's Telephone Number:	
Surety's Fax Number:	
NAME OF SURETY'S AGEN	Т
Surety's Agent's Address:	
Surety's Agent's Telephone Number	:
Surety's Agent's Fax Number:	

NOTE: The Contract Bond form that follows is to be used ONLY by a bidder that is determined to be the lowest responsible bidder <u>and</u> that submits a form of bid guaranty other than the combined Bid Guaranty and Contract Bond with its bid. If a bidder submits a combined Bid Guaranty and Contract Bond, then the bid guaranty becomes the contract bond when the contract is awarded.

CONTRACT BOND

(O.R.C. § 153.57)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned ("Contractor") as principal and ______ as surety, are hereby held and firmly bound unto the Loveland City School District, located in Hamilton, Clermont, Warren County, Ohio (the "Board") as obligee, in the penal sum of ______ Dollars

(\$_____), for the payment of which well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas, the above-named principal did on the _____ day of ______, 202__, enter into a contract with the Board for ______ [INSERT AND DESCRIPTION(S)] in connection with the construction of the New Storage Buildings at the Loveland High School (the "Project"), which said contract is made a part of this bond the same as though set forth herein:

Now, if the said Contractor shall well and faithfully do and perform the things agreed by the Contractor to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, material men, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any materialman or laborer having a just claim, as well as for the obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said surety hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of the said contract or in or to the plans or specifications therefore shall in any wise affect the obligations of said surety on its bond, and does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

Signed and sealed this day of _	, 202
(PRINCIPAL)	
By:	By:
Printed Name & Title:	Printed Name & Title:
	Surety's Address:
	Surety's Agent's Tel. & Fax Numbers:
	NAME OF SURETY'S AGENT
	Surety's Agent's Address:
	Surety's Agent's Tel. & Fax Numbers:
	Surety's Agent's Fax Number

SECTION 00 6002

		(O.R.C. § 5719.042)		
State of				
County of	, ss:			
	(Name)	, being first duly sworn, do	eposes and says that h	e is the
(Title)	of	(Contractor)	with offices le	ocated at
	() -1		, and	as its duly
authorized repre	esentative, states that eff	fective this day of	, 20 _	y
(Name of Contra	actor)			
()	is charged with delinq as set forth below:	uent personal property taxes on	the general list of perso	onal property
	County	Amount (includes total amo	ount penalties and inter	est thereon)
	Hamilton County	\$		
	Clermont County	\$		
	Warren County	\$		
()	is not charged with de property in any Ohio c	linquent personal property taxes county.	on the general list of p	ersonal
		(Affiant)		
Sworn to and su	ubscribed before me by t	he above-named affiant this	day of	, 20
			(Not	ary Public)
		My comr	nission expires	

CONTRACTOR'S PERSONAL PROPERTY TAX AFFIDAVIT

MAIA[®] Document A101[™] – 2017

Standard Form of Agreement Between Owner and Contractor where the basis

of payment is a Stipulated Sum

AGREEMENT made as of the _____ day of _____ in the year _____ (*In words, indicate day, month and year.*)

BETWEEN the Owner: *(Name, legal status, address and other information)*

and the Contractor: (Name, legal status, address and other information)

for the following Project: (*Name, location and detailed description*)

The Architect: (Name, legal status, address and other information)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101™–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement.

AIA Document A201[™]–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

The Owner and Contractor agree as follows.

Init.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be: *(Check one of the following boxes.)*

The date of this Agreement.

A date set forth in a notice to proceed issued by the Owner.

Established as follows:

(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

 \Box Not later than

) calendar days from the date of commencement of the Work.

Init.



§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date	
 § 3.3.3 If the Contractor fails to achieve any, shall be assessed as set forth in Se ARTICLE 4 CONTRACT SUM § 4.1 The Owner shall pay the Contract Contract. The Contract Sum shall be Documents. 	e Substantial Completion as provided in thi ection 4.5. tor the Contract Sum in current funds for th (\$), subject to additions and deduct	s Section 3.3, liquidated damages, if the Contractor's performance of the tions as provided in the Contract
§ 4.2 Alternates § 4.2.1 Alternates, if any, included in th	he Contract Sum:	
ltem	Price	
§ 4.2.2 Subject to the conditions noted execution of this Agreement. Upon acc (Insert below each alternate and the co	below, the following alternates may be according to the owner shall issue a Modificat onditions that must be met for the Owner to	epted by the Owner following ion to this Agreement. accept the alternate.)
Item	Price	Conditions for Acceptance
§ 4.3 Allowances, if any, included in the <i>(Identify each allowance.)</i>	ne Contract Sum:	
ltem	Price	
§ 4.4 Unit prices, if any: (Identify the item and state the unit pri	ice and quantity limitations, if any, to which	the unit price will be applicable.)
Item	Units and Limitations	Price per Unit (\$0.00)
§ 4.5 Liquidated damages, if any: (Insert terms and conditions for liquidated)	ated damages, if any.)	

§ 4.6 Other:

(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than () days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201[™]–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- 1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- 4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

1

§ 5.1.7.1.1 The following items are not subject to retainage:

(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:

(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:

(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. *(Insert rate of interest agreed upon, if any.)*

ARTICLE 6 DISPUTE RESOLUTION § 6.1 Initial Decision Maker

%

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker. (If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

1

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows: *(Check the appropriate box.)*

Arbitration pursuant to Section 15.4 of AIA Document A201–2017
Litigation in a court of competent jurisdiction
Other (Specify)

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows: (Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

§7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:

(Name, address, email address, and other information)

§ 8.3 The Contractor's representative: (*Name, address, email address, and other information*)

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

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§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101[™]– 2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101[™]–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203[™]–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101[™]–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101TM–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201TM–2017, General Conditions of the Contract for Construction
- AIA Document E203[™]–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

(Insert the date of the E203-2013 incorporated into this Agreement.)

.5	Drawings			
	Number	Title	Date	
.6	Specifications			
	Section	Title	Date	Pages
.7	Addenda, if any:			
	Number	Date	Pages	
	Portions of Addenda relating to biddi	ng or proposal requirements	are not part of the	Contract

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

□ AIA Document E204TM–2017, Sustainable Projects Exhibit, dated as indicated below: (Insert the date of the E204-2017 incorporated into this Agreement.)

AlA Document A101[™] – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AlA[®] Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AlA[®] Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. To report copyright violations of AIA Contract Documents, e-mail The American Institute of Architects' legal counsel, copyright@aia.org.

The Sustainability Plan:

.9

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1

Title	Date	Pages	
Supplementary and ot Document	her Conditions of the Contract: Title	Date	e Pages

Other documents, if any, listed below: (List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201[™]–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER (Signature)	ONTRACTOR (Signature)
(Printed name and title) (P	rinted name and title)



for the following PROJECT: (Name and location or address)

THE OWNER: (Name, legal status and address)

THE ARCHITECT: (Name, legal status and address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503[™], Guide for Supplementary Conditions.

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- 2 OWNER
- 3 CONTRACTOR
- 4 ARCHITECT
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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

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

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

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The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining

provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Subsubcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

Init.

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203TM–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203TM_2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202TM_2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building

information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

Init.

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the

site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

Init.

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's

capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

Init.

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes

remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

Init.

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

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.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

Init.

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certifications, and approval when submitted to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the

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time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

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§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

Init.

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittal shall not relieve the Contractor of the obligations under

Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the

Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

Init.

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate

Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

Init.

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

Init.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The

Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Time, the Contract Sum or Contract Time, the Contractor Sum or Contract Time, the Contractor shall not proceed to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable

by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

Init.

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The

foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the <u>Contract</u> Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

Init.

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers

to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

Init.

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

Init.

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed prize of the to corrected shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not

constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

Init.

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

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

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner, If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

Init.

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the

endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Subsubcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

Init.

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, subsubcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and subsubcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

Init.

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the

Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

Init.

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Init.

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

Init.

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

Init.

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section

15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

Init.

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

Init.

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly

consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

Init.

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

${\textcircled{\baselineskip}{\baselineskip}} AIA^{*} \text{ Document G702}^{*} - 1992$

Application and Certificate for Payment

TO OWNER:	PROJECT:	APPLICATION NO:	Distribution to:
		PERIOD TO:	OWNER 🗆
		CONTRACT FOR:	ARCHITECT
FROM CONTRACTOR:	VIA ARCHITECT:	CONTRACT DATE:	
		PROJECT NOS:	
CONTRACTOR'S APPLICATIO		The undersigned Contractor certifies that to the best of t	he Contractor's knowledge, information
Application is made for payment, as shown I AIA Document G703 TM , Continuation Sheet 1. ORIGINAL CONTRACT SUM	below, in connection with the Contract. , is attached. \$	and belief the Work covered by this Application for Pay with the Contract Documents, that all amounts have bee which previous Certificates for Payment were issued and that current payment shown herein is now due. CONTRACTOR:	ment has been completed in accordance en paid by the Contractor for Work for payments received from the Owner, and
3. CONTRACT SUM TO DATE (Line 1 ± 2)		By:	Date:
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) \$	State of:	
5. RETAINAGE: a% of Completed Work		County of: Subscribed and sworn to before	
(Columns $D + E$ on $G703$)	\$	me this day of	
(Column F on G703)	\$	Notary Public: My commission expires:	
Total Retainage (Lines 5a + 5b, or Total	in Column I of G703) \$		
6. TOTAL EARNED LESS RETAINAGE		ARCHITECT'S CERTIFICATE FOR PAY	MENT
 (Line 4 minus Line 5 Total) 7. LESS PREVIOUS CERTIFICATES FOR PAYI (Line 6 from prior Certificate) 8. CURRENT PAYMENT DUE 	VENT	In accordance with the Contract Documents, based on on-set this application, the Architect certifies to the Owner that to information and belief the Work has progressed as index accordance with the Contract Documents, and the Contract Documents, based on on-set the set of	site observations and the data comprising o the best of the Architect's knowledge, dicated, the quality of the Work is in ntractor is entitled to payment of the
9. BALANCE TO FINISH, INCLUDING RETAINA	AGE	AMOUNT CERTIFIED	
(Line 3 minus Line 6)	\$	(Attach explanation if amount certified differs from the amo Application and on the Continuation Sheet that are change	ount applied. Initial all figures on this d to conform with the amount certified.)
CHANGE ORDER SUMMARY	ADDITIONS DEDUCTIONS	ARCHITECT:	
Total changes approved in previous months	by Owner \$ \$	By:	Date:
Total approved this month	\$ \$ TOTAL \$	This Certificate is not negotiable. The AMOUNT CERTIF	IED is payable only to the Contractor nt are without prejudice to any rights of
NET CHANGES by Change Order	\$	the Owner or Contractor under this Contract.	

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\mathbf{AIA}° Document G703TM – 1992

Continuation Sheet

AIA Doc	cument $G702^{TM}$ 1992, Application and	d Certificate for Pay	ment, or G732 [™] −20	009,		APPLICATION NO	:		
Application and Certificate for Payment, Construction Manager as Adviser Edition,				APPLICATION DATE:					
In tabula	tions below, amounts are in US dollar	s.				PERIOD TO:	\frown		
Use Colu	umn I on Contracts where variable reta	inage for line items	may apply.			ARCHITECT'S PR	OJECT NO):	
Α	В	С	D	Е	F	G		Н	Ι
			WORK COMPLETED						
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD	MATERIALS PRESENTLY STORED (Not in D or E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G÷C)	BALANCE TO FINISH (C – G)	RETAINAGE (If variable rate)
	GRAND TOTAL								

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Mather Alternation Alternation Alternative Alternativ

Certificate of Substantial Completion

PROJECT: (Name and address)	PROJECT NUMBER:		
	CONTRACT FOR:		
	CONTRACT DATE:	~ (
TO OWNER : (Name and address)	TO CONTRACTOR: (Name	e and address)	
PROJECT OR PORTION OF THE PRO	JECT DESIGNATED FOR PARTI	AL OCCUPANCY OR U	SE SHALL INCLUDE:
	<	$\left(\begin{array}{c} \end{array} \right)$	
The Work performed under this Cor and belief, to be substantially compl Work or designated portion is suffic occupy or utilize the Work for its in designated above is the date of issua applicable warranties required by the	itract has been reviewed and fo ete. Substantial Completion is iently complete in accordance tended use. The date of Substan- ince established by this Certific e Contract Documents, except a	und, to the Architect's the stage in the progres with the Contract Docu ntial Completion of the ate, which is also the d as stated below:	best knowledge, information as of the Work when the ments so that the Owner car Project or portion hate of commencement of
		>	
ARCHITECT	BY	DATE OF ISSU	JANCE
A list of items to be completed or co alter the responsibility of the Contra otherwise agreed to in writing, the d of issuance of the final Certificate or	rrected is attached hereto. The ctor to complete all Work in ac ate of commencement of warra f Payment or the date of final p	failure to include any i cordance with the Con nties for items on the a ayment.	tems on such list does not tract Documents. Unless attached list will be the date
Cost estimate of Work that is incom	plete or defective: \$		
() days from the above date of	rect the Work on the list of iten of Substantial Completion.	ns attached hereto with	in
CONTRACTOR	ВҮ	DATE	
The Owner accepts the Work or des	ignated portion as substantially (<i>time</i>) on	complete and will asso (<i>date</i>).	ume full possession at
OWNER	ВҮ	DATE	
The responsibilities of the Owner an insurance shall be as follows: (Note	d Contractor for security, main :: Owner's and Contractor's leg	tenance, heat, utilities, gal and insurance court	damage to the Work and asel should determine and

review insurance requirements and coverage.)

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Matheward AIA[®] Document G706[™] – 1994

Contractor's Affidavit of Payment of Debts and Claims

PROJECT : (Name and address)	ARCHITECT'S PROJECT	
TO OWNER: (Name and address)	CONTRACT FOR: CONTRACT DATED:	
STATE OF:		

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

 Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707TM, Consent of Surety to Final Payment, may be used for this purpose.

Indicate attachment: 🗆 Yes 🖾 No

The following supporting documents should be attached hereto if required by the Owner:

- 1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment
- 2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof
- 3. Contractor's Affidavit of Release of Liens (AIA Document G706A[™])

CONTRACTOR: (Name and address)

BY:

(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:

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Matheward At a state of the second state of t

Contractor's Affidavit of Release of Liens

PROJECT : (Name and address)	ARCHITECT'S PROJEC	
	CONTRACT FOR:	
TO OWNER: (Name and address)	CONTRACT DATED:	
STATE OF:		$ \langle \rangle \rangle$
COUNTY OF:		
The undersigned hereby certifies that listed below, the Releases or Waivers	to the best of the undersign of Lien attached hereto inc	ed's knowledge, information and belief, except as lude the Contractor, all Subcontractors, all suppliers

encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above. **EXCEPTIONS**:

of materials and equipment, and all performers of Work, labor or services who have or may have liens or

SUPPORTING DOCUMENTS ATTACHED HERETO:

- 1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
- 2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR: (Name and address)

BY:

(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:

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Mathematical Alignment Al

Consent of Surety to Final Payment

PROJECT : (Name and address)	ARCHITECT'S PROJECT NUMBER:	
l l l l l l l l l l l l l l l l l l l	JUNIRACI FUR:	
TO OWNER: (Name and address)	CONTRACT DATED:	
In accordance with the provisions of the Contract betwo	een the Owner and the Contractor as	s indicated above, the
(Insert name and address of Surety)		*
on bond of (Insert name and address of Contractor)		, SURETY,
hereby approves of the final payment to the Contractor	and agrees that final navment to th	, CONTRACTOR,
the Surety of any of its obligations to (Insert name and address of Owner)	, and agrees that final payment to the	e Contractor shan not reneve
		, OWNER,
as set forth in said Surety's bond.		
IN WITNESS WHEREOF, the Surety has hereunto set (Insert in writing the month followed by the numeric da	its hand on this date: <i>ite and year.)</i>	
	(Surety)	
	(Sur Ciy)	
	(Signature of authorized rep	presentative)
Attest:	(Drinted to sure and title)	
(کوری) CAUTION: You should sign an original AIA Contract Docu	(<i>Frintea name and title)</i> ment, on which this text appears in Rf	ED. An original assures that

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SECTION 01 1000

GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 **DESCRIPTION OF WORK**

A. The Work under consideration for bidding shall be the Work shown on the Drawings and described in the Specifications for the project titled **New Storage Buildings at the Loveland High School**, as prepared by VSWC - Architects, Inc. These bidding documents are the Contract Documents.

In general the Work includes constructing (2) storage buildings and a manufactured band tower at the Loveland High School site. One of the storage buildings is for Athletic Storage and the other is Band Storage. Unless otherwise noted, all items, material, processes, and procedures included in these specifications are to include both labor and material necessary for a complete job.

1.02 SPECIAL SCOPE REQUIREMENTS

- A. The Project is a signature project for the Owner and construction of the highest quality is vitally important to the staff and community. In this respect, each contractor assumes a position of trust and confidence in the performance of its duties to the Owner, and shall perform its Work on the Project with the highest degree of competence, diligence, coordination and workmanship.
- B. Team Work:

The Contractor and subcontractors are expected to work together as part of a Team to ensure the successful completion of the Project. By entering into its contract with the Owner, each Contractor pledges to use its best efforts to make this Team approach successful and to act with absolute honesty and integrity in all of its dealings with the Owner and Architect on the Project.

- C. All layout and field engineering required for the performance of the work, including protection of reference points and replacement of such points that are lost or damaged during the execution of this work. All reference points shall be established from registered benchmarks or existing finish floor elevations.
- D. Protect existing buildings, grounds, equipment and utilities from damage that results from the Contractor's work. If any item is damaged, it shall be repaired by the Contractor, at his own expense.
- E. All Contractors shall include Work made necessary by field conditions that may not be shown in the Contract Documents but that are apparent during an inspection of the construction site.
- F. The Contractor is to provide all necessary power, generators and equipment to run welders and tools required for the execution of their work.
- G. Each Contractor shall be responsible for any hoisting required for completion of his work, including building materials, structural elements and mechanical equipment.
- H. All demolition materials shall be removed from the site by the Contractor. The bid for shall include all necessary handling, hauling and disposal fees.

1.03 DISCRIMINATION AND INTIMIDATION

- A. In the hiring of employees for the performance of the Work under the Contract or any subcontract, the Contractor and all persons acting on its behalf, shall not, by reason of race, creed, sex, handicap, or color, discriminate against any persons in the employment of labor or workers who are qualified and available to perform the work to which the employment relates.
- B. The Contractor and all persons on its behalf shall not, in any manner, discriminate against or intimidate any employee hired for the performance of Work under this Contract or any subcontract on account of race, creed, sex, handicap, or color.

C. The Contractor shall comply fully with any and all policies and procedures of the Owner relating to discrimination and intimidation and any other applicable laws or regulations relating thereto.

1.04 **CONTRACT FORM**

The successful Bidder shall execute a Contract with the Owner on American Institute of Architects (AIA) Document A101, Standard Form of Agreement Between Owner and Contractor (Stipulated Sum), Latest Edition. A copy of the contract form is enclosed with this specification.

1.05 **INSURANCE**

- A. Prior to the commencement of any of the Work, each prime contractor, at its own expense, shall obtain the following insurance to be maintained until final payment and at all times thereafter when the Contractor may be correcting, removing or replacing defective Work, except as set forth below.
- B. Worker's compensation (statutory) and employer's liability insurance is to be in accordance with the State of Ohio Statutory Requirements.
- C. Commercial general liability insurance on an occurrence form covering the Work in a minimum amount of Two Million Dollars (\$2,000,000.00) for non-hazardous trades and Three Million Dollars (\$3,000,000.00) for hazardous trades combined single limit.
 - This coverage shall also include:
 - 1) Operations and Premises Liability.
 - 2) Personal injury groups A, B, C, with employee exclusion deleted.
 - 3) Broad form property damage including all XCU hazards where applicable.
 - 4) Independent contractors Sublet Work.
 - 5) Blanket contractual liability, including all indemnifications set out in the Contract Documents.
 - 6) Products/completed operations liability insurance is to be provided for a period of at least two (2) years after final payment.
 - 7) Occurrence bodily injury and property damage.
 - 8) Explosion, implosion, collapsed underground damage.
- D. Comprehensive automobile liability insurance in a minimum amount of One Million Dollars (\$1,000,000.00) combined single limit. This insurance shall cover all owned, non-owned or hired automobiles to be used in furtherance of the Work.
- E. A following form umbrella or Excess liability policy may be provided to bring the primary policy limits described above up to the required levels of coverage.
- F. Certificates of insurance, in duplicate, indicating the Project and evidencing all required coverage must be submitted to and approved by the Owner prior to the commencement of any of the Work. Certificates must include as additional insured's the Owner and Architect.
- G. All policies shall expressly require that the coverage afforded shall not be canceled, reduced or renewal refused until at least thirty (30) days prior written notice has been given to the Owner by certified mail. The certificates of insurance shall also so provide.
- H. The Contractor shall secure, pay for and maintain whatever it may deem necessary for protection against loss of owned or rented capital equipment, facilities and tools, including any tools owned by mechanics and any tools, equipment, scaffolds, bracings, staging, towers, forms and similar items owned or rented by it or its subcontractors. The Owner shall have no liability with respect to such equipment, facilities and tools. The requirement to secure and maintain the above insurance is solely for the benefit of the Contractor. Failure of the Contractor to secure such insurance or to maintain adequate levels of coverage shall not obligate the Owner for any losses of owned or rented equipment. If the Contractor secures such insurance, the insurance policy shall include a waiver of subrogation as follows: "It is agreed that in no event shall this insurance company have any right of recover against the Owner or its agents."
- I. Builders Risk Insurance:

The Owner shall maintain "All Risk" insurance policy to protect the Owner and/or the Contractor from loss incurred by fire, lightning, extended coverage hazards, vandalism, and malicious mischief, in the full amount of the contract, and such insurance shall cover all labor and materials

connected with the work, including materials delivered to the site but not yet installed in the building. The Contractor shall be responsible for securing the site, building and storage areas, trailers and tools.

J. All policies shall expressly require that the coverage afforded shall not be canceled, reduced or renewal refused until at least thirty (30) days prior written notice has been given to the Owner by certified mail. The certificates of insurance shall also so provide.

1.06 CONSTRUCTION SCHEDULE

Within 14 days after contract signing, the Contractor shall prepare a bar chart construction schedule indicating starting and completion times for each trade or portion of the Work. This schedule shall be circulated for review to all other sub-contractors, then modified to include critical dates for their work. Once accepted by the Owner, Architect and Contractor, this schedule will be the standard by which construction progress is measured. The Contractor shall update and modify the schedule every month to reflect actual work progress. All sub- contractors are expected to participate in the preparation of the project schedule and to provide the necessary manpower to maintain the schedule progress.

1.07 COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall commence the Work as scheduled below and shall fully complete all Work in accordance with the requirements of the Contract Documents and achieve Substantial Completion as follows:

Commencement (Start Date) May 26, 2025 (Start of Summer Break for Students)

Substantial Completion (Completion Date for new Storage Buildings and Band TowerFoundations)August 1, 2025 (End of Summer Break)

Substantial Completion (Completion Date for the Band Tower Steel Structure Complete) December 31, 2025

By submitting the Bid, the Contractor agrees that the periods for performing the Work are reasonable, and that the Bidder's Work can be completed by its applicable Date for Construction Completion.

Contractor shall include all required overtime, weekend work and/or night work as required to meet the substantial completion dates listed above.

1.08 WORKING HOURS

Working hours are **Monday through Saturday**, **7:30 a.m. to 7:30 p.m.** The Owner must approve any deviation from this. The Contractor shall include in their Base Bid the necessary overtime costs and second shift required to complete work operations in accordance with the contract guideline/milestone dates in order to meet the Completion date.

1.09 CONTRACT TIME

- A. It is hereby understood and mutually agreed by the Contractor and the Owner, that the date of beginning and the time for completion as specified in the Contract of the Work to be done hereunder are ESSENTIAL CONDITIONS of this Contract; and it is further understood and agreed that the Work embraced in this Contract shall be commenced on a date to be specified in the letter of authority to proceed and/or execution of the construction contract.
- B. The Contractor agrees that said Work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by the Contractor that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

1.10 LIST OF SUBCONTRACTORS

A. If the Bidder intends to sub-contract any significant part of the work included in his Contract, the Contractor shall list the firm name and address of each Sub-contractor that is being proposed to use

for each of the various portions of the work. Failure to comply with Owners request for said list within 48 hours of Bid Due Date will make the bid incomplete and may make the entire proposal void. All work not listed, must be done by the Bidder with their own forces, unless special permission is secured from the Owner to do otherwise. The list of subcontractors, once approved, shall become a condition of the contract and the successful bidder may not change subcontractors during the course of the project without prior written permission from the Owner, and without a legitimate reason such as non-performance or other legitimate reason unrelated to bid cost.

1.11 SCHEDULE OF VALUES

A. Within 14 days after contract signing, each the Contractor shall submit a schedule of values to the Architect and Owner for review, materials and labor to be listed separately. The schedule of values shall consist of a complete breakdown of the Contractor's contract sum showing the various items of work, divided so as to facilitate the approval of payments to the Contractor for Work completed. The schedule of values shall be organized by divisions of work, by individual buildings within the project, phased construction, separate sitework from building construction and separate remodeling from new construction. Once approved, this schedule of values shall be submitted with all pay applications. Include separate line item values for bond, alternates, allowances, change orders, shop drawings, progress meetings, temporary facilities, punchlist completion, record drawings and project closeout.

1.12 Not Used

1.13 TEMPORARY FACILITIES

- A. Any Contractor requiring one of the temporary services before it can be provided as specified, or whose requirements with respect to a particular service differ from the service specified, shall provide such services as suits his needs, at his own expense and in a manner satisfactory to the Architect and Owner.
- B. Temporary Telephone and Internet Access: The Contractor shall provide his own on-site telephone and internet access as required, Contractors are not to use Schools phones or internet service.
- D. Temporary Offices and Storage:

The Contractor shall provide (if required) and maintain offices, storage sheds and other temporary buildings or trailers on the project as required for his own use. Sheds and trailers temporary electric service, if required, to each office shall be arranged and paid for by the Contractor.

- E. Temporary Water Supply:
 - 1) Drinking Water: Contractor to provide their own drinking water.
- F. Sanitary Arrangements: Contractor to provide a Port-o-let on site for the duration of the construction.
- G. Temporary Light and Power:
 - 1. The Contractors may use the existing power available on the site for their work.
 - a. Maintain temporary circuits and protection at all times per OSHA standards.
 - b. Each trade shall provide supplementary lighting when required to perform their work. Use portable floods and extension cords to illuminate specific tasks and to aid craftsmanship.
 - 2. Each trade shall provide and pay for its own extensions for lights or power tools beyond the receptacle outlets provided above.

1.14 CONTRACTORS SECURITY REQUIREMENTS / CONTRACTOR USE OF PREMISES

- A. Loveland City School District Lobby Guard Check In System- All persons working on the site are required to check in (their first day on the site) through the Loveland City School District Schools Lobby Guard System located in the main office of the school. This system checks for to see if a person has been convicted of a sex crime.
- B. Confine operations at the site to areas permitted under Contract. Portions of site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting work

while engaged in project construction. Profanity and alcoholic beverages shall not be permitted. Contractors should not be inside any of the schools at any time.

1.15 CORONA VIRUS POLICIES

- A. The contractor shall abide by all Federal, State, County, and/ or School District policies and/ or mandates regarding the Corona Virus. A copy of the district's policy can be reviewed upon request.
- B. Delays or shut downs caused by or associated with the Corona Virus will not be a cause for delay claims on this project. The substantial completion date will be extended if shut downs or delays are encountered.

1.16 MUTUAL RESPONSIBILITY

A. Additional expense caused by delays or by improperly timed activities or defective construction of a separate Contractor, shall be borne by, and are the responsibility of that Contractor and claims, if any, relating to such damages shall be made, if at all, directly against the Contractor(s) causing such damages. Therefore, the Owner and Architect shall not be held responsible or become involved in claims for damages caused by one Contractor to another.

1.17 **PERMITS**

A. The architect will apply for the Architectural and Electrical permits required for this project. The cost of these permits will be paid for directly by the school district. There is no Plumbing or Fire Protection Permits required for this project.

The Band Tower is to provide full stamped engineering drawings for the Band Tower structure and foundations complete.

All work shall be carried out under the State Laws and City Regulations governing the erection of buildings of this type, including the city licensing of contractors. The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work.

1.18 COORDINATION

A. The Contractor shall coordinate project scheduling and submittals, for respective sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements. The Contractor shall be responsible for coordination and communication of project scheduling to each of the Sub-contractors. The Contractor shall regularly visit the jobsite or otherwise check the progress of the work to ascertain when his work is required to maintain orderly sequence of construction and shall not rely on the Owner or Architect to advise him on when to commence or perform his work.

1.19 CONFERENCES AND PROGRESS MEETINGS

- A. Architect and Owner will schedule a pre-construction conference after Notice of Award for all affected parties.
- B. The Architect and Owner will schedule progress meetings throughout duration of the Work. Attendance by the Contractor representatives is required. The Contractor forfeits his rights with decisions made in his absence. Subcontractors performing large amounts of work on site at the time of the meeting may be asked to attend the progress meetings.
- C. The Contractor will preside at progress meetings, prepare meeting agenda, record meeting minutes, and distribute copies to all parties and those affected by decisions made.

1.20 ELECTRONIC FILES

- A. At commencement of the Project, the Contractor will have the opportunity to obtain from the Architect an electronic versions of Plans and other relevant Drawings. This electronic version will be available at no charge.
- B. Electronic files obtained from the Architect shall only be used as a base for Shop Drawings, As-Built Drawings and other drawings in direct connection with the Project. Contractor is responsible to verify the accuracy of all information contained in electronic files. Electronic files may have some information removed such as text, title block, etc.

C. The Contractor shall have permission to distribute electronic files to their subcontractors, provided that the conditions of the release form are agreed-to by the subcontractor. Subcontractors desiring electronic files must obtain them from the Contractor (no electronic files will be distributed to subcontractors by the Architect.)

1.21 SHOP DRAWINGS / SUBMITTALS

- A. The Contractor shall prepare and submit for review by the Architect; shop drawings, product data, samples and other required informational submittals as required per the Contract Documents or as requested by the Architect.
- B. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity. 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. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time:

Allow enough time for submittal review, including time for resubmittals. 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.

- D. The Contractor shall, at the start of the project, provide a shop drawing/submittal procurement schedule listing all required shop drawings and/or submittals, samples, date(s) of submission and review status. The procurement schedule shall be organized by CSI Masterformat divisions and shall be submitted to the Architect.
- E. All submittals and shop drawings shall be submitted electronically in a PDF format to the Architect. Each electronic submittal shall be identified by project, contractor, sub-contractor or supplier, referenced specification section and sequential submittal identification number. Submittals that require a color selection, the Contractor shall forward samples and/or original color charts to the Architect under separate cover.
- F. Contractor's Review:

Contractor shall review each submittal and apply Contractor's stamp to each copy of shop drawings or submittal (signed or initialed) certifying that review, verification of products required, verification of field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents. In addition the following statement must appear either in the Contractor's review stamp or on the Contractor's signed transmittal for each set of shop drawings:

"We hereby certify that we have reviewed this submittal, verified the products required, coordinated and verified the field dimensions, adjacent construction work and required clearances, and determined that the work and materials described by this submittal are in accordance with the requirements of the Work and Contract Documents."

Contractor shall identify deviations from the Contract Documents and product or system limitations, which may be detrimental to successful performance of the completed Work.

G. Architect's Review:

Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action. Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action to be taken by the Contractor. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.

H. Delegated-Design Submittal:

Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with VSWC Architects 01 1000-6

specific performance and design criteria indicated. In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

- I. Contractor shall revise and resubmit submittals as required; identify all changes made since previous submittal. Provide the same number of copies as originally submitted.
- J. Distribution:

Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction:

Use only final submittals with mark indicating "No Exception Taken" taken by Architect.

1.22 SAMPLES

- A. 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. Submit samples to illustrate functional and aesthetic characteristics of products.
- B. Submit samples of finishes from the full range of manufacturers' standard colors or custom colors, textures, and patterns as specified for Architect/Engineer's selection.
- C. Construct field samples at the site for review as required by individual specifications sections. Acceptable samples represent a quality level for the Work. Remove samples from the site when directed.

1.23 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Architect/Engineer for review, in quantities specified for Product Data.
- B. Indicate material or whether Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.24 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions that are supplemental or contrary to manufacturers' written instructions.

1.25 DOMESTIC STEEL

A. DOMESTIC STEEL USE REQUIREMENTS AS SPECIFIED IN SECTION 153.011 OF THE REVISED CODE APPLY TO THIS PROJECT. COPIES OF SECTION 153.011 CAN BE OBTAINED FROM ANY OF THE OFFICES OF THE DEPARTMENT OF ADMINISTRATIVE SERVICES.

1.26 CONTRACTOR WRITTEN REQUESTS FOR INFORMATION (RFI'S)

- A. Where questions of clarification are justified, it is appropriate for Contractors to submit written RFI's directly to the Architect, in accordance with the provisions of the General Conditions. Questions pertaining to Construction Documents will typically be answered by the Architect.
- B. Written RFI's should be limited to issues of clarification or discrepancy within the Construction Documents requiring written clarification or field conditions not specifically addressed in the Construction Drawings and Specifications. Contractor is required, as part of his Work under the

Contract, to become familiar with all of the Construction Documents. Contractor is also required to review the Construction Documents prior to submitting an RFI to determine if the information is readily determinable. RFI's should only be submitted once a thorough review of the Construction Documents has been performed by the Contractor and a clarification is still warranted.

- C. The Architect will endeavor to answer RFI's as promptly as possible to facilitate the progress of Construction. However, Contractor is required to submit RFI's such that ample time is available for processing, review and response. Damages or delays caused by Contractor failing to identify and submit an RFI in a timely manner will be the responsibility of the Contractor.
- D. RFI's are a standard part of the construction process. Contractor should expect that a reasonable number of RFI's will be required throughout the course of construction. Time associated with the generation of RFI's shall be considered part of the Work and shall not be considered as basis for additional compensation.
- E. Submission of multiple RFI's that are easily determinable from the Construction Documents shall be considered frivolous and excessive. Contractor shall be responsible for costs incurred by the Architect and Construction Manager due to frivolous and excessive RFI's including review time and administrative cost.
- F. RFI's do not necessarily result in the issuance of a change order or change in contract amount.

1.27 APPLICATIONS FOR PAYMENT

- A. The Contactor shall submit a Schedule of Values showing itemized costs for each portion of the work in duplicate within 14 days after contract signing. Refer to Section 1.06 for additional Schedule of Values description and requirements.
- B. Submit at a maximum, via E-mail, each month an application on AIA Form G702, Application and Certification for Payment utilizing AIA Form G703, Continuation Sheet (Schedule of Values) for listing items included in the Application for Payment. Applications shall be notarized and signed by a person authorized to sign legal documents on behalf of the Contractor. Incomplete applications will be returned to Contractor for correction.
- C. The Schedule of Values shall list separate line items for labor and material for each activity. Round amounts to nearest whole dollar with the total equal to the contract sum.
- D. With each monthly application for payment, submit the following supporting documents:
 - 1. AIA Document G706, Contractor's Affidavit of Payment of Debts and Claims, master affidavit listing amounts owed to each subcontractor, supplier or laborer.
 - 2. AIA Document G706A, Contractor's Affidavit of Release of Liens, release of lien affidavit from each subcontractor, supplier or laborer shown on the previous master affidavit showing payment in full for said items.
 - 3. Current list of contractors, subcontractors and suppliers, showing their respective contract sums, amount paid, and amount due.
 - 4. AIA Document G707, Consent of Surety to Final Payment, required only for final application for payment.

NOTE: Failure to submit all of the required information will delay payment from the Owner.

- E. With the final application for payment, Contractor shall also submit, supporting affidavits from each subcontractor, supplier or laborer verifying the amounts owed listed on the Master Affidavit and such additional documents that indicate release of mechanic's liens for the project.
- F. Retainage and Payment:

Payments for work performed under a lump sum price will be based on a schedule of values that the contractor prepares and the Architect / Construction Manager approves.

Payments for <u>labor</u> performed are to be made at the rate of 92% of the estimates the contractor prepared and the architect approved. This results in an 8% retainage. When the job is 50%

completed, all approved labor estimates will be paid at the rate of 100%, with no additional withholding. At the completion of the project the Owner will have 4% retainage of labor.

Payments for <u>materials</u> are to be paid at the rate equal to 92% of the invoice costs of material delivered on the site of the work, storage site, in the vicinity of the work, or to another approved storage site. Before payment can be made, the materials must be inspected and must meet the specifications. The balance or retainage will be paid when the materials are incorporated into the work.

When payments in the amount of at least 50% of the contract sum, i.e., show that the contract is 50% complete, the Treasurer will place all retained funds in an escrow account as provided in Section 153.63, ORC. The Treasurer reserves the right to select the escrow agent.

G. Schedule:

All paperwork required for complete application for payment (monthly progress payment), must be submitted to the Architect / Construction Manager in pencil-copy form by the 18th day of the month and in final format by the 25th day of the month. This application shall be for work performed through the end of the month. Payment by the Owner will be before the 15th of the next month. Applications for Payment submitted after the 25th day of the month will not be processed until the following month.

1.28 CHANGE ORDER PROCEDURES / CHANGES IN THE WORK

A. Owner-Initiated Change Order Proposal Requests:

Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

- 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
- 2. Within the time limit specified in Proposal Request, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
- 3. Include a list of quantities of products required or eliminated and actual unit/material costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
- 4. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
- 5. Include costs of labor and supervision directly attributable to the change, including subcontractor direct cost.
- 6. 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.
- 7. Lump sum change order quotations will not be accepted.
- 8. The Architect may require additional supporting information or a revised quotation before making his recommendation to the Owner.
- B. Contractor-Initiated Change Order Proposals:

If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

- 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
- 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.
- 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
- 4. Include costs of labor and supervision directly attributable to the change, including subcontractor direct cost.

- 5. 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.
- 6. Lump sum change order quotations will not be accepted.
- 7. The Architect may require additional supporting information or a revised quotation before making his recommendation to the Owner.
- C. On Owner's approval of a Proposal Request, Architect will prepare and issue a Change Order for signatures of Owner and Contractor on AIA Document G701.
 - Total Contractor's mark-up on Change Orders shall be limited to 10%. No additional charges will be added to any Change Order such as change order preparation, small tools, rental cost of equipment already on site, dumpster, clean up, or field office expense. This applies to Prime Contractors and Subcontractors. In no event shall the total overhead and profit for the Prime Contractor, and all subcontractors exceed (20%) of actual labor and materials of those performing the actual work.
 - 2. Cost of labor and materials will be actual cost to the contractor. Invoices for these materials and payroll reports are required.
- D. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, Architect's Supplemental Instructions or other project specific document.
- E. If the Project includes provisions for Allowances, change orders may be adjusted against the project allowance amount. Allowances do not include Contractor's overhead and profit. Architect shall prepare and issue allowance deduction authorization documentation for signature of the Owner and Contractor.

1.29 SUPERVISION AND CONSTRUCTION PROCEDURES

- A. The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.
- B. The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, subcontractors and their agents and employees, and other persons or entities performing portions of the Work.
- C. The Contractor shall be responsible for inspections of portions of Work already performed to determine that such portions are in proper condition to receive subsequent work.
- D. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for safety and protection to prevent damage, injury or loss.
- E. Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at the appropriate time and shall be scheduled by the Contractor. The Contractor shall give timely notice to the Architect and Owner of the schedule of such procedures.

1.30 CONSTRUCTION LAYOUT

A. Verification:

Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the existing conditions. If discrepancies are discovered, notify Architect promptly.

- B. The Contractor shall be responsible for all construction lay-out.
 - 1. Establish control points to set lines and levels for construction and elsewhere as needed to locate each element of Project.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.

- 3. Inform installers of lines and levels to which they must comply.
- 4. Check the location, level and plumb, of every major element as the Work progresses.
- 5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.

C. 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 Architect.

1.31 GENERAL INSTALLATION REQUIREMENTS

A. General:

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

- 1. Make vertical work plumb and make horizontal work level.
- 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated. Submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. 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.

E. Tools and Equipment:

Do not use tools or equipment that produce harmful noise levels.

F. 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.

- 1. Allow for building movement, including thermal expansion and contraction.
- 2. 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.

G. 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.

H. Hazardous Materials:

Use products, cleaners, and installation materials that are not considered hazardous.

1.32 QUALITY ASSURANCE / CONTROL OF INSTALLATION

- A. Contractor shall monitor 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.
- B. Conflicting Requirements:

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 Architect for a decision before proceeding.

C. 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 Architect for a decision before proceeding.

- D. Comply fully with manufacturers' instructions.
- E. Special Tests and Inspections (If Required by Project):

The Owner will engage a qualified third-party testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

- 1. Verifying that manufacturer maintains detailed fabrication and quality control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
- 2. Notifying Owner, Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
- 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Owner and Architect with copy to Contractor and to authorities having jurisdiction.
- 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
- 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- 6. Retesting and reinspecting corrected work.
 - a. 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/or the Contract Sum will be adjusted by Change Order
- 7. Contractor shall 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. Schedule times for tests, inspections, obtaining samples, and similar activities.
- F. The Contractor shall, for the Owner's records, submit copies of permits, licenses, certificates, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, records and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.33 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturers written instructions.
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 5. Store products to allow for inspection and measurement of quantity or counting of units.
 - 6. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 7. Store cementitious products and materials on elevated platforms.
 - 8. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 9. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 10. Protect stored products from damage and liquids from freezing.

1.34 CUTTING AND PATCHING

- A. Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
- B. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- C. Submit written request in advance of cutting or altering structural elements.
- D. Preparation:
 - 1. Provide temporary support of Work to be cut.
 - 2. Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
 - 3. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- E. Cutting:
 - Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
- F. Patching:
 - 1. Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
 - 2. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 - Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
- G. Cleaning:

Clean areas where cutting and patching are performed. Completely remove concrete, dirt, and asphalt from adjacent spaces.

H. Existing Warranties:

Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

1.35 **DEWATERING**

- A. The Contractor shall maintain his excavations free of water and shall provide, operate, and maintain pumping equipment. No extras will be paid for dewatering.
- B. The Contractor, as it applies to the performance of their work, shall design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.
- C. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.
- D. Provide temporary grading to facilitate dewatering and control of surface water.
- E. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls. Monitor dewatering systems continuously.

- F. Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with hauling and disposal regulations of authorities having jurisdiction. Dispose of water in a lawful manner that will not result in flooding of the Project or adjoining properties nor damage permanent Work.
- G. Remove snow and ice as required to minimize accumulation.

1.36 **PROTECTION OF THE WORK**

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. The Contractor shall provide barricades or other protection as required during and after construction of work as required and maintain barricades as necessary.
- C. The Contractor shall protect the Contractor's Work from weather, and shall maintain the Work and all materials, equipment, apparatus, fixtures and other items on or adjacent to the Project site free from injury or damage during the entire construction period.
 - 1. Extra precaution should be taken around work or items likely to be damaged. These include but are not limited to sidewalks, concrete curbs, storm drains, manholes, landscaping, utilities, etc... All damaged materials are to be replaced by the responsible contractor.
 - 2. Any Work or item damaged by failure of the Contractor to provide coverage or protection shall be removed and replaced with new Work or a new item, as applicable, at the Contractor's expense.
 - 3. Any adjacent property, including without limitation roads, walks, shrubbery, plants, trees or turf, damaged during the Contractor's Work shall be properly repaired or replaced at the Contractor's expense.
- D. Unless otherwise specified in the Contract Documents, the Contractor shall protect the Project and existing or adjacent property from damage at all times and shall erect and maintain necessary barriers, furnish and keep lighted necessary danger signals at night, and take precaution to prevent injury or damage to persons or property.
- E. The Contractor shall not load, nor permit any part of the Project to be loaded, in any manner that will endanger the Project, or any portion thereof, nor shall the Contractor subject any part of the Project or existing or adjacent property to stress or pressure that will endanger the Project or property.

1.37 **PROGRESS CLEANING**

- A. The Each Contractor shall, at its own cost and expense:
 - 1. Keep the premises free at all times from all waste materials, packaging materials and other rubbish accumulated in connection with the execution of the Work by regularly collecting and disposing of such materials.
 - 2. Clean and remove from its own Work and from all contiguous work of others any soiling, staining, mortar, plaster, concrete or dirt caused by the execution of its Work and make good all defects resulting there from.
 - 3. Remove debris from concealed spaces before enclosing the space.
 - 4. At the completion of its Work in each area, perform such cleaning as may be required to leave all exposed surfaces of materials it has furnished, or installed, or both, in a clean, unblemished condition, and leave the area "broom clean".
 - 5. At the entire completion of its Work, remove all of its tools, equipment, scaffolds, shanties, and surplus materials.
 - 6. Should the Contractor fail to perform any of the foregoing to the Architect's satisfaction, the Owner shall have the right to perform and complete such work itself or through others and charge the cost thereof to the Contractor.
- B. General Contractor to take all trash to the dumpster daily. Should the Contractor fail to adequately clean and remove construction trash to the Owner and Architect's satisfaction, the Owner shall have the right to perform and complete such work itself or through others and charge the cost thereof to the Contractor.

C. The General Contractor shall maintain site in a clean and orderly condition and shall be responsible for removing mud and debris tracked onto paved areas and public streets at the end of each working day by workmen under his control during course of his work on the site. The Architect's decision placing blame for mud tracked on street or debris left on site shall be final. Failure of the Contractor to perform said clean up shall be remedied as stated in Paragraph A above.

1.38 FINAL CLEANING

- A. The General Contractor shall be responsible for final cleaning at the completion of the project and/or construction phase. 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. Comply with manufacturers written instructions.
- B. 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.
- C. Any construction activities that are out of sequence shall require additional touch-up cleaning by the General Contractor.
- D. Complete the final cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project.
- E. Final cleaning of the Project shall include, but is not limited to the following:
 - 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.
 - 2. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - 3. 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.
 - 4. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - 5. Sweep concrete floors broom clean in unoccupied spaces.
 - 6. Power wash new concrete and asphalt surfaces.
 - 7. 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.
 - 8. Remove labels that are not permanent.
 - 9. 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.
 - 10. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - 11. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - 12. Replace parts subject to unusual operating conditions.
 - 13. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - 14. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - 15. 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.
 - 16. Leave Project clean and ready for occupancy.

F. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

1.39 **REMOVAL OF DEBRIS**

- A. The Contractor shall furnish a dumpster at the site if required for the work. The contractor, as required by the Architect, shall collect and place in the dumpster, all rubbish and debris pertaining to his work. The Contractor shall pay for removal of all trash and debris from the site.
- B. The Contractor shall remove mud and gravel from paved roads and drives daily.
- C. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
- D. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- E. Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

1.40 **PROJECT SECURITY AND SAFETY**

- A. See Sheet A010 for require temporary fencing and other safety items. Note that construction fencing will need to be moved on a regular basis as construction progresses.
- B. Each Contractor shall be responsible for securing their own tools, materials, trailers and operations against weather, theft and vandalism.
- C. The Contractor shall erect and maintain a construction barriers around the area of construction. These barrier are to be moved on a daily basis as construction progresses.
- D. Applicable provisions of Federal, State and local regulations for construction safety in the State in which the project is located shall govern the Construction Documents and the construction hereby contemplated. Each Contractor shall be responsible for the safety and health of persons and property affected by the Contractor's performance of the Work including work performed by his sub-contractors. This requirement shall apply continuously during the entire contract period and shall not be limited to normal working hours.
- E. The Contractor shall be responsible for compliance with safety and health regulations for construction as applicable to the Contractor's Contract and the Contractor's construction means and methods. The Contractor shall be liable for violations as may be cited or charged against the Contractor by authorities governing the safety and health regulations for construction.
- F. Neither the Architect or the Owner, shall be responsible for construction means and methods, nor shall be responsible for construction safety. The Contractor shall indemnify and hold harmless the Architect and the Owner, under the provisions within the General Conditions of the Project Specifications.
- G. The Contractor shall provide temporary construction barricades as required for safety and security for their specified portion of the Work. Where appropriate and needed, provide visible identification, including flagging and/or lighting.
- H. All Contractors are required to keep their materials, equipment, tools and supplies away from exterior doors in the construction area. These doors will be used as emergency egress only and are not to be barricaded in any form or fashion.
- I. The Contractor and subcontractor shall provide first aid facilities as required by Federal, State, or Local Safety Regulations.
- J. The Contractor shall provide, maintain, and have readily accessible, approved type fire extinguishers when working adjacent to hazardous areas such as painting and welding, or when

using torches or open flames for heating or cutting. Personnel working on the Project shall be familiarized with the locations and operation of fire extinguishers.

1.41 CONTRACTOR'S PUNCH LIST

- A. When the Work, or designated portion thereof, is near completion, the Contractor shall prepare a list of all deficient items remaining on the Work or the designated portion thereof and shall become the "Contractor's Punch List".
 - 1. The Punch List shall include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
- B. The Contractor shall proceed to correct all items listed on the Contractor's Punch List and verify that the deficient items have been corrected by signing said Punch List.
- C. The Contractor shall submit the signed Contractor's Punch list to the Architect and Owner together with a request for a Final Inspection of the Work.

1.42 SUBSTANTIAL COMPLETION

A. Preliminary Procedures:

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

- 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.
- 2. Advise Owner of pending insurance changeover requirements, if applicable.
- 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
- 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include operating certificates, and similar releases form authority have jurisdiction.
- 5. Prepare and submit Project Record Documents, Operation and Maintenance Manuals, and similar final record information.
- 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
- 7. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
- 8. Complete final cleaning requirements.
- 9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection:

Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

C. Reinspection:

Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected. Results of completed inspection will form the basis of requirements for Final Completion.

1.43 **OPERATION AND MAINTENANCE DATA**

- A. The Contractor shall assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, sub-system, equipment, products, materials and finishes.
- B. Organize operation and maintenance documents from subcontractors, suppliers, and manufacturers into an orderly sequence based on the table of contents of the Project Manual. Provide a typed description of the product, system or equipment, including the name of the product and the name, address, and telephone number of Installer, supplier and manufacturer.

1.44 **PROJECT WARRANTY**

- A. The Contractor shall provide a <u>one-year warranty</u> for workmanship and materials beginning from the date of substantial completion. Contractor shall provide all warranty documentation from material and equipment with extended warranty durations.
- B. Project warranty shall be on Contractor's letterhead stationary and identify the project, date of substantial completion, and contact information. Provide (2) original copies of warranty.
- C. Partial occupancy of the premises or use of the equipment during construction shall not constitute the beginning of the guarantee period(s) or maintenance period(s), unless agreed to by the Owner in writing.

1.45 **PRODUCT OR MATERIAL WARRANTIES**

- A. The Contractor shall submit written warranties for materials, products or systems included in the Work. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. The commencement of warranties shall be the date of Substantial Completion.
- C. Organize warranty documents from subcontractors, suppliers, and manufacturers into an orderly sequence based on the table of contents of the Project Manual. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer, supplier and manufacturer. Provide (3) copies of warranty documents.
- D. Submit all warranty documents to Architect for review prior to final Application for Payment.
- E. Partial occupancy of the premises or use of the equipment during construction shall not constitute the beginning of the guarantee period(s) or maintenance period(s), unless agreed to by the Owner in writing.

1.46 RECORD DRAWINGS AND SPECIFICATIONS (AS-BUILT DRAWINGS)

- A. The Contractor is required to provide Record Documents (as-built drawings) per the General Conditions and as is specified in individual Specification Sections. Maintain one set of the Contract Drawings, Shop Drawings and Specifications. Mark changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.
- C. Record Drawing Preparation:

Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

- 1. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
- 2. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
- 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
- 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
- 5. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

D. Record Specifications Preparation:

Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

- 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
- 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
- 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
- 4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
- E. Record Drawings and Specifications shall be submitted to Architect for review prior to application for final payment.

1.47 CONTRACT CLOSEOUT / FINAL COMPLETION

- A. The Contractor shall submit written certification that Contract Documents have been reviewed, Work has been inspected, and Work is complete in accordance with Contract Documents and ready for Architect/Engineer's and Owner's final inspection.
- B. The Contractor, as a condition precedent to execution of the certificate of Contract Completion, release of retainage and final payment, shall provide all Project Record Documents to the Architect for review for conformity with the requirements of the Contract Documents, which may include, without limitation:
 - 1. Inspection Certificates, if required, and issued by the agency having jurisdiction over the Project.
 - 2. Operation and Maintenance Manuals.
 - 3. Record Drawings and Specifications (As-Built Drawings).
 - 4. Contractor's Certification that the Work has been completed per the Contract Documents.
 - 5. Assignment to the Owner of all Warranties and Guarantees.
 - 6. Completion of Punch List.
 - 7. Consent of Surety for Final Payment.
 - 8. Final Application for Payment identifying total adjusted Contract Sum/Price, previous payment, and amount remaining due.
 - 9. Final Affidavit for Waiver of Liens.
 - 10. Final Affidavit of Payment of Debts and Claims.
- PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes:
 - 1. Basic information about curing, standard finishing, cements, aggregates, plasticizers and other chemical admixtures, additives, and hardeners.
 - 2. Formwork, reinforcement and accessories related to cast-in-place concrete including temporary metal forms, slip forms, and corrugated paper forms for placing concrete
 - 3. Finishing and curing of cast-in-place concrete
 - 4. Concrete footings, foundations and slabs-on-grade
 - a. Concrete footings and foundations shown on Foundation Drawings
 - 5. Installation of cast-in-place items furnished under other Sections.
 - 6. All concrete work and materials not specified under another section or specifically designated to be provided by another Contractor but required for the work, whether or not specifically referred to herein.
- B. Coordinating:
 - 1. Coordinate the work of other trades who will provide items (anchor bolts, pipe bollards, sleeves, piping, conduit, inserts, etc.) to be cast in the concrete. Place no concrete until such items are in place.
 - 2. Coordinate dimensions and details with requirements of equipment being supplied by other contractors.
- C. Related work in other Sections:
 - 1. Section 32 1313, Concrete Paving
 - 2. Divisions 22, 23 & 26, Concrete Housekeeping Pads
- D. Related Documents: The provisions of the General Conditions, Supplementary General Conditions, and the Sections included under Division 1 are included as a part of this Section as though bound herein.
- E. Means and Methods: Architect/Engineer has designed a project which will be safe after full completion. Architect/ Engineer has no expertise in (and takes no responsibility for) construction means & methods (including erection procedures & sequences) or job site safety, which are exclusively the Contractor's responsibility. Processing and/or approving submittals made by Contractor which may contain information related to means, methods or safety issues, or participation in meetings where such issues are discussed, shall not be construed as voluntary assumption by Architect/Engineer of any responsibility for safety procedures.

1.02 QUALITY ASSURANCE

- A. Float Finish (Flt-Fn) Not Critical Floor Tolerance
 - 1. Specified Overall Value: FF 25/FL 20.
 - 2. Minimum Local Value: FF 20/FL 17.
 - 3. Apply float finish to monolithic slab surfaces that are to receive trowel finish and other thick finishes as hereinafter specified, and slab surfaces which are to be covered with waterproofing membrane or sand-bed terrazzo, thickset tile, and other areas which receive a mud/setting bed.
- B. Trowel Finish 2 (Tr-Fn2) Pole Barn floor slabs:
 - 1. Specified Overall Value: FF 36/FL 25.
 - 2. Minimum Local Value: FF 30/FL 22.
 - 3. Apply trowel finish to monolithic slab surfaces.

- C. Nonslip Broom Finish (NsBrm-Fn):
 - 1. Apply nonslip broom finish to exterior concrete platforms, steps and ramps: Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom, perpendicular to main traffic route.
- D. Codes and Standards:
 - Basic Specification: Perform work of this Section according to ACI 301-99, "Specifications for Structural Concrete," except as specifically modified herein. Numbers in parentheses (0.00) indicate a related paragraph of ACI 301.
 - 2. Unless otherwise specified, design, construct, erect, maintain, and remove forms and related structures for cast-in-place concrete work in compliance with the American Concrete Institute Standard ACI 347-94, "Recommended Practice for Concrete Formwork". Construct and erect concrete formwork; perform cast-in-place concrete work; and perform concrete reinforcing in accordance with ACI 301-99, unless specified otherwise in this Section. Place reinforcing in accordance with the Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice".
 - 3. Field Reference Manual: Provide at least one copy of the ACI Field Reference Manual, SP-15, and one copy of CRSI's "Placing Reinforcing Bars", in the field office at all times (1.3.3).
- E. Additional Reference Standards:
 - 1. ACI 117-90 Specifications for Tolerances for Concrete Construction and Materials.
 - 2. ACI Detailing Manual, 1994 (SP6694).
 - 3. CRSI "Placing Reinforcing Bars", 1997, 7th edition.
 - 4. WRI "Manual of Standard Practice", April 1992, 4th edition.
 - 5. Air-Entraining: ASTM C260-00.
 - 6. ACI 318 Building Code Requirements for Reinforcing Concrete.
 - 7. Cold Weather: ACI 106.1-90 "Standard Specification for Cold Weather Concreting" and ACI 306R-88 "Cold Weather Concreting"
 - 8. Hot Weather: ACI 305R-91 "Hot Weather Concreting"
 - 9. General Structural Notes shown on structural drawings.
- F. Testing: Required inspection and testing service to be performed by agency retained by Owner, including field sampling/testing required by the Quality Assurance Article of this Section and by OSHA. Contractor shall provide facilities for storage and curing specimens molded by the Owner's agency (1.6.3.2.d.) and notify Owner's agency in advance of concrete placement to allow sufficient time for all required testing.
- G. Qualifications: Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to Construction Manager and Architect.
- H. Pre-Installation Meetings: Conduct meeting to verify project requirements and substrate conditions.

1.03 SUBMITTALS

- A. General: Prepare, review, approve, and submit specified submittals in accordance with Division 1 Submittals Sections.
- B. Submittal shall specifically include:
 - 1. Certified test reports showing compliance with specified performance characteristics.
 - 2. Manufacturer's certification of compliance with specifications.
 - 3. Reports from tests required by Section 1.6 of ACI 301 shall be submitted to Structural Engineer, Architect, Owner, Contractor, Concrete Supplier, and Building Official.
 - 4. Mix designs for each class of concrete required (1.6.3.2.e). Submittals to comply with appropriate methods listed in ACI 301-99 (4.2.3). Indicate whether mixes have been designed for pumping.
 - 5. Shop drawings for all reinforcing. Indicate strength, size, and details of all bar reinforcing (3.1.1). Not withstanding any other requirements specified elsewhere in these specifications,

four sets of shop drawings shall be submitted for approval. One set will be returned to the Contractor, who will make and distribute as many copies as needed.

- 6. Product literature for admixtures and curing compounds proposed for use.
- 7. Proposed spacing and location of construction and/or control joints in concrete slabs on grade.

PART 2 PRODUCTS

- 2.01 MATERIALS
 - A. Concrete Materials
 - 1. Portland Cement: ASTM C150, Type I or III.
 - 2. Fly Ash: ASTM C618-89A, Type C or F, may be substituted for up to 20 percent of the total cementitious materials in all concrete mixes, unless otherwise noted.
 - 3. Aggregates
 - a. ASTM C33, normal weight aggregates, uniformly graded, not exceeding 1-1/2 inch nominal size.
 - b. ASTM C330, light weight aggregates. (Not Used)
 - 4. Water: Potable, ASTM C94/C94M-00el (4.2.1.3).
 - B. Concrete Admixtures: (Where required or permitted) (4.2.1.4) Containing less than 0.1% chloride ions.
 - 1. Air-Entraining Admixture: ASTM C 260, for exterior exposed concrete and foundations exposed to freeze-thaw. Refer to Section 02750 for exterior concrete.
 - 2. Water-Reducing Admixture: ASTM C 494, Type A, for placement and workability.
 - 3. High-Range Water-Reducing Admixture, Super Plasticizer: ASTM C 494, Type F or G for placement and workability.
 - 4. Water-Reducing, Accelerating Admixture: ASTM C 494, Type E for placement and workability.
 - 5. Water-Reducing, Retarding Admixture: ASTM C 494, Type D for placement and workability.
 - Subject to compatibility with other admixtures, slump requirements, and used in accordance with manufacturer's recommendations, the following products may be used to increase the workability of poured concrete:
 - a. Superplasticizer: ASTM C494/C494M-99a, Type F or G.
 - b. Superplasticizer/Retarder: ASTM C494/C494M-99a, Type G.
 - c. Accelerating: ASTM C494/C494M-99a, Type C or E, containing no more chlorides than are present in municipal drinking water.
 - d. Calcium Chloride is NOT permitted (4.2.1.4).
 - C. Related Materials
 - 1. Plastic Vapor Retarder: ASTM E 1745, meets or exceeds Class A, not less than 15 mils thick, installed per ASTM E 1643. Include manufacturer's recommended adhesive or pressure-sensitive joint tape. Seal up against foundation wall with mfr.-recommended mastic. Acceptable Products:
 - a. W.R. Meadows Sealtight Perminator 15 Mil.
 - b. Raven Industries Inc.; VaporBlock VB15
 - c. Reef Industries, Inc.; Griffolyn 15 Mil Green
 - d. Stego Industries, LLC; Stego Wrap Vapor Barrier (15 mils)
 - e. Viper; VaporCheck 16 mil
 - 2. Vapor Barrier: Not used. Where referenced on the Drawings, use Vapor Retarder as described above.
 - 3. Chemical Bonding Agent: Film-forming, freeze-thaw resistant compound suitable for brush or spray application, complying with ASTM C881.
 - 4. Preformed Adhesive Waterstop: Conform to ASTM C990-00. Acceptable products:
 - a. Conseal CS220 by Concrete Sealants, Inc.
 - b. Synko-Flex by Henry Company.
 - c. Cresco by Frank.
 - 5. Perimeter Foundation Insulation: Not used
 - 6. Self-Leveling Underlayment: Self-leveling cement-based. When mixed with water, it becomes a fluid material, seeking its own level, producing a smooth surface. Compressive

strength: 4100 psi minimum at 28 days. Flexural strength: 1300 psi at 28 days. Tensile strength: 750 psi at 28 days. Shrinkage: .025 after 7 days.

- 7. Granular Base: Evenly graded mixture of fine and coarse aggregate to provide, when compacted, a smooth and even surface below slabs on grade. Granular base to be washed pea gravel or washed #57 gravel. Compact granular base with a vibrating plate compacter.
- D. Concrete Curing Materials
 - 1. Moisture-Retaining Cover: One of the following, complying with ASTM C171 for concrete floors, that are to be exposed or to receive floor sealer.
 - a. Waterproof paper
 - b. Polyethylene film
 - c. White burlap-polyethylene sheet
 - 2. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 ounce per sq. yd., AASHTO M182, Class 2.
 - 3. Liquid Membrane-Forming Curing Compound: Liquid type membrane-forming curing compound, complying with ANSI/ASTM C309, Type 1, Class B, with 18 to 20 percent minimum solids. Provide for concrete floors that are to receive applied finished floor materials except where prohibited by flooring type specified or adhesive specified.
 - 4. Evaporation Control: Monomolecular film-forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss.
- E. Jointing Materials
 - 1. Formed Construction Joints for Slab-on-Grade: Provide one of the following:
 - a. Smooth 1/2" dia. steel dowels 1'-6" long placed at 16" o.c. along edges of construction joints, greased on one side of construction joint.
 - b. Formed keyway as detailed on Drawings or as approved by Architect.
 - 2. Slab Edge Joint Filler: ASTM D1751, (2.2.1.4) premolded asphaltic board, 3/8" thick.
 - Joint Sealant: Use 1-component polyurethane, conforming to ASTM C920-98e1, Type S, Grade NS, Class 25. Use with backer rod as required. Acceptable products include, but are not limited to:
 - a. Eucolastic I by Euclid.
 - b. Sikaflex-1a by Sika.
 - c. Dymonic by Tremco.
 - 4. Bituminous Coating at Column Bases: Cold-applied asphalt mastic complying with SSPC-Paint 12 except containing no asbestos fibers.
 - Floor Expansion Joint: Architectural Art Mfg. (800-835-0028) Model # D010-12-21, stainless steel, no-bump system. Equivalent models by MM Systems, Pawling Corp. or Balco Metalines are acceptable.
- F. Form Materials
 - 1. Formwork: Provide formwork and form accessories according to ACI 301
 - 2. Plywood: APA HDO Plyform (for very smooth concrete surface) in Structural 1 grade where walls or slab edges are exposed to view on interior, otherwise APA B-B Plyform Class 1; sound, undamaged sheets with clean true edges.
 - 3. Lumber: Southern Pine species; Construction grade.
 - 4. Form Ties: Removable metal type of fixed length.
 - 5. Dovetail Anchor Slots: Galvanized steel, 24 gauge, minimum.
 - 6. Form Coatings: Provide VOC Compliant commercial formulation form-coating compounds that will not bond with, stain, or adversely affect concrete surfaces; not impair subsequent treatment of concrete surfaces requiring bond/adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds. VOC content shall be a max. 340 gm/liter, unless more stringent codes/laws apply.
- G. Reinforcement Materials
 - 1. Reinforcing Bars (rebar): ASTM A615, and as follows:
 - a. Provide Grade 60 for bars No. 3 to 11.
 - b. Bars to be welded shall be ASTM A706.
 - c. Fabricate concrete reinforcing in accordance with ACI 315.
 - 2. Steel Wire: ASTM A 82, plain, cold-drawn steel.

- 3. Welded Wire Fabric (WWF): ASTM A 185, welded steel wire fabric. Provide sheet stock only for interior slab on grade (roll stock not acceptable)
- 4. Supports for Reinforcement (including welded wire fabric): Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement in place.
 - a. Use wire bar type supports complying with CRSI recommendations, unless otherwise indicated. Do not use wood, brick, and other unacceptable materials.
 - b. Over waterproof membranes, use precast concrete chairs to prevent penetration of the membrane.
 - c. For footings, trench footings, slabs on grade, and grade beams use precast concrete bricks (fc = 3000 psi min. at 28 days). (Concrete masonry bricks not acceptable.)
 - d. For concrete masonry bond beams use #3 bar laterally, tied to each longitudinal reinforcing bar below to hold bars apart and up from bottom. Space #3 bars at 48 inches o.c.

2.02 CONCRETE MIXES

- A. Proportioning and Design of Mixes: Proportion mixes by either laboratory trial batch or field experience methods as specified in ACI 301, using materials to be employed on the project for each class of concrete required. Mix design submittals must comply with requirements of ACI 301.
 - 1. Minimum Cement Content: Concrete mixes shall be limited to the cement content specified in the Concrete Schedule
 - 2. Admixtures:
 - a. Select admixture proportions for normal weight concrete in accordance with ACI 301-99.
 - b. Limit total chloride ion content to amount indicated in Table 4.4.1 Of ACI 318.
 - Admixtures containing chloride are not permitted.
 - 3. Slump:
 - a. Design concrete mixes for a maximum slump of 4 inches, unless a superplasticizer is to be used.
 - b. If a superplasticizer is to be used, design mixes for a slump of 2 inches 4 inches before its addition; maximum slump permitted after its addition is 8 inches.
- B. Ready-Mixed Concrete: Comply with the requirements of ASTM C94 and as herein specified.
 - 1. Delete the references for allowing additional water to be added to the batch for material with insufficient slump. Addition of water to the batch will be permitted only to replace water lost due to evaporation and only under the direct control of the concrete testing agency field representative.
 - During hot weather or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C94 may be required or reduce the delivery time from 1-1/2 hour to 75 minutes and above 90 deg F reduce mixing and delivery time to 60 minutes.

ITEM OR STRUCTURE	FINISH	COMPRESSIVE STRENGTH
		AND OTHER REQUIREMENTS
Concrete not otherwise indicated	RfFm-Fn	4000 P.S.I. at 28 days
	SmFm-Fn,	Max W/C Ratio = 0.44
	If exposed	
Trench footings, footings, and interior	RfFm-Fn	4000 P.S.I. at 28 days
foundations and retaining walls	SmFm-Fn,	Max W/C Ratio = 0.45
	If exposed	
Foundation and retaining walls	RfFm-Fn	4000 P.S.I. at 28 days
exposed to exterior	SmFm-Fn,	4% - 6% air entrainment
	If exposed	Max W/C Ratio = 0.40
Interior formed concrete exposed to view	SmFm-Fn	4000 P.S.I. at 28 days
		Max W/C Ratio = 0.50
Lean concrete fill at soft soils of over		1500 P.S.I. at 21 days
excavations		

C. CONCRETE SCHEDULE:

Exterior walks, stoops, steps, aprons, and	NsBrm-Fn	4000 P.S.I. at 28 days
curbs; exterior formed concrete exposed to	Grt-CI-Fn	4%- 7% entrainment
view; exterior concrete not otherwise		Max W/C Ratio = 0.40
indicated		

PART 3 EXECUTION

- 3.01 EXAMINATION AND PREPARATION
 - A. General:
 - 1. Determine field conditions by actual measurement.
 - 2. Delivery
 - a. Concrete temperature shall not exceed 90° F. Contractor shall employ ice in the factory mix as required in hot weather or adjust pour schedule to when site temperatures are moderate.
 - b. Conform to ASTM C94/C94M-00e1.
 - c. ASTM C94 requires discharge within 1-1/2 hours or 300 revolutions, whichever occurs first, after the introduction of water to cement and aggregates, or the introduction of cement to the aggregates (4.3.2.2). The Architect may require an earlier discharge during hot weather or when high-early strength cement is being used.
 - d. Place concrete at the maximum slump for which the mix was designed with a tolerance of up to 1 nch above the maximum for one batch in any five consecutive batches tested (4.3.2.1).
 - e. Do not place concrete when slump, air content or temperature vary from allowable.
 - 3. Protect adjacent finish materials against splatter during concrete placement.
 - B. Slabs-on-grade
 - 1. All floor slabs on earth shall be poured after all piping, sewers, etc., have been completed and all backfilling tamped solid and a minimum layer of gravel placed under the floors.
 - 2. Place no concrete until foundation, forms, reinforcing steel, pipes, conduits, and other work required to be built into concrete has been observed and approved by the Architect.
 - 3. Separate slabs-on-grade from vertical surfaces with premolded joint filler, extended from bottom of slab to within 1/4 inch of finished slab surface.
 - C. Footings: Verify that excavations are free of water and ice, are of the required dimensions, and have been approved by the testing agency responsible for soils inspection, prior to placing concrete (5.3.1).

3.02 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Concrete tests will be made as required in the Ohio Building Code. The General Contractor shall be responsible to coordinate and schedule testing as required. All cylinders shall be field cured.
- B. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- C. Interior floor slab finished surfaces will be tested for flatness and levelness in accordance with ASTM E1155-96 (5.3.4.3.c). Individual floor sections for floor tolerance testing purposes shall be bound by the following that provide the smallest sections: construction joints, control joints, column lines. Floor tolerance tests will be performed (and all defective areas identified) within 24 hours after slab placement and reported to all parties as soon as possible, but not later than 72 hours after installation.
- D. Test results shall be reported in writing to Structural Engineer, Architect, Owner, Concrete Manufacturer, and Contractor. Reports of compressive-strength tests shall contain Project name/number, date of placement, name of testing agency, location of batch in Work, design

strength (28 days), mix proportions/materials, breaking strength, and type of break for both 7-and 28-day tests.

3.03 FORMWORK INSTALLATION

- A. General: Construct forms complying with ACI 347-94 to the exact sizes, shapes, lines, and dimensions as required to obtain accurate alignment, location, grades, level, and plumb work in finish structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages, and inserts, and other features required. Provide bracing to ensure stability of formwork. Provide chamfer strips on external corners of walls exposed to view. Note: Footings may be cast against earth cuts when soil conditions permit (2.2.2.3).
- B. Allowable Tolerances: Construct formwork to provide completed cast-in-place concrete surfaces complying with the tolerances specified in ACI 347-94.
- C. Apply form release agent to formwork in accordance with manufacturer's instructions, prior to placing for accessories and reinforcement. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are effected by agent.
- D. Removal of Forms and Shoring:
 - 1. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads. Remove no forms within first 24 hours after placement.
 - 2. Remove formwork progressively and in accordance with code requirements.

3.04 INSERTS, EMBEDDED COMPONENTS, AND OPENINGS

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers or items to be attached thereto. Provide formed openings where required for work to be embedded in and passing through concrete members. Install concrete accessories straight, level, and plumb.
- B. Install embedded conduit, pipe and sleeves subject to the following limitations:
 - 1. Do not embed aluminum without prior approval of coating material.
 - 2. Do not displace reinforcing steel.
 - 3. In slabs, limit outside dimension of conduits and pipes to 1/3 member thickness. Where conduits cross, maintain same minimum concrete cover as required for reinforcing bars.
 - 4. Maintain a center-to-center spacing of at least three diameters of conduit or pipe.
- C. Install floor expansion joint per manufacturer's instructions. Coordinate with precast floor planks and shim/grout as required for level installation.

3.05 REINFORCEMENT PLACEMENT

- A. General: Comply with CRSI recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports and as herein specified. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runner, bolsters, spacers and hangers, as approved by Architect. Clean reinforcement of loose rust and mill scales, earth, ice, and other materials that reduce or destroy bond with concrete.
- B. Parallel bars shall be separated from each other by at least 1 inch. Lap all spliced bars 48 diameters unless noted otherwise. At corners and intersections of footings and walls, provide bent bars of equal size and at same spacing as typical reinforcing around corner and/or into abutting wall or grade beam. Bars shall have embedment of 30 diameters (18" min.). Welding of reinforcing shall conform to AWS D1.4-98 (3.2.2.2).
- C. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed

concrete surfaces. The following listed minimum covering of concrete over reinforcing bars shall be provided:

In footings	3" on bottoms and sides
In walls	1-1/2" to 2"
In slabs	1" on bottoms

D. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction. Welded steel wire fabric reinforcement shall be provided in all concrete slabs, except where noted otherwise, supported as required to maintain proper placement. WWF reinforcement is not required in exterior sidewalks unless noted otherwise. Lap mesh at joints.

3.06 CONCRETE PLACEMENT

A. General

- 1. Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete".
- 2. Place within 6 feet of final position. Spreading with vibrators is prohibited. Maximum free fall without chutes or elephant trunks to be 5 feet. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete that has hardened sufficiently to cause the formation of seams or planes of weakness.
- 3. Place concrete continuously between predetermined expansion, control and construction joints.
- 4. Spread footings and trench foundations may be poured in clean cut earth trenches if soil conditions allow. Do not pour footings or trench foundations until base is inspected by Architect or Soils Engineer. Protect footings against freezing. Carefully examine Mechanical underground drawings and coordinate thoroughly with Mechanical Contractors to determine the extent of footing required to comply with Typical Utility Trench Detail of Footing Drawing shown on Foundation Drawings. Note that it is the responsibility of this Contractor to step footing bottoms as required to maintain clearance and coverage at underground utilities that run parallel to or pass through footings. Some approximate locations of footing penetrations are shown on Foundation Drawings as an aid to this process. However, such notations should not be construed to be the complete extent of footing coordination (stepping) required for the project.
- 5. All concrete shall be well-puddled with suitable tools or electric agitators, vibrating each batch at once so that reinforcement and embedded inserts will be completely surrounded and solidly incorporated in the mass to prevent honeycombing. Concrete shall be agitated during pouring and between pours.
- B. Cold Weather Placing
 - 1. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306.
 - a. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
 - 2. When air temperatures fall below 25 degrees F., special measures shall be taken to prevent injury to the concrete by freezing. All frost shall be removed from the aggregate by means of heat applied in such manner as not to injure or contaminate the aggregate.
 - When air temperature during placement is less than 40 degrees, or will be within 24 hours, temperature of concrete as placed is to be between 50 and 90 degrees F (55 and 90 degrees F for sections less than 12 inches thick). Maintain concrete temperature within these limits for the full curing period of seven days (or three days for high-early-strength concrete) (4.2.2.7).
- C. Hot Weather Placing
 - 1. When hot weather conditions exist that would seriously impair the quality and strength of the concrete, place concrete in compliance with ACI 305, and as herein specified.
 - 2. The air temperature, relative humidity, concrete temperature, and wind velocity shall be entered into nomograph figure 2.1.5 to determine if precautions against plastic shrinkage are required.

- D. Placing Interior Concrete Slabs-on-grade
 - Install vapor retarder over granular sub-base at interior slabs-on-grade. Lap joints minimum 6 inches and seal watertight with mastic and pressure sensitive tape as recommended by manufacturer and ASTM E-1643. Repair damaged vapor barrier with vapor barrier material; lap over damaged areas minimum 6 inches and seal watertight. Turn up at walls, fold and fit corners. Place with longest dimension parallel with direction of pour.
 - 2. Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the pacing of a panel or sections is completed.
 - 3. Maximum Area of Slab on Grade Pour: 10,000 s.f.
 - 4. Coordinate requirements for trench and floor drains and slabs sloped to drains. Maintain full 4" thick gravel bed under depressed slabs.
- E. Jointing of Interior Slabs-on-grade:
 - Locate control and construction joints as shown on the Drawings. In the absence of information on Drawings, locate at openings, walls, columns, inside corners, re-entrant corners, and at 10 feet on center generally. Schedule slab placements and sawcutting operations such that sawing is completed prior to onset of shrinkage cracking (5.3.5). Complete saw cutting within 12 hours after placement.
 - Provide isolation joints at columns and at walls. Where isolation joint will be exposed to view, set top of joint filler below top of slab a distance equal to the filler thickness, to receive sealant. Where not exposed to view, set top of filler flush with top of slab.
 - 3. Where joints are exposed to view in the finished building, provide joint sealant.
- F. Finishing of Interior Slabs-on-grade
 - 1. Finish concrete floor surfaces in accordance with ACI 301. Maintain surface flatness and level tolerance in accordance Quality Assurance provisions.
 - 2. Uniformly spread, screed, and float concrete. Remove all surface water, laitance, and dirt and apply a monolithic finish.
 - 3. Steel trowel to produce a smooth dense finish. Provide fine broom finish after steel trowel finishing at slabs receiving ceramic mosaic tile.
 - 4. Prior to application of sealer, remove any synthetic fiber reinforcement projecting above the top surface of slabs which remain exposed.
- G. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
 - 1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand spacing, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 309.
 - 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertical at uniformly spaced locations no the farther than visible effectiveness of machine.

3.07 CURING

- A. Interior slab areas which will receive finish in cementitious setting bed or synthetic athletic flooring are to be moist-cured, without the use of a curing compound (5.3.6.4.a through 5.3.6.4.d).
 - Cover concrete surfaces with moisture retaining cover for curing concrete, placed in widest practicable with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 2. Do not use membrane curing compounds on surfaces which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring such as ceramic or quarry tile, glue-down carpet, painting, and other coatings and finish materials, unless otherwise acceptable to Architect.
 - B. All other slab areas may be either moist-cured or receive an application of curing compound (5.3.6.4.e).

- C. Whichever curing method is used, it is to commence immediately after disappearance of water sheen, and continue for at least seven days (high-early-strength concrete for a minimum of 3 days) (5.3.6.1). Do not allow curing to be delayed overnight.
- D. Prevent excessive moisture loss from formed surfaces (5.3.6.3). If forms are removed before 7 days have elapsed, cure formed surfaces by moist-curing or application of curing compound for the remainder of the curing period. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete. Where control joints in floor slabs are saw cut, provide cut before slab curing results in shrinkage cracks. Locate cut lines at face of interior walls.

3.08 DEFECTIVE CONCRETE

- A. Take remedial measures or replace concrete work if testing indicates any of the following conditions exist:
 - 1. The entire floor composite value, when installation is complete, measures less than either of the specified overall F-numbers.
 - 2. Any individual floor section measures less than either of the specified minimum section Fnumbers.
 - 3. Elevation of concrete is not in accordance with Drawings.
 - 4. Material or work fails to meet these Specifications.
- B. Repair of Unformed Surfaces (such as monolithic slabs): Correct as herein specified. Obtain written approval of the Architect and Engineer for remedial measures proposed before implementing measures. Also provide written approval from all affected floor contractors for proposed remedial measure.
 - 1. Repair finished unformed surfaces that contain defects that affect durability of concrete.
 - 2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days. Grinding only permitted if minimum slab thickness is maintained.
 - 3. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with patching compound. Finish repaired areas to blend into adjacent concrete.
 - 4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound.
 - 5. Repair isolated random cracks and single holes not over 1 inch in diameter by dry-pack.
 - 6. Repair methods not specified above may be used, subject to acceptance of Architect.
- C. Individual floor sections for floor tolerance testing purposes shall be bound by the following that provide the smallest sections: construction joints, control joints, column lines.

END OF SECTION

SECTION 042000

UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Masonry Contractor shall provide the following (specified in this Section):
 - 1. Manufactured concrete masonry units; nonloadbearing and intended for use in unit masonry assemblies with mortar.
 - a. Concrete masonry units (CMU's)
 - 2. Masonry anchorage and reinforcement devices.
 - a. Continuous joint reinforcing and ties for masonry.
 - b. Anchoring devices for masonry
 - 3. Mortar and Grout for masonry
 - a. Masonry mortar and mixing masonry mortar.
 - b. Masonry grout and mixing masonry grout
 - 4. Masonry accessories other than those intended to anchor or reinforce the masonry.
 - a. Control joint materials
 - b. Embedded Flashings
 - c. Expansion joint materials
 - d. Weep holes
 - e. Miscellaneous accessories
 - 5. All masonry work and materials not specified under another section but required for the work whether or not specifically referred to herein.
- B. Masonry Contractor shall install the following (Specified in other Sections) as follows:
 - 1. Building in anchors, sleeves, inserts, etc. supplied by other Contractors.
- C. Related documents: The provisions of the General Conditions, Supplementary General Conditions, and the Sections included under Division 1 are included as a part of this Section as though bound herein.

1.02 PROJECT CONDITIONS AND QUALITY ASSURANCE

- A. Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
 - 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Cold Weather Requirements: No frozen materials or materials mixed or coated with ice or frost shall be used. Remove and replace unit masonry damaged by frost or freezing conditions. Comply with B1A 1 Rev., and NCMA TEK 3-1A. Refer to IMIAC - Recommended Practices and Specifications for Cold Weather Masonry Construction.
- C. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required.
 - 1. When ambient temperature exceeds 100 deg F (38 deg C), or 90 deg F (32 deg C) with a wind velocity greater than 8 mph (13 km/h), do not spread mortar beds more than 48 inches (1200 mm) ahead of masonry. Set masonry units within one minute of spreading mortar.
- D. Protect facing material against staining, and keep top of walls covered with non-staining, waterproof coverings when work is not in progress. When work is resumed, top surface of work shall be cleaned of all loose mortar and in drying weather, thoroughly wet. All masonry materials shall be stacked above ground level. All masonry must be kept covered and dry by a substantial cover.

- 1.03 <u>SUBMITTALS</u>
 - A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in Division 1.
 - B. Submittal shall specifically include:
 - 1. Certified test reports showing compliance with specified performance characteristics.
 - 2. Sample of each concrete masonry unit specified.
 - 3. Material data sheets on all products specified under this section.
 - 4. Shop drawings indicating all masonry reinforcing steel locations.
 - 5. Testing of Mortar Mix (in accordance with ASTM C780) and testing of Grout Mix (in accordance with ASTM C1019)
- 1.04 REGULATORY REQUIREMENTS

Conform to the following requirements:

- 1. Masonry construction and materials: "Specification For Masonry Structures (ACI 530, 1/ASCE 6-95/TMS 402-95.
- 2. Fire Rated Masonry walls: UL Assembly No. U905 requirements for fire rated masonry construction.
- 3. Chapter 21 of the Ohio Building Code
- 4. Brick Industry Association Technical Notes on Brick Construction
- 5. NCMA Tek Notes.
- 6. Structural General notes shown on the Structural Drawings.
- B. Compressive strength shall be determined for each type of masonry by the unit strength method. Concrete masonry: fm = 1500 PSI at 28 days.

PART 2 PRODUCTS

Α.

2.01 CONCRETE MASONRY UNITS

- A. Split Face CMU Veneer:
 - 1. 7 5/8" tall x 3 5/8" thick x 16" long concrete masonry units
 - 2. Basis of Design: Reading Rock
 - 3. Acceptable Products:
 - a. Standard color matches (as determined by the Architect)

2.02 ANCHORAGE AND REINFORCEMENT

- A. Continuous Wire Reinforcing and Ties for Masonry
 - 1. Provide welded wire units prefabricated in straight lengths of not less than 10 foot, with matching corner ("L") and intersection ("T") units.
 - 2. Fabricate from cold-drawn steel wire complying with ASTM A82, with deformed or embossed continuous side rods and plain cross-rods, with unit width of 1-1/2 to 2 inches less than thickness of wall or partition.
 - 3. Wire shall be mill galvanized and in accord with the following:

a. Whe lies of anchors in exterior walls	
ft.)	
completely embedded in mortar or grouts	
b. Wire ties or anchors in exterior walls	ASTM A153 Class B3 (1.30 oz. per sq.
ft.)	
not completely embedded in mortar or	
grout (includes cavity walls)	
c. Joint reinforcement in exterior walls or	ASTM A153 Class B3 (1.30 oz. per sq. ft.)

 Joint reinforcement in exterior walls or interior walls exposed to moist environments (e.g., showers and food processing)

- 4. For single wythe and composite masonry, provide ladder type joint reinforcing fabricated with a minimum two 9 gauge steel side rods and 9 gauge cross rods.
- B. Anchoring Devices for Masonry
 - 1. Flexible Anchors: Where masonry is to be laterally supported from structural steel, while permitting only vertical movement or both vertical and horizontal movement, provide flexible anchors consisting of 2 different components as follows:
 - a. Weld-On Anchors: Shall be formed straps of 12 gauge galvanized steel or formed rods of 1/4 inch plain steel with 3/8 inch offsets and 4 inch adjustment for ties specified below. Anchors shall be continuous wherever possible
 - b. Flexible anchor ties shall be one of the following:
 - i. Web Ties or Beam Ties: Shall be 3/16 inch galvanized steel wire, ASTM A82, 12 inches long with width being approximately 2 inches less than nominal wall thickness. Provide ties with blunt end when used with strap anchors, and provide ties with tapered end when used with rod anchors. This type tie shall permit only vertical movement and shall be installed parallel to masonry walls that abut steel columns.
 - ii. Triangular Ties: Shall be 3/16 inch galvanized steel wire, ASTM A82, lengths as required to extend to within 5/8 inch of opposite face of masonry. Closed end shall be 1 inch wide, and split-end opening shall be 1/2 inch. This type tie shall permit both vertical and horizontal movement and shall be installed where masonry by-passes steel columns, and where masonry is parallel and adjacent to steel beams and joists.
 - iii Flexible Anchors: Where masonry is to be laterally supported from cast-in-place or precast concrete, provide 22 gauge galvanized dovetail slots with 3/16 inch diameter galvanized triangular ties.
- C. Mechanical Anchors
 - 1. Anchor Bolts: ASTM A36 or ASTM A307.
 - 2, Bolts, Nuts, and Washers: ASTM A325, or A490.

2.03 MORTAR AND GROUT MATERIALS

- A. Cement and Lime
 - 1. Portland Cement: ASTM C150, Type 1, nonstaining, without air entrainment and of natural color or white, to produce the required color of mortar or grout.
 - 2. Masonry Cement: ASTM C91, limit air entrainment to 12 percent.
 - 3. Hydrated Lime: ASTM C207, Type S.
 - 4. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C150, Type I or III, and hydrated lime complying with ASTM C207.
 - a. For pigmented mortars, use colored portland cement lime mix of formulation required to produce color indicated, or if not indicated, as selected from manufacturer's standard formulations. Pigment shall not exceed 10% of portland cement by weight for mineral oxides nor 2% for carbon black.
 - 5. Flyash: ASTM C618-89a, Type C or F may be substituted for up to 20 percent of the total cementitious materials in the grout mix.
 - B. Aggregate
 - 1. Mortar Aggregates: ASTM C144, except for joints less than 1/4 inch, use aggregate graded with 100 percent passing the No. 16 sieve.
 - 2. Grout Aggregate:
 - a. Fine Aggregates: ASTM C404, clean, sharp, natural sand free from loam, clay, lumps, or other deleterious substances.
 - b. Coarse Aggregates: ASTM C404, clean, uncoated, pea gravel containing no clay, mud, loam, or foreign matter. Maximum aggregate size 3/4 inch.
 - C. Other Mortar and Grout Materials
 - 1. Water: Potable, clean, free of deleterious materials which would impair strength or bond.
 - 2. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.

- 3. Integral Water Repellent Admixture (Exterior): An integral liquid polymeric admixture for mixing with mortar mix, which cross links and becomes permanently locked into mortar to provide resistance to water penetration.
- D. Exterior CMU Mortar
 - 1. Basis of Specification: Richcolor (color as selected by Architect), Type "N".
 - 2. Equal products (in standard or custom color to match basis of design) by: Brixment or Holcim.

2.04 MORTAR AND GROUT MIXES

- A. General
 - Do not add admixtures including air-entraining agents, accelerators, retarders, water repellant agents, anti-freeze compounds, or other admixtures, unless otherwise indicated.
 a. Do not use calcium chloride in mortar or grout.
- B. Mixing of Mortar and Grout
 - Mortar: Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C270. Mortar proportions must be accurately measured prior to mixing. Add cement to mix in full bag quantities. Measure sand in box with volume of one cubic foot as often as necessary to maintain consistent proportions and at least once daily and every 4 hours of mixing.
 - Grout: Mix concrete in accordance with ASTM C94 (Transit Mixed). OR thoroughly mix ingredients in quantities needed for immediate use in accordance with ASTM C476 (Site Mixed) Fine or Course grout as required.
- C. Mortar for Unit Masonry: Comply with ASTM C270, Property Specification, for job mixed mortar, of types indicated below:
 - 1. Mortar for Load Bearing Walls and Partitions: ASTM C270, Type S using the Property Method.
 - 2. Mortar for Non-load Bearing Walls and Partitions: ASTM C270, Type N (**Type S below** grade) using the Property Method.
 - 3. Mortar for Reinforced Masonry: ASTM C270, Type S using the Property Method.
 - 4. Pointing Mortar for Masonry: ASTM C270, Type N, using the Property Method; with maximum 2 percent ammonium stearate or calcium stearate per cement weight.
- D. Grout mixes shall be plant mix or factory blended (dry mix with water added at the site). Use at Bond Beams, Masonry Lintels and Reinforced Masonry Walls.
 - 1. Grout for Unit Masonry: Comply with ASTM C476.
 - a. Fine Grout: 3000 psi average compressive strength at 28 days for 6" and smaller hollow concrete masonry units and between 2 wythes of masonry where space is less than 2" in width.
 - b. Coarse Grout: 3000 psi ave. compressive strength at 28 days for 8" and larger hollow concrete masonry units and between 2 wythes of masonry where space is 2" in width or wider.
 - 2. Grout Proportions (by volume): Comply with Table 1, ASTM C476.
 - a. Fine Grout: 1 part portland cement, 0 to 1/10 part hydrated lime or lime putty, 2-1/4 to 3 parts fine aggregate.
 - b. Coarse Grout: 1 part portland cement, 0 to 1/10 part hydrated lime or lime putty, 2-1/4 parts fine aggregate, 1 to 2 parts coarse aggregate.
 - 3. Grout Slump: Properly proportioned grout shall have a slump of 8 to 10 inches.

2.05 MASONRY ACCESSORIES

- A. Embedded Flashing Materials
 - 1. Provide concealed flashing built into masonry. Provide sheet metal drip edge.
 - 2. Provide one of the following types of flashing materials:
 - a. Copper-Fabric Laminate: Not Used.
 - b. Rubber Asphalt Sheet Flashing: Mfr's standard composite flashing product consisting of 32 mil thick pliable and highly adhesive rubberized asphalt compound bonded completely and integrally to 8 mil thick, high density, cross laminated polyethylene film to produce an overall thickness of 40 mils. Provide termination mastic and accessories as recommended by membrane mfr.

- c. Elastomeric Thermoplastic Flashing: Manufacturer's standard composite flashing product consisting of a polyester reinforced ethylene interpolymer alloy 0.040 inch thick. Not Used.
- 3. Sheet Metal Drip Edge: Fabricated from 26 gauge stainless steel with hemmed edge.
 - a. Application: Where drip edge is required per recommendations of NCMA-TEK 19-4. Typical at all flashing-to-weep hole locations.
- B. Neoprene Expansion Joint Filler: Provide expansion joints in exterior brick masonry conforming to ASTM D-1056, Type 2, Class A, Grade 1.
- C. Plastic Weep Hole/Vent: One piece, flexible extrusion manufactured from ultraviolet resistant polypropylene copolymer, designed to weep moisture in masonry cavity to exterior, sized to fill head joints with outside face held back 1/8 inch (3 mm) from exterior face of masonry, in color selected from manufacturer's standard.
- D. Miscellaneous Accessories:
 - 1. Cavity Protection Material: 1 inch thick, reticulated, nonabsorbent mesh, made from polyethylene strands and shaped to maintain drainage at weep holes without being clogged by mortar droppings.
 - 2. Caging Devices and Centering Clips: In hollow concrete masonry cores or brick cavities to be reinforced with vertical reinforcing steel bars and filled with grout, provide 9 gauge galvanized steel caging devices.
 - 3. Building Paper: No.30 asphalt saturated felt.
 - 4. Cleaning Solution:
 - a. Brick: Sure Klean Vana Trol (Prosoco).
 - b. Split Face CMU: Sure Klean Custom Masonry cleaner. (Prosoco).
 - c. Equivalent products by Diedrich or Fabrikem are acceptable.
 - 5. Precast Concrete Lintels: Minimum 4000 psi strength at 28 days. Reinforced as follows (unless indicated otherwise):
 - a. 4×8 and 6×8 : (1) #5 bar top and bottom
 - b. 8 x 8: (2) #5 bars top and bottom

PART 3 EXECUTION

3.01 COURSING AND WORKMANSHIP

- A. Construction Tolerances:
 - 1. Comply with tolerances in ACI 530.1/ASCE 6/TMS 602 and the following:
 - 2. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/4 inch in 20 feet, nor 1/2 inch maximum.
 - 3. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, nor 1/2 inch maximum.
 - 4. For conspicuous horizontal lines, such as exposed lintels, sills, parapets, and reveals, do not vary from level by more than 1/4 inch in 20 feet, nor 1/2 inch maximum.
 - 5. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
 - 6. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
 - 7. Maximum variation from plumb: 1/4 inch per story, noncumulative.
 - B. Concrete Masonry Units: Lay in running bond. Course one unit and one mortar joint to equal 8 inches. The first course of interior masonry walls laid directly on the slab shall be 6" high. Form concave mortar joints. Provide special shape angle block at all transitions to 45 degree angle walls. Place all reinforcing steel and fill with grout or mortar where shown. Tool or rake joints where directed by the Architect. Care should be taken to lay block straight and true. Blocks that have excessive mortar rubbed into their faces shall not be accepted. Any masonry work that does not match the standard for the job shall be removed and replaced. Install joint reinforcement as noted below.
- C. Cavities: Keep cavities clean of mortar droppings and other materials during construction. Strike joints facing cavities flush.
- D. Lay out work so that no piece shorter than 4" will occur at any vertical angle or corner of joint. Where cutting is necessary, use motor-driven carborundum or diamond saw to produce clean-cut edges.

3.02 ANCHORAGE AND REINFORCEMENT

- A. Masonry Joint Reinforcement
 - General: Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).
 a. Space reinforcement not more than 16 inches (406 mm) o.c.
 - 2. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.
 - 3. Location of Joint Reinforcement:
 - a. Place in first and second bed joints immediately above and below wall openings.
 - b. Joint reinforcement at openings should extend not less than 24 inches, or to the end of the panel, whichever is the smallest.
 - c. Place in 2 or 3 courses immediately below the top of the wall.
 - d. Joint reinforcement need not be located closer to a bond beam than 24 inches.
 - e. Joint reinforcement shall be interrupted at control joints and at expansion joints.
 - f. Joint reinforcement is not required between openings where the relationship of distance between openings (L) and openings height (H) is not more than shown in National Concrete Masonry Association TEK 10-2B, Table 2.
 - 3. Reinforce joint corners with hardware cloth at control joint locations and where indicated.

3.03 CONTROL JOINTS

- A. Control Joints in CMU Walls
 - 1. Size: In accordance with Section 07920 for sealant performance.
 - 2. Spacing/Location: Provide vertical control joints in all concrete masonry walls where directed by Architect and generally as follows:
 - a. Provide joints as needed so that no wall has a longer unbroken length than 24 feet.
 - b. Provide joints at all wall intersections where one wall dies into another cross wall.
 - c. Provide joints starting at one end of lintels over all door and window openings and extending to top of wall. Install control joint at both sides of openings of 9'-4" and wider.
 - d. Before commencing this work, this contractor shall schedule a meeting with the Architect to review control joint layout. At this meeting, a job set of prints will be marked with control joint locations from which this contractor shall lay out his work.
 - 3. Provide building paper bond break below lintel bearing adjacent to control joints.
 - 4. Bond beams (grout and masonry) shall be continuous across control joints.
- B. Control Joints in Masonry Veneer: Build all inside corners of masonry veneer as expansion joints with bond broken with a minimum 1/2" gap for foam rod and sealant. Run one wall of masonry past the intersecting wall leaving an open vertical joint for foam backer rod and caulking as specified in Section 7920. Create vertical control joint at one end of every lintel min. and elsewhere as shown on the drawings. Completely remove all mortar droppings in control joints to be caulked prior to caulking.

3.04 FLASHING, WEEP HOLES, AND VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Remove all dirt and loose debris, including rust scale on metal surfaces, from surfaces to receive self-adhering flexible flashing. Remove any objects protruding from the surface to receive the flashing membrane which might puncture the membrane. If there are horizontal gaps in excess of 1/2 inch, provide light-gauge, noncorroding sheet metal bridging to provide positive support for the flashing membrane.

- B. Install flashing as follows:
 - 1. At multi-wythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches on face of masonry back-up.
 - 2. At stud-framed masonry-veneer walls, extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches, and behind weather barrier.
 - 3. At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end. At heads and sills, extend flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.
 - 4. Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.
 - 5. Depending on location, cut flashing off flush with face of wall after masonry wall construction is completed.
 - 6. Apply self-adhering flashing primer to all surfaces to receive self-adhering wall flashing membrane. Apply and let dry in accordance with manufacturer recommendations.
 - 7. Pre-cut pieces of self-adhering wall flashing membrane to lengths suitable for handling and installation. Remove silicone-coated release paper. Position the piece of Flashing membrane carefully **before** allowing it to touch the surface onto which it is to be placed. When membrane is properly positioned, install it against the receiving surface. Press entire piece of flashing firmly into place by hand or with a hand roller.
 - 8. Overlap adjacent pieces of flashing 1" to 2" and roll all overlaps with a steel hand roller.
 - 9. Apply a bead of mastic/sealant along top edge of Flashing membrane and along seams and cuts.
- C. Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:
 - 1. Space weep holes 24 inches o.c.
 - 2. Place cavity drainage material immediately above flashing in cavities.
- D. Install metal receivers at roof-to-brick locations supplied by Roofing Contractor.

3.05 BUILT-IN WORK

- A. As Work progresses, build in metal door and glazed frames, fabricated metal frames, anchor bolts, plates, flashing, and other items to be built in the Work furnished by other Sections.
- B. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.

3.06 CUTTING AND FITTING

- A. Cut and fit for chases, pipes, conduit, sleeves, grounds. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Cut around all electric boxes, etc., in such manner that cover plates will cover all edges. Replace any masonry which is over cut so that plates will not cover all edges. Any openings cut too large shall be removed and replaced. Electric boxes which are placed crooked or projected from wall will not be acceptable. Mason shall cut block and re-mortar electric boxes as required to achieve level, flush plates.
- C. Leave 1/4" clear space around all window and door frames, louvers, and thru-wall unit enclosures for caulking. Fill this space with temporary filler to prevent mortar form coming in contact with frames or enclosure walls.
- D. Masonry Wall Penetrations: Masonry Contractor to leave 1/4" clear space around all penetrations including ductwork, HVAC piping, plumbing water lines and vents, electrical conduit and raceways, wall sleeves, roof drains or any other penetrations. Fire caulking to seal 1/4" space (where required) will be by other trades. Any holes knocked into walls after masonry has been completed will be that contractor's responsibility to seal tight.

3.07 POINTING AND CLEANING

- A. On completion, point up all exposed masonry. Fill all holes and joints; remove loose mortar; cut out defective joints and repoint where necessary. Masonry surfaces to be exposed shall be thoroughly cleaned. Leave surfaces free from mortar and other stains at completion of work.
- B. Clean all new brick and split face CMU with chemical cleaner. Leave surfaces free from mortar and other stains. Apply per manufacturer's recommendations and instructions to exterior face of masonry. Apply correct product to different surfaces (i.e. brick vs. split face block). Protect adjacent surfaces (masonry and otherwise) from damage from contact with cleaner.
- C. Mortar joints in all exposed concrete masonry wall areas shall be rubbed with a hand stone to remove all fins and projecting edges. Point all holes after first coat of paint where walls are scheduled to be painted.
- D. After primer coat of paint has been applied to block re-check masonry, rub, point-up and repair defects as required. All walls to be approved by Architect or Owner's Representative before final painting.
- E. Remove excess material and masonry waste from site.

SECTION 06 1000

CARPENTRY

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes providing the following: Fiber cement panel siding, fiber cement soffit material, fiber cement trim boards, miscellaneous wood framing, wood framing, wall sheathing, plywood, incidental carpentry required for support or attachment of other construction, pressure preservative treated and fire retardant treated wood including:
 - 1. Wood framing, sheathing, sill plates, housewrap.
 - 2. Wood blocking including the following locations:
 - a. At roof openings and wood framed roof curbs
 - b. Gutter boards, rake boards and misc. blocking at roof
 - c. Wood furring
 - d. Wood threshold thermal breaks
 - e. Miscellaneous wood blocking and trim
 - 3. Misc. carpentry, wood blocking and related components and attachments indicated and required for the work whether or not specifically referred to herein.
 - 4. Temporary barricades, shoring etc. as required for the work.
- B. This Section includes installation of the following:
 - 1. Door Hardware (supplied in Section 08 7100).
 - 2. Hollow metal doors and frames (supplied in Section 08 1113)
- C. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.02 QUALITY ASSURANCE

- A. Perform Work in accordance with the following agencies:
 - 1. Lumber Grading Agency: Certified by ALSC.
 - 2. Plywood Grading Agency: Certified by APA.

1.03 SUBMITTALS

- A. Submittal shall specifically include:
 - 1. Certified test reports and/or product data showing compliance with specified performance characteristics.
 - 2. Product Data for manufactured products.
 - 3. Color Samples for Exterior Fiber Cement Board.

PART 2 PRODUCTS

- 2.01 WOOD PRODUCTS, GENERAL
 - A. Lumber:
 - 1. Maximum moisture content: 19 percent
 - 2. Factory mark each piece of lumber with grade stamp.
 - B. Framing: Spruce-Pine-Fir (S-P-F) or Southern Yellow Pine, stud grade (2 x 8 and wider #2 grade or better), stamped S-Dry, kiln dried. All Dimension lumber (including column, beam, joist and rafter framing) shall have minimum 1200 psi fiber stress in bending unless indicated otherwise on structural drawings.
 - C. Roof Sheathing: 1/2" O.S.B., Exposure 1, with clips, DOC PS 2.
 - D. Exterior Wall Sheathing: 7/16" OSB exterior sheathing, DOC PS 2.
 - E. Air Infiltration Barrier: "DuPont" Tyvek HomeWrap with "Dupont" Tyvek Tape over all seams, or approved equal.

F. Wood Sill Plates: All wood and wood plates in contact with masonry or concrete shall be pressure-treated.

G. Boards:

- 1. Maximum moisture content: 19 percent
- H. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise indicated.
- I. Accessories
 - 1. Fasteners:
 - a. Exterior or in wall cavity: Hot-dip galvanized or stainless steel.
 - b. Treated wood locations: Hot-dip galvanized or stainless steel.
 - c. High Humidity Areas: Hot-dip galvanized or stainless steel.
 - d. Other Areas: Plain steel.
 - 2. Die Stamped Connectors: galvanized steel as shown.
 - 3. Joist Hangers: Galvanized steel, sized to suit framing conditions.
 - 4. Anchors: Hollow block epoxy anchors for anchorage to hollow masonry. Expansion (wedge) bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.

2.02 WOOD PRESERVATIVE TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and not containing chromium and arsenic compounds.
 - 2. Application: Any wood blocking below grade or in contact with masonry, or other locations specifically indicated shall be pressure treated wood.

2.03 FIRE RETARDANT TREATED MATERIALS

- A. Provide materials that comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood).
 - 1. Use treatment for which chemical manufacturer publishes physical properties of treated wood after exposure to elevated temperatures, when tested by a qualified independent testing agency according to ASTM D5664, for lumber and ASTM D5516, for plywood.
 - 2. Use treatment that does not promote corrosion in metal fasteners.
 - 3. Use exterior type for exterior locations and where indicated.
 - 4. Use Interior Type A, High Temperature (HT) for roof sheathing and where indicated.
 - 5. Use Interior Type A, unless otherwise indicated.
 - Each piece shall bear the UL label or imprint certifying a Class A/Class I flamespread rating, product type, and kiln dried after treatment (KDAT). Each piece shall carry a National Evaluation Services report number.
 - The fire retardant chemical shall provide protection against termites and fungal decay and must be registered for use as a wood preservative by the U.S. Environmental Protection Agency.
 - 8. The fire retardant chemicals used to treat the wood must be free of halogens, sulfates and ammonium phosphate.
 - 9. All lumber must be kiln dried to a maximum moisture content of 19 percent after treatment. All plywood must be kiln dried to a maximum moisture content of 15 percent after treatment.
 - 10. A corrosion resistant fastener, such as hot-dipped galvanized nails, or better shall be used.
 - 11. Application: All wood framing and blocking not otherwise indicated shall be fire retardant treated.

2.05 PLYWOOD BACKING PANELS

A. Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4 inch nominal thickness. Painted gray by Contractor providing these panels.

PART 3 EXECUTION

3.01 FRAMING

A. Install blocking as required with appropriate fasteners.

- 1. Where shown on drawings.
- 2. Where required for attachment of specialties or other construction.
- B. Erect barricades and temporary enclosures as required. See Division 00 & 01.
- 3.02 MISC. INSTALLATION
 - A. Install door hardware supplied by Section 08 7100 in accordance with manufacturer's instructions.

SECTION 06 1100

WOOD FRAMED STRUCTURES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes engineering, fabrication and site-assembly of wood-framed structure, consisting of integrated sets of mutually dependent components.
 - 1. Pre-engineered wood framed structural system.
 - 2. Pre-engineered plate connected wood trusses.
 - 3. Metal wall and roof panels.
 - 4. Gutter and downspouts.
 - 5. Miscellaneous carpentry, wood blocking and related components and attachments indicated and required for the work whether or not specifically referred to herein.
- B. Related Work in Other Sections:
 - 1. Section 03 3000, Cast-In-Place Concrete
 - 2. Section 06 1000, Carpentry
 - 3. Section 06 1113, Hollow Metal Doors
 - 4. Section 08 3613, Sectional Doors
- C. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.02 QUALITY ASSURANCE

- A. Perform Work in accordance with the following agencies:
 - 1. Lumber Grading Agency: Certified by ALSC.
 - 2. Plywood Grading Agency: Certified by APA.
 - 3. National Frame Builders Association, Post-Frame Buildings Standard Specifications.

1.03 SUBMITTALS

- A. Submittal shall specifically include:
 - 1. Certified test reports and/or product data showing compliance with specified performance characteristics.
 - 2. Product Data for all system components.
 - 3. Color samples for exposed components from manufacturer's full range for selection by Architect.
- B. Shop Drawings / Permit Drawings: The contractor shall provide stamped engineered drawings for roof trusses if required by the building department.
- C. Warranty:
 - 1. Pressure treated wood posts and lumber shall have 40-year minimum warranty against decay and insect damage when in contact with soil.
 - 2. Metal wall, roof and soffit panels shall have 30-year minimum warranty against painted coating failure.

PART 2 PRODUCTS

2.01 GENERAL DESCRIPTION

- A. Pre-engineered, wood-framed, metal clad, sloped-roof, free-standing storage building.
 - 1. Building Size: As indicated on Drawings
 - 2. Doors: Garage doors and swinging man doors as indicated on Drawings.
 - 3. Attachments, materials/details: Per manufacturer's engineered drawings.
- B. Provide a complete, integrated set of system manufacturer's standard mutually dependent components and assemblies that form a system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into

building interior. Include primary and secondary framing, roof panels, wall panels, and accessories complying with requirements indicated. Refer to Drawings for sizes, configurations, and locations.

- C. Structural Performance: Provide systems capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Design Loads (Dead, Live, Roof, Snow, Wind, Seismic, etc.): Per Ohio Building Code.
 - 2. Thermal Movement: Provide systems that allow for thermal movements resulting from the maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss. Assume structures to be unconditioned.

2.02 WOOD MATERIALS

- A. Foundation Posts:
 - 1. Posts may be solid sawn, mechanically laminated, glue laminated or wood composite.
 - 2. Posts shall be pressure treated for contact with ground.
 - 3. Minimum size: 6" x 6"
 - B. Framing Lumber (eaves, headers, roof purlins, wall girts, blocking):
 - 1. Maximum moisture content: 19 percent.
 - 2. Factory mark each piece of lumber with grade stamp.
 - 3. Minimum size: 2"x 4" or as shown on the construction drawings.
 - 4. All lumber shall be standard grade or better, and shall be free of warping, twisting and splitting.
- C. Skirt Boards:
 - 1. Pressure treated for contact with ground.
 - 2. Minimum size: 2"x 8"
- D. Boards:
 - 1. Maximum moisture content: 19 percent
- E. Plywood:
 - 1. Either DOC PS 1 or DOC PS 2, unless otherwise indicated.
- F. Oriented Strand Board: DOC PS 2.
- G. Plate Connected Wood Trusses:
 - 1. All lumber used in the design of wood trusses must be cured and graded in accordance with the current grading rules. Design stresses allowed are those listed in the current editions of respective lumber association's grading rules.
 - 2. The design of wood members must be in accordance with the formulas published in the current edition of the National Design Specification for Wood Construction.
 - Metal connector plates and joint design must conform to specifications as set forth in the current edition of the recommended design practice of the Truss Plate Institute, Inc. Entitled Design Specification for Metal Plate Connected Wood Trusses (TPI-95).
 - 4. Truss members and joints must be designed in accordance with TPI-95. All truss designs must be accompanied by complete and accurate shop drawings bearing the seal of a Professional or Structural Engineer, registered in the project State, and contains the following information:
 - a. Slope of depth, span and spacing of the truss.
 - b. Location of all joints.
 - c. Bearing width.
 - d. Design loading to include (as applicable): top chord live load, top chord dead load, bottom chord live load, bottom chord deal load and concentrated loads and their points of application.
 - e. Adjustments to lumber and plate design vales to include modification for (as applicable): moisture service conditions, temperature, preservative treatment, fire retardant treated wood, duration of load, flexure and shear.

- f. Each reaction force.
- g. Each axial force.
- h. Lateral bracing requirements: Top chord brace (roof purlins) spacing, bottom chord brace spacing, web bracing, as applicable.
- i. Plate type, thickness or gauge, size; basic plate design value (specifying gross or Net value); and the dimensioned location of each plate except where symmetrically located relative to the joint interface.
- j. Lumber size, species, and grade for each member.
- 5. Design calculations for bending moments shall be available from the designer.
- H. Accessories:
 - 1. Fasteners: Hot-dip galvanized or stainless steel.
 - 2. Die Stamped Connectors: galvanized steel as shown or as required by manufacturer.
 - 3. Joist Hangers: Galvanized steel, sized to suit framing conditions.
 - 4. Anchors: Hollow block epoxy anchors for anchorage to hollow masonry. Expansion (wedge) bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.

2.03 METAL SIDING AND ROOFING PANELS

- A. Prefinished Imperial Rib metal wall and roofing panels as manufactured by American Building Components or equal. All panels will be one piece unless lengths greater than 40 feet are required or the panels must be shortened to accommodate certain building features.
 - 1. Gauge: 29 gauge steel with galvalume plus coating
 - 2. Panel Coverage Width: 36" wide panels
 - 3. Rib Height 3/4" high at 9" o/c
 - 4. Texture: Smooth
 - 5. Panel Attachment: Exposed Fastening System
 - 6. Painted Finish: Siliconized Polyester in color as selected by Architect. Multiple colors will be required.
 - B. Steel Panel Attachment: The steel panels shall be fastened to building framing by plated steel sharp point screws with zinc/aluminum/cast nonferrous alloy hex washer heads pre-assembled with aluminum bond seal washers and are compatible with steel panel.
- C. Closure Strips: 1" wide closed-cell linked expanded polyurethane, to match panel corrugation.
- D. Steel Trim: Provide trim pieces as detailed on manufacturer's installation manual and as required for complete, weather tight, functional installation. Trim shall be 0.0158-inch min. thickness steel on gables, ridge, corners, base, windows, and doors with same paint finish as roofing and siding panels.
- E. Aluminum Trim: Fabricate from same material as soffit to shape, dimensions, and profile required to accommodate soffit panel and project conditions. Provide with channels to receive panels, flanges for concealed weather tight attachment, and slotted attachment holes. Color shall match or coordinate with soffit color. In order to eliminate or minimize visible joints, form in longest possible lengths with 10 feet being minimum.
 - 1. J-channel: 1/2 inch wide channel to receive soffit panels with 1/2 inch attachment flange.
 - 2. Reverse Frieze Molding: F-shaped piece with 1/2 inch wide channel to receive aluminum soffit panels.
 - 3. Soffit T-Bar: Double channel to receive two soffit panels with exposed face

PART 3 EXECUTION

- 3.01 FRAMING
 - A. Erect wood framed building system according to manufacturer's written erection instructions and erection drawings.
 - B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads and loads equal in

intensity to design loads. Remove temporary supports when permanent structural framing, connections, and bracing are in place, unless otherwise indicated.

- C. Do not field cut, drill, or alter structural members without written approval from building manufacturer's professional engineer.
- D. Primary Framing: Align and adjust structural framing before permanently fastening. Perform necessary adjustments to compensate for discrepancies in elevations and alignment. Level and plumb individual members of structure.
- E. Secondary Framing: Erect framing true to line, level, plumb, rigid, and secure. Fasten secondary framing to primary framing with field connections using high-strength bolts.
 - 1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
 - 2. Locate and space wall girts to suit openings such as doors and windows.
 - 3. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.
- F. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
- G. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

3.02 WOOD TRUSS INSTALLATION

- A. Install wood trusses only after supporting construction is in place and is braced and secured.
- B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.
- C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.
- D. Install and brace trusses according to TPI recommendations and as indicated.
- E. Anchor trusses securely at bearing points; use metal truss tie-downs or floor truss hangers as applicable. Install fasteners through each fastener hole in truss accessories according to manufacturer's fastening schedules and written instructions.
- F. Securely connect each truss ply required for forming built-up girder trusses.
- G. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
- H. Install wood trusses within installation tolerances in TPI 1.
- I. Do not cut or remove truss members.
- J. Replace wood trusses that are damaged or do not meet requirements.

3.03 METAL WALL PANEL INSTALLATION

- A. General: Anchor wall metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.
 - 2. Install metal wall panels perpendicular to structural supports, unless otherwise indicated.
 - 3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
 - 4. Locate metal panel splices over, but not attached to, structural supports with end laps in alignment. Stagger panel splices and end laps to avoid a four-panel lap splice condition.

- 5. Lap metal flashing over metal panels to allow moisture to run over and off the material.
- 6. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.
- B. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by metal panel manufacturer.

3.04 METAL ROOF PANEL INSTALLATION

- A. General: Provide metal roof panels of full length from eave to ridge, unless otherwise indicated or restricted by shipping limitations. Install ridge caps and hip caps as metal roof panel work proceeds.
- B. Fasten metal roof panels to supports with exposed fasteners at each joint, at location, spacing, and with fasteners recommended by manufacturer.
 - 1. Rigidly fasten eave end of metal roof panels and allow ridge end free movement due to thermal expansion and contraction. Pre-drill panels for fasteners.
 - 2. Provide metal closures at peaks, rake edges, rake walls and each side of ridge caps and hip caps.
- C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or selftapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.05 DOOR AND FRAME INSTALLATION

- A. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.
- B. Doors and Frames: Installation of doors and frames shall be by General Contractor.

3.06 WINDOW INSTALLATION (Not Used)

- A. Seal perimeter of each window frame with elastomeric sealant used for metal wall panels. Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.
- B. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior. Installation by General Contractor.

3.07 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
 - Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 - 2. Install components for a complete metal wall panel assembly including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
- B. Gutters: Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to eave with gutter hangers spaced not more than 3 feet o/c using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- C. Downspouts: Join sections with 1-1/2-inch telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o/c. in between.
 - 1. Tie downspouts to underground drainage system indicated.
- D. Continuous Roof Ventilators: Set ventilators complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports. Join sections with splice plates and end-cap skirt assemblies where required to achieve indicated length. Install preformed filler strips at base to seal ventilator to metal roof panels.

- E. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.
- 3.09 CLEANING AND PROTECTION
 - A. Touchup Painting: After completion, promptly clean, prepare, and touch-up areas of painted metal panels with manufacturer supplied paint.

SECTION 06 1753

SHOP FABRICATED WOOD TRUSSES

PART 1 GENERAL

1.01 SUMMARY

- A. Shop fabricated wood trusses and associated bracing and accessories required for a complete wood truss roof system including:
 - 1. Pre-engineered Wood Roof Trusses
 - 2. Wood Truss Bracing, both temporary and permanent and the engineering thereof
 - 3. Metal Accessories for Wood Trusses
 - 4. Misc. Wood Framing and Blocking required as part of the Wood Truss assembly
 - 5. Misc. Wood Truss and Wood Framing Work and related components and attachments indicated and required for the work whether or not specifically referred to herein.
- B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.
- C. Related Work in Other Sections:
 - 1. Section 06 1000, Rough Carpentry

1.02 QUALITY ASSURANCE

- A. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.
 - 1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
 - 2. Engineering Responsibility (Delegated Design): Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
- B. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program that complies with quality-control procedures in TPI 1 and that involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.
- C. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in Ohio (the Truss Engineer) and who is experienced in providing engineering services of the kind indicated.
- D. Comply with applicable requirements and recommendations of the following publications:
 - 1. TPI 1, "National Design Standard for Metal Plate Connected Wood Truss Construction."
 - 2. TPI DSB, "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses."
 - 3. TPI HIB, "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses."
- E. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

1.03 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal-plate-connected wood trusses capable of withstanding design loads within limits and under conditions indicated. Comply with requirements in TPI 1 unless more stringent requirements are specified below.
 - 1. Design Loads: Design per the greater of the following:
 - a. As indicated on the Drawings:
 - b. As required by Ohio Building Code.
 - c. 25 PSF Snow Load plus Dead Load and Mechanical Load
 - 2. Maximum Deflection under Design Loads (Roof Trusses): Vertical deflection of L/240

- 3. Mechanical Loads: Design Trusses to support the ceiling-attached mechanical items indicated. Include allowance for reasonable additional mechanical loads to be added in the future.
- 4. Drifting Loads: Where drifting and/or sliding loads occur on the roof, trusses shall be designed to accommodate such loads.
- 5. Wind Loads: Where vertical surfaces occur in the roof system (gable ends or other vertical roof transitions), truss system and bracing shall be designed to accommodate such loads.
- B. Structural Design:
 - Truss manufacturer shall provide shop drawings (including tabulation of stress analysis) to the Architect (prior to fabrication) bearing the stamp of an Ohio Licensed Professional Engineer (The Truss Engineer). The Truss Engineer's seal and signature shall appear on each truss type drawing, on the Truss Lay-out Plan, and on all required Field Repairs. Trusses shall be designed in accordance with applicable building codes. Truss manufacturer shall generate an accurate Lay-out Plan showing exact placement and spacing of all trusses. A reproduction of the Framing Plan (from the Construction Documents) is not acceptable.
 - 2. The Framing Plan (on the Construction Documents) is a conceptual representation of the roof assembly. The plan is diagrammatic and does not show every member of construction. Contractor is responsible for supplying all ledgers, blocking, etc. necessary for a complete assembly. Contractor shall field modify truss tails and/or shim bearing plates as required.
 - 3. All wood trusses to be pre-engineered mono-planer trusses spaced at 24" o/c maximum and shall have intermediate web members as required by the manufacturer. Trusses shall be multi-ply as required by the Truss Engineer.
 - 4. Sheathing Attachment: Wood Truss System shall be designed to accept the Sheathing Specified. The design, specification, and detailing of the sheathing to the Wood Trusses is the responsibility of the Truss Engineer and should be shown on the Layout Plans. If Truss Engineer required blocking, runners, etc. for the attachment of sheathing, such framing shall be shown on the Layout Plans and shall be part of the Base Bid Work.
- C. Bracing:
 - 1. Temporary Bracing: As required/recommended by TPI, as recommended by Truss Manufacturer, and as required for safe installation.
 - 2. Individual Truss Member Bracing: As designed by Truss Engineer and shown on the Truss Type Drawings and/or Framing Plan.
 - 3. Permanent Top Chord Bracing: Plywood sheathing is provided as part of the roofing system. This plywood may be assumed to provide required top chord bracing.
 - 4. Other Permanent bracing (2x4's lapped 2 trusses min.) as follows:
 - a. "X" type bracing (on truss webs) at 15' o/c measured parallel to the trusses and 24' o/c measured perpendicular to the trusses.
 - b. Diagonal bracing (on top of bottom chords) at at gable ends; on the inside of all girder trusses; and at intermediate spacing not to exceed 30' unbraced.
 - c. Lateral bracing (on top of bottom chords) continuous perpendicular to all trusses and spaced not to exceed 15' measured parallel to trusses.
 - d. Bottom chords should not be assumed to be braced by gypsum board attached to the bottom side.
 - e. Bracing indicated on the Construction Documents should be assumed to be diagrammatic and incomplete and not intended to limit the required bracing described herein or required by the Truss Engineer. Refer also to TPI literature for the proper installation of bracing.

1.04 SUBMITTALS

- A. Shop Drawing Submittal shall specifically include:
 - 1. Truss Layout/Bracing Plans:
 - a. Prepared by or under the supervision of the Truss Engineer and bearing his seal.
 - b. Showing all trusses with exact placement locations and unique truss numbering.
 - c. Showing all connectors and fasteners.
 - d. Showing all temporary and permanent bracing
 - e. Showing design parameters and assumptions.
 - f. Absent of any disclaimers excluding engineering responsibility of any of the above items.
 - g. Showing representative truss profiles/roof sections confirming geometry.

- h. Showing roof slopes and roof transition locations Note: The Framing Plan shown on the Construction Documents should be understood to be preliminary and intended to convey the design intent of the roof system. The exact layout, number of trusses, number of truss plies, girder truss placement, etc. is the responsibility of the Truss Engineer.
- 2. Individual Truss Type Drawings
 - a. Prepared by or under the supervision of the Truss Engineer and bearing his seal.
 - b. Showing the designed members and connectors of each truss.
 - c. Showing the design assumptions of each truss.
 - d. Showing the profile, pitch, size, and number of plies of each truss
 - e. Showing required truss member bracing.
 - f. Showing any required splice/connection details. Note: Any Truss Profiles or individual Truss Members shown on the Construction Documents should be understood to be preliminary and intended to convey the design intent and geometry of the roof system. The exact web configuration, chord/web sizes, etc. is the responsibility of the Truss Engineer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Handle and store trusses to comply with recommendations of TPI HIB, "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses."
 - 1. Store trusses flat, off of ground, and adequately supported to prevent lateral bending.
 - 2. Protect trusses from weather by covering with waterproof sheeting, securely anchored.
 - 3. Provide for air circulation around stacks and under coverings.
- B. Inspect trusses showing discoloration, corrosion, or other evidence of deterioration. Discard and replace trusses that are damaged or defective.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Provide dry lumber with 19 percent maximum moisture content.

PART 2 PRODUCTS

- 2.01 DIMENSION LUMBER
 - A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - B. Grade and Species: For truss chord and web members, provide dimension lumber of any species, graded visually or mechanically, and capable of supporting required loads without exceeding allowable design values according to AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."
 - C. Temporary and Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Division 06 Section Carpentry.

2.02 METAL CONNECTOR PLATES

- A. General: Fabricate connector plates to comply with TPI 1.
- B. Hot-Dip Galvanized Steel Sheet: ASTM A 653/A 653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G60 (Z180) coating designation; and not less than 0.036 inch thick.

2.03 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where trusses are exposed to weather, in ground contact, made from pressure-preservative treated wood, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.
- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.
- 2.04 METAL TRUSS ACCESSORIES
 - A. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those indicated and required. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
 - B. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (Z180) coating designation.
 - 1. Use for interior locations where stainless steel is not indicated.
 - C. Truss Tie-Downs: Metal tie-down anchors for fastening roof trusses to wall below designed for attachment to single top plate. Tie fastens to one side of truss and top plate below.
 - 1. Typical Eave Locations: Basis of Design: MiTek/USP RT3A, all holes filled with recommended nails.
 - 2. Gable Ends: Basis of Design: Simpson HGA10.
 - D. Truss Hangers, Clips, etc.: As designed by Truss Engineer and as required for complete assembly. Configurations appropriate to the geometry and materials. Capacity as required for loads. Fasteners as required to achieve design loads.

2.05 FABRICATION

- A. Cut truss members to accurate lengths, angles, and sizes to produce close-fitting joints.
- B. Fabricate metal connector plates to sizes, configurations, thicknesses, and anchorage details required to withstand design loads for types of joint designs indicated.
- C. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.
 - 1. Fabricate wood trusses within manufacturing tolerances in TPI 1.
- D. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install wood trusses only after supporting construction is in place and is braced and secured.
- B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.

- C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.
- D. Install and brace trusses according to TPI recommendations and as indicated.
- E. Install trusses plumb, square, and true to line and securely fasten to supporting construction.
- F. Space trusses 24" (Band Storage Building) or 48" (Athletic Pole Barn) inches o/c. unless otherwise indicated; adjust and align trusses in location before permanently fastening.
- G. Anchor trusses securely at bearing points; use metal truss tie-downs as applicable. Install fasteners through each fastener hole in truss accessories according to manufacturer's fastening schedules and written instructions.
- H. Securely connect each truss ply required for forming built-up girder trusses. Anchor trusses to girder trusses as indicated.
- I. Install and fasten temporary and permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
- J. Install wood trusses within installation tolerances in TPI 1.
- K. Do not cut or remove truss members.
- L. Replace wood trusses that are damaged or do not meet requirements. Do not alter trusses in field.

SECTION 07 3100

SHINGLES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section Includes:
 - 1. Fiberglass reinforced shingles.
 - 2. Roof Flashing associated with sloped roofing
 - a. Membrane Flashing
 - 3. Accessories to sloped roofing
 - a. Vapor Retarder
 - b. Felt Underlayment
 - c. Ventilation Components
 - d. Miscellaneous Accessories
 - 4. All labor, material, tools and equipment required for a complete watertight roofing system including all related materials not specified under another section but required for the work whether or not specifically referred to herein.
- B. Related work in other Sections:
 - 1. Section 07 6200, Gutters, Downspouts, Fascia and Rake Trim
 - 2. Section 06 1000, Gutter and Rake Boards, Roof Blocking
- C. Related Documents: The provisions of the General Conditions, Supplementary General Conditions, and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.02 QUALITY ASSURANCE

- A. Shingle Quality Assurance
 - 1. Shingles shall conform to ASTM D3462 Standard Specification for Asphalt Shingles made from Glass Felt and Surfaced with Mineral Granules.
 - 2. Shingles must conform to the referenced ASTM standards.
 - 3. All products used must be approved by shingle manufacturer prior to use.
 - 4. Perform Work in accordance with NRCA Steep Roofing Manual and manufacturer's recommendations.
- B. Miscellaneous Quality Assurance
 - 1. Field Inspection: The Owner reserves the right to retain, at the Owner's expense, an independent inspection service to provide full-time inspection of the roofing system installation. The inspector shall have free access to the work area.
 - 2. Installer Qualifications: Installer experienced to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer(s).
 - 3. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.
 - 4. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

1.03 SHINGLE MANUFACTURER'S WARRANTY

- A. Shingle Manufacturer's warranty in which manufacturer agrees to repair or replace asphalt shingles that fail in materials within specified warranty period. Materials failures include manufacturing defects and failure of asphalt shingles to self-seal after a reasonable time.
 - 1. Material Warranty Period: Lifetime from date of Substantial Completion, prorated, with first 10 years non-prorated.
 - 2. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds up to 90 mph (or higher) for 10 years from date of Substantial Completion. Shingles and system shall meet Ohio Building Code requirements for Basic Wind Speed of

90 mph three-second wind gusts at 33' above grade for Exposure Class C category and Equivalent Basic Wind Speed of 75 mph.

- 3. Algae-Discoloration Warranty Period: Asphalt shingles will not discolor 25 years from date of Substantial Completion.
- B. Total System: Shingle manufacturer shall review all roof assembly construction components and provide warranty for roof shingles.
- C. Standard vs. Non-Standard Warranty: The conditions of the Warranty articulated above are minimum requirements of this contract, even if certain conditions are non-standard to materials approved under this Specification. If higher grade of product or additional installation measures are required to obtain specified warranty requirements, then such upgrades shall be provided without additional cost to the Owner.

1.04 SUBMITTALS

- A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in Division 1.
- B. Submittal shall specifically include:
 - 1. Certified test reports showing compliance with specified performance characteristics.
 - 2. Product Data: Provide data indicating material characteristics, performance criteria and limitations.
 - 3. Manufacturer's Installation Instructions: Indicate preparation and installation procedures including winter installation requirements and procedures. Installation of shingles, underlayment, flashing, fasteners, and other roof accessories shall be in accordance with instructions published by manufacturer.
 - 4. Certificate of Compliance indicating that the asphalt shingles made in normal production meet or exceed the requirements of:
 - a. Class A Fire Resistance (Fiberglass).
 - b. ASTM D3161 Test method for wind resistance of asphalt shingles.
 - c. Meet UL 997 Wind Resistant label rated for 80 mph.
 - d. ASTM, FM and UL Standards
 - 5. Warranty information.
 - 6. Listing of component parts of the roofing system together with letter of approval from the Manufacturer.
 - 7. Manufacturer's Certification that system meets applicable Ohio Building Code requirements. Provide sample of roof deck mechanical fasteners and fastening layout which meets Ohio Building Code requirements.
 - 8. Certification that all shingles delivered to the job site bear the same lot number.

1.05 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Asphalt Shingles: 100 sq. ft. of each type, in unbroken bundles.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING PROCEDURES

- A. Deliver materials in original unopened packaging. Containers shall be labeled with manufacturer's name, brand name and identification of various items. All shingles delivered to the jobsite shall have the same lot number from a single manufacturer.
- B. Insulation and roofing materials shall be stored on site so as to be protected from ponding water, runoff water or inclement weather or any exposure which would allow material to be subjected to contact with moisture. Do not allow roofing materials to come in contact or be exposed to any materials that would be detrimental to or cause degradation of the roofing materials.

PART 2 PRODUCTS

- 2.01 SHINGLES
 - A. Three-Dimensional, Laminated-Strip Shingle, UL Class "A" Ceramically colored/UV Resistant mineral-surfaced, self-sealing, laminated multi-ply overlay construction, fiberglass-based strip shingle complying with ASTM D 3018, Type 1 and with ASTM D 3462. Provide shingles bearing UL Class "A" or ASTM E108 external fire exposure label and UL 997 "Wind Resistant" label or ASTM 3161. Provide starter strip, hip and ridge shingles as appropriate for applications.
 - B. Basis of Specification: GAF Timberline NS, three-dimensional, laminated strip, UL Class A shingle, Wind Resistant label rated for 130 mph. Color to be selected by Architect. Provide with manufacturer's standard lifetime roofing system warranty.
 - C. Approved Manufacturers: GAF, Certainteed, Owens-Corning, Tamko.

2.02 FLASHINGS

- A. Membrane Flashing (Eave, Valley Ice and Water Protection): Polyethylene-sheet-backed rubberized asphalt membrane, 40 mils thick. Provide primer when recommended by underlayment manufacturer.
 - 1. Basis of Design: Grace Construction Products Ice & Water Shield
 - 2. Equivalent Products: Owens Corning Weatherlock-M, Celotex Celoguard and GAF Weatherwatch.
 - 3. Install over entire roof sheathing surface.

2.03 ROOFING ACCESSORIES

- A. Polyethylene Vapor Retarder: ASTM D 4397. 6 mils thick, minimum with maximum performance rating of 0.13 perm. Provide also Vapor Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.
- B. Felt Underlayment Not used.
- C. Ventilation Components
 - 1. Ridge Vents: High density polypropylene, nonwoven modified polyester, aluminum or other UV stabilized plastic or metal designed to be installed under or above asphalt shingles at ridges. Provide end caps and starter pieces at ridge and hip transitions as required. Product must provide 30 sq. inches of free area per lineal foot of ridge vent.
 - a. Basis of Specification: Famco # CRVS 8 BR,
 - b. Equivalent Products by: Owens Corning, GAF, Mid- American Products or CertainTeed.
 - 2. Strip Vents: Alcoa Vent-A-Strip #VAS70
- D. Miscellaneous Accessories
 - 1. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete nailboard, shingle and sheet metal flashing and trim installation.
 - Fasteners (Roofing Nails): ASTM F 1667; hot-dip galvanized steel wire shingle nails, minimum 0.120 inch (3 mm) diameter, barbed shank, sharp-pointed, with a minimum 3/8 inch (9.5 mm) diameter flat head and of sufficient length to penetrate 3/4 inch (19 mm) into solid wood decking or extend at least 1/8 inch (3 mm) through OSB or plywood sheathing. Staple fasteners not allowed.
 - a. Where nails are in contact with metal flashing, use nails made from same metal as flashing.
 - b. Felt Underlayment Nails: Aluminum, stainless-steel, or hot-dip galvanized steel wire with low profile capped heads or disc caps, 1 inch (25 mm) minimum diameter.
 - 3. Fasteners (Sheet Metal Flashing): Use fasteners of sizes that will penetrate substrate not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.
 - a. Galvanized or Prepainted, Metallic-Coated Steel: Use stainless-steel fasteners.
 - b. Copper: Use copper or stainless-steel fasteners. Nails for Copper Sheet: Copper or hardware bronze, 0.109 inch minimum and not less than 7/8 inch long, barbed with large head

- c. Stainless Steel: Use stainless-steel fasteners.
- 4. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.
- 5. Vent Pipe Flashing: Slip-over rubber seal with metal flange painted black.

PART 3 EXECUTION

- 3.01 EXAMINATION AND PREPARATION
 - A. Prior to installation of Membrane Flashing:
 - 1. Fill knot holes and surface cracks with latex filler suitable for application.
 - B. Prior to installation of Shingles, verify:
 - 1. that roof penetrations and plumbing stacks are in place and flashed to deck surface;
 - 2. that roof openings are correctly framed; and
 - 3. that deck surfaces are clean, dry, free of ridges, warps, or voids.
 - C. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit asphalt shingle roofing to be performed according to manufacturer's written instructions and warranty requirements.
- 3.02 INSTALLATION GENERAL
 - A. Weather lap and seal watertight with plastic cement, items projecting through or mounted on the roof.
 - B. Install components in accordance with instructions as printed in manufacturer's printed instructions or specifications for the type of product and application specified.

3.03 INSTALLATION – ASPHALT SHINGLES

- A. General: Comply with manufacturer's instructions and recommendations but not less than those recommended by ARMA's "Residential Asphalt Roofing Manual" or "The NRCA Steep Roofing Manual."
 - 1. Fasten asphalt shingles to roof sheathing with nails.
- B. Place shingles in straight coursing pattern with required weather exposure to produce triple thickness over full roof area. Do not lay shingles in strips up the roof slope with toothed edge pattern. Cap hips and ridges with individual shingles, maintaining weather exposure. Place to avoid exposed nails. Complete installation to provide weather tight service.
- C. Provide double course of shingles at eaves and extend first course of shingles 3/4 inch beyond rim at eaves and rakes.
- D. Inspect roof shingles 30 days after installation for proper sealing and manually seal all shingles not sealed.
- E. Valley Flashing: Place 72" width, one ply of self adhesive rubberized asphalt/polyethylene sheet valley protection centered over valleys. Center first sheet on valley, cut second sheet in half and weather lap first sheet. Weather lap joints. Place single width sheet continuously along building eave. Place at locations where vertical wall meets sloped roof. Place sheets around louvered air intakes. See drawing details for other miscellaneous locations required.

3.04 INSTALLATION – ACCESSORIES

- A. Ridge Vent Installation: Install ridge vents continuously in accordance with manufacturer's printed instructions or specifications and install cap shingles. Ridge vent shall extend to within 2'-0" of end of ridge. Cutback of plywood shall stop short of end of ridge per manufacturer's instructions. Provide and install all seals, fittings, flashings, etc. as required by ridge and hip vent manufacturer for a complete and watertight installation.
- B. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

- 3.05 PROTECTION AND CLEAN-UP
 - A. Protect finished work under provisions of Division 1 Specifications. Do not permit traffic over finished roof surface.
 - B. Upon completion of the roof installation, the contractor shall remove all foreign matter, rubbish and scrap material from the roof and gutters.

SECTION 07 4660

FIBER CEMENT SIDING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This Section Includes:
 - 1. Siding Panels
 - 2. Trim/Fascia Board
 - 3. Soffit Panels
 - 4. Other resilient materials
 - a. Fiber cement edging, and transitions
 - b. Auxiliary Materials and Accessories to Fiber Cement Siding
 - 5. All siding work and related materials and labor not specified under another section but required for the work whether or not specifically referred to herein.
- B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

Related Sections:	
1. Rough Carpentry	Section 06 1000

2. Sheet Metal Flashing and Trim Section 07 6200

1.02 REFERENCES

С

A.

- American Society for Testing and Materials (ASTM):
- 1. ASTM C 920 Standard Specification for Elastomeric Joint Sealants; 1998.
- 2. ASTM C 1185 Standard Test Methods for Sampling and Testing Non Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards; 1999.
- 3. ASTM C 1186 Standard Specification for Flat Non-Asbestos Fiber Cement Sheets; 1999.
- 4. ASTM E 72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 1998.
- 5. ASTM E 84 -- Standard Test Method for Surface Burning Characteristics of Building Materials; 1999.
- 6. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials; 1995.
- 7. ASTM E 136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C; 1999.
- 8. ASTM E 228 Standard Test Method for Linear Thermal Expansion of Solid Materials with a Vitreous Silica Dilatometer; 1995.
- 9. ASTM G 26 Standard Practice for Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials; 1996.
- 10. ASTM E 330-97 Structural Performance of exterior windows, curtain walls and doors by uniform static air pressure difference.

1.03 SUBMITTALS

- A. Make submittals under provisions of Section 01 3300.
- B. Submittal shall specifically include:
 - 1. Shop Drawings: Indicate seaming plan, method of installation, direction of flooring and quantity required for each color/material shown.
 - 2. Product Data: For all fiber cement siding and auxiliary materials specified under this Section, illustrating that materials meet or exceed specified properties.
 - 3. Product Data: For all hardware, sealants and adhesives.
 - 4. Manufacturer's technical information and installation instructions for specified materials.
 - b. Storage and handling requirements and recommendations.
 - a. Preparation instructions and recommendations.
 - c. Installation methods, including nailing patterns.
 - 5. Applicable model code authority evaluation report (ICC, CCMC, etc.)
 - 6. Maintenance manual from manufacturer.
 - 7. Full size samples of each different pattern, color, and type of material required.
 - 8. Warranty.

1.04 QUALITY ASSURANCE

- A. Fire Test Performance: Unless otherwise indicated, provide flooring material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory.
 - 1. ASTM E 648 (Critical Radiant Flux) of 0.45 watts per sq. cm. or greater, Class 1.
 - 2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less.
- B. Qualifications:
 - 1. Installer Qualifications: Provide installer with not less than (3) three years of experience with products similar to those specified and who is acceptable to product manufacturer.
- C. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions and manufacturer's installation instructions.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

- B. Storage and Protection: Store products off the ground, on a flat surface, and under a roof or separate waterproof covering.
- 1.06 WARRANTY
 - A. Provide 50-year limited siding warranty.
 - B. Provide 15-year limited paint/finish warranty.
 - C. Register manufacturer's warranty, made out in Owner's name, with copy to Owner.

PART 2 PRODUCTS

2.01 FIBER CEMENT BOARD PANELS

- A. General: Fiber cement board panels consisting of cement, cellulose fiber formed under high pressure into boards with integral surface texture, Type A, Grade II
 - 1. Application: Vertical surfaces as indicated on Drawings.
 - 2. Installation: For nail attachment
 - 3. Edges: Machined
 - 4. Characteristics:

C.

- a. Flammability: Noncombustible, when tested in accordance with ASTM E136
- b. Surface Burning: when tested in accordance with ASTM E84
 - i. Flame spread index: 0
 - ii. Smoke developed index: 5, max.
 - Flexural Strength: when tested in accordance with ASTM C1185
 - i. Flex strength in wet condition: 1015 psi, minimum
 - ii. Flex strength in equilibrium condition: 1450 psi, minimum
- d. Freeze/Thaw Resistance: 80%, minimum, flexural strength retained, when tested in accordance with ASTM C1185
- e. Thermal Expansion: a coefficient of thermal expansion less than 1 x 10⁻⁵ inches/inches/degree Fahrenheit, when tested in accordance with ASTM E 228
- f. UV Resistance: No cracking, checking, or erosion when tested for 2,000 hours in accordance with ASTM G26
- g. Water Tightness: No water droplets on underside, when tested in accordance with ASTM C1185
- 5. Finish: Factory-applied paint finish system including a sealant/primer, and acrylic solid-color top coat
- B. (Vertical) Panel Siding
 - 1. Total Thickness: 5/16-inches-thick (7.9mm) min., plus or minus .04-inches-thick (1mm)
 - 2. Size: 48 inches x 120 inches
 - 3. Surface Style: Hardie Sierra 8
 - 4. Color: Architect to select from manufacturer's full range of colors within the specified Series. One color required.
- C. Trim/Fascia Board
 - 1. Total Thickness: 5/4-inches-thick (31.75mm)
 - 2. Length: 12 feet (3657mm), plus or minus 1/8-inches (3mm)

- 3. Width: 6 inches (153mm)
- 4. Surface Style: Embossed wood-look texture
- 5. Color: Architect to select from manufacturer's full range of colors within the specified Series. One color required.
- D. Soffit Panels
 - 1. Total Thickness: 1/4-inches-thick min.
 - 2. Size: 12 inches x 144 inches
 - 3. Surface Style: Hardie Non- vented, smooth finish
 - 4. Color: Architect to select from manufacturer's full range of colors within the specified Series. One color required.
- E. Acceptable Products:
 - 1. Allura USA
 - 2. James Hardie
 - 3. Architect approved equal.

PART 3 INSTALLATION

1. Install per manufacturer's installation instructions.

SECTION 07 6200

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes:
 - 1. Gutters, Downspouts, and associated Metal Work
 - 2. Sheet Metal Flashing
 - 3. Sheet Metal Trim
 - 4. All sheet metal gutters, downspouts, flashing, trim and accessories not specified under another section but required for the work whether or not specifically referred to herein.
- B. Related Work in Other Sections:
 - 1. Section 07 7000, Metal Fascia System
 - 2. Section 07 4000, Metal Panels (Porch Ceiling/Soffit and Wall Panels)
- C. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.02 SUBMITTALS

- A. Submittal shall specifically include:
 - 1. Manufacturer's current Product Data including specifications and related literature.
 - 2. Shop Drawings of all shop fabricated custom fascia and rake trim pieces.
 - 3. Samples:
 - a. Gutter & Downspout. One sample which shall include 18" long section of gutter including gutter hanger, gutter expansion joint, outlet tube, and 6" section of connected downspout.
 b. Prefinished metal Color Samples
 - 4. Manufacturer's 20 year paint warranty

1.03 QUALITY ASSURANCE

- A. Perform work in accordance with the most applicable of the following:
 - 1. AA (Aluminum Association), Aluminum Construction Manual: Aluminum Sheet Metal Work in Building Construction.
 - 2. NRCA (National Roofing Contractors Association) Roofing Manual.
 - 3. SMACNA Architectural Sheet Metal Manual.
- B. Performance Requirements:
 - 1. Sheet metal flashings and trim shall be designed to withstand roof area wind pressures with a factor of safety of 2.0. Refer to Structural Drawings for wind pressures.
 - 2. Roof edge metals shall be tested per ANSI/SPRI ES-1.

1.04 STORAGE AND HANDLING

A. Stack prefinished material to prevent twisting, bending, or abrasion, and to provide ventilation.

1.05 WARRANTY

A. Fluoropolymer Finishes: 20 years.

PART 2 PRODUCTS

2.01 GUTTERS AND DOWNSPOUTS

- A. Exterior Hanging Gutters:
 - 1. Material: Prefinished Galvalume. Finish: Two-coat Fluoropolymer (Kynar 500).
 - 2. Shape: SMACNA Style A, D, E or K, modified as required to work with gutter hanger
 - specified (rear lip required at shingle roof locations). For from coil stock of appropriate width.
 - 3. Size/Gauge: Sizes as follows:
 - a. Shingle Roof Locations: 6", 24 gauge

- 4. Length: Continuous lengths of up to 50' without splice. Splices to occur at expansion joints only. Refer to Drawings for expansion joint locations.
- 5. Corners: Prefabricated corner pieces.
- 6. Color: Standard color selected by Architect (non-metallic, non-exotic).
- 7. Expansion Joints: Concealed expansion joints constructed as follows:
 - a. Double end cap with flush cover plate per SMACNA details for continuous appearance. No extension above gutter top.
 - b. Provide a gutter hanger within 8" of each side of expansion joint.
- 8. Accessories: End pieces, outlet tubes, and other accessories as required. Fabricate gutter accessories from same metal as gutters.
- 9. Manufacturers: Gutters may be manufactured off-site by a fabricator able to comply with the Specifications or field-fabricated to comply with the Specifications at the Contractor's option.
- B. Exterior Gutter Hangers:
 - 1. Configuration/Material:
 - a. Shingle Roof Locations (6" gutters): Concealed rod and nut hangers that clip onto gutters and screw to roof sheathing under shingles. Width as appropriate for gutter. Aluminum rod and bracket with stainless steel nuts.
 - 2. Finish: Mill/galvanized finish
 - 3. Spacing: 24" o/c.
- C. Downspouts:
 - 1. Material: 0.040" prefinished aluminum. Coil-Coated Finish: Two-coat Fluoropolymer.
 - 2. Size/shape:
 - a. Shingle Roof Locations: 3" x 4" Rectangular
 - b. Low-Slope Roof Locations: 4" x 5" Rectangular
 - 3. Length: Longest lengths possible
 - 4. Elbows/Bends: Mitered and welded then shop painted. Provide elbows required to snug downspouts as tight as possible to eave/frieze detail.
 - 5. Seams: All downspout seams shall be exposed toward the exterior and located on the side face, in order to be visible when open
 - 6. Attachment Brackets: .040 aluminum brackets matching downspouts, secured to exterior wall with non-corrosive fasteners.
 - 7. Color: Standard color selected by Architect (non-metallic, non-exotic).
- D. Miscellaneous Gutter / Downspout Metal Work
 - 1. Splash Guards: 0.032" Aluminum in color matching gutters; prefabricated or custom fabricated; height and length as required to control overflow of gutters from valleys and similar conditions; angled design matching angle of inside corners where appropriate; attached using stainless steel screws.

2.02 SHEET METAL FLASHING

- A. Metal Trim and Flashing
 - 1. Perimeter Edge Metal:
 - a. Material: 24 gauge, Prefinished Galvalume Steel. Finish: Two-coat Fluoropolymer (Kynar 500).
 - b. Configuration: Unless shown otherwise on Drawings, brake formed sheet metal with at least a 2 inch roof deck flange and a 1-1/2 inch fascia flange with a 3/8 inch drip at lower edge. Furnish in lengths of 10 feet. Coordinate exact dimensions of eave trim drip edge with gutter assembly.
 - c. Application: Drip edge metal above gutters at steep-slope roof locations.
 - 2. Flashings
 - a. Material: 24 gauge, Prefinished Galvalume Steel. Finish: Two-coat Fluoropolymer (Kynar 500).
 - b. Application: Penetration flashings, base flashing, cap/counter flashing.
 - c. At cap/counter flashing locations, provide counter flashing in two piece "snap-in" configuration with wind resistant clips to prevent wind uplift at flashings lower edge in prefinished metal in matching color and finish. All metal shall have coating on rear face to prevent galvanic action. Where receiver piece is set in masonry, turn over to mason

for incorporation into masonry. Coordinate with Masonry contractor and provide detailed information as to exact locations, steps, etc. associated with flashing to be incorporated into masonry.

- 3. Metal Flashing Fabrication
 - a. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.
 - b. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.
 - c. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with elastomeric sealant concealed within joints.
 - d. Form flashing (indicated on Drawings) to protect roofing materials from physical damage and to shed water. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.
 - e. Curved Metal Trim: Use specialized equipment to bend the metal trim to the radius indicated, with the profile indicated. Trim to have smooth radius matching the top of the aluminum framing. Segmented trim pieces will not be acceptable.
- 5. Color: Standard color selected by Architect (non-metallic, non-exotic).

2.03 SHEET METAL TRIM

- A. Gutter and Rake Board Wraps:
 - 1. Material: 0.032" prefinished aluminum. Coil-Coated Finish: Two-coat Fluoropolymer.
 - 2. Configuration: As indicated on Drawings. Field verify dimensions prior to fabrication.
 - 3. Length: Longest possible lengths.
 - 4. Joints: Concealed splice plates.
 - 5. Fasteners: No exposed fasteners. Use stainless steel concealed fasteners.
 - 6. Color: Standard color selected by Architect (non-metallic, non-exotic).
 - 7. Corners: Neatly mitered and sealed.
- B. Rake Trim and Other Misc. Metal Trim:
 - 1. Material: 0.032" prefinished aluminum. Coil-Coated Finish: Two-coat Fluoropolymer.
 - 2. Configuration: As indicated on Drawings. Field verify dimensions prior to fabrication.
 - 3. Length: Longest possible lengths.
 - 4. Joints: Lap joints, unless shown otherwise.
 - 5. Fasteners: No exposed fasteners. Use stainless steel concealed fasteners.
 - 6. Color: Standard color selected by Architect (non-metallic, non-exotic).
 - 7. Corners: Neatly mitered and sealed.

2.04 ACCESSORIES

- A. Fasteners (Sheet Metal Flashing): Use stainless steel fasteners of sizes that will penetrate substrate not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.
- B. Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
- C. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant; of type, grade, class and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- D. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints, with limited movement. Also use for sealing all overlapped metal joists required to be sealed (e.g. overlaps at metal valley flashing).
- E. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

2.05 FABRICATION

A. Shop Fabricated Fascia, and Rake Trim: Form trim as shown on drawings to profiles indicated and to shed water. Form sections square and accurate, free from distortion or defects detrimental to appearance or performance. Hem exposed edges minimum 1/4" on underside. Visible Components shall be produced to fit as-built job dimensions with no job site cutting or component fabrication required for installation.

PART 3 EXECUTION

- 3.01 INSTALLATION GENERAL
 - A. Install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual". Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

3.02 GUTTERS AND DOWNSPOUTS

- A. Install gutters with hanger system at 24" on center. End joints shall be fabricated as expansion joints.
- B. Anchor downspouts to walls at 48" o/c. as shown. Use welded fittings for all downspout direction changes. Provide strap anchors in matching material and finish. Coordinate locations with the Architect prior to installation. Connect downspouts to boots where downspouts discharge into underground piping. Where downspouts discharge onto lower roofs, provide concrete splash block and double 45 degree bottom transition; secure downspout to splash block.
- C. Fit components tight in place. Install gutters so that they are symmetrical, surfaces true and straight in planes, and lines accurate to profiles.
- D. Gutter end caps shall be sealed with butyl sealant and then top-caulked with polyurethane sealant. Downspout seams to be sealed with clear silicone.
- E. Install leak proof expansion joints in aluminum gutter at 50'-0" o.c. maximum spacing.
- F. Connect downspouts into cast iron boots. Fit gutter tight into boot. Coordinate location of downspouts with Division 33 Contractor.
- G. Provide break metal splash guards (matching gutters) at the front edge of gutters at all valleys. Provide break metal splash guards where shingle roof expansion joint covers terminate at gutters. Secure to gutter with stainless steel screws concealed from view from ground level.

3.03 SHEET METAL FLASHING AND TRIM

A. Inspection: All surfaces to which trim metal is to be applied shall be smooth, sound, clean, dry and free from defects that might affect the application.

B. General:

- 1. Secure metal flashings in place with concealed fasteners compatible with flashing at 12 inches o/c. unless noted otherwise.
- 2. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.
 - a. Coat side of stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
 - b. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with membrane flashing.
 - c. Bed flanges in thick coat of asphalt roofing cement or polyurethane/butyl sealant (as is compatible with roofing system) where required for waterproof performance.

- 3. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with elastomeric sealant concealed within joints.
- 4. Seal joints with elastomeric sealant as required for watertight construction. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
- 5. Install trim straight and true with uniform joint work, in a secure manner while allowing for normal thermal movement of metal, all in accordance with most applicable manual except where modified by approved shop drawings. Replace any damaged or ill-fitting components at no additional cost.
- 6. Anchor all components with concealed fasteners wherever possible. Exposed to view face nailing or screws are not permitted.
- C. Stepped Base Flashings: Install with a headlap of 2 inches and extend over the underlying asphalt shingle and up the vertical surface. Fasten to roof deck only.
- D. Cricket Flashings: Install against the roof-penetrating element extending concealed flange beneath upslope asphalt shingles and beyond each side.
- F. Eave Drip Edges: Install rake and eave drip edge flashings under membrane flashing and fasten to roof deck over top of a layer of felt underlayment.

SECTION 07 9200

JOINT SEALANTS

PART 1 GENERAL

1.01 SUMMARY

- A. Elastomeric and rigid joint sealants, caulking compounds, and related accessories.
- B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.
- C. Provide joint sealants as a minimum in the following locations. Project specific materials and building systems may require additional joint sealants to be provided beyond the locations listed below.
 - 1. Exterior joints in vertical surfaces and nontraffic horizontal surfaces:
 - a. Cast-in-place concrete.
 - b. Control and expansion joints in unit masonry.
 - c. Perimeter joints between concrete and other dissimilar materials.
 - d. Frames of louvers, doors and windows.
 - e. Ceiling and overhead surfaces.
 - f. Exterior joints between dissimilar materials where the joining of the 2 surfaces leaves a gap between the meeting materials or components as may be dictated by the various methods of construction to form a barrier against the passage of liquids, solids, or gases.
 - 2. Exterior joints in horizontal traffic surfaces:
 - a. Cast-in-place concrete slabs. (sidewalks, patios, etc.)
 - b. Exterior joints between slabs-on-grade and masonry walls
 - c. Exterior joints between dissimilar materials where the joining of the 2 surfaces leaves a gap between the meeting materials or components as may be dictated by the various methods of construction to form a barrier against the passage of liquids, solids, or gases.
 - 3. Interior joints in vertical surfaces and horizontal nontraffic surfaces:
 - a. Interior surfaces of exterior walls full height of joint.
 - b. Perimeter joints of exterior openings.
 - c. Vertical control joints on exposed surfaces of unit masonry and concrete walls.
 - d. Perimeter joints between interior wall surfaces and frames of interior doors, and windows.
 - e. Interior joints between dissimilar materials where the joining of the 2 surfaces leaves a gap between the meeting materials or components as may be dictated by the various methods of construction to form a barrier against the passage of liquids, solids, or gases.
 - 4. Interior control and expansion joints in horizontal traffic surfaces:
 - a. Cast-in-place concrete. (Covered under Sections 03 3000)
 - b. Tile flooring (Covered under Section 09 3000).
 - c. Interior joints between dissimilar materials where the joining of the 2 surfaces leaves a gap between the meeting materials or components as may be dictated by the various methods of construction to form a barrier against the passage of liquids, solids, or gases.
 - 5. Within exterior wall cavity (Not Used):
 - a. Joints around all items penetrating insulation including conduit, etc.: Seal per 07 2700.
 - b. Exterior wall CMU control joints on the cavity side: Seal per 07 2700.
 - c. All other joints between dissimilar materials where the joining of the 2 surfaces leaves a gap between the meeting materials or components as may be dictated by the various methods of construction to form a barrier against the passage of liquids, solids, or gases.
- D. All caulking and sealing work indicated on drawings and/or specified herein and not specified in another section but required for the work shall be provided under this section whether or not specifically referred to herein.
- E. General Contractor shall be responsible for complete sealant installation associated with exterior envelope including caulking of materials provided by other contractors (louvers, pipes penetrating exterior walls, etc.).

- F. At interior, each Prime Contractor is required to provide sealants directly related to his work (Plumbing Contractor is required to caulk around plumbing fixtures, etc.).
- G. Related Work in Other Sections:
 - 1. Section 03 3000, Joints in Interior Concrete Slabs
 - 2. Section 07 2700, Penetrations of Air/Vapor Barrier

1.02 DEFINITIONS

- A. Caulking: To install or apply a sealant across or into a joint, crack, or crevice.
- B. Sealant: A material that has adhesive or cohesive properties to form a barrier against the passage of liquids, solids, or gases.

1.03 PERFORMANCE REQUIREMENTS

- A. Provide joint sealants that establish and maintain watertight and airtight continuous joint seals at exterior and interior without staining or deteriorating joint substrates.
- B. Compatibility and Adhesion Test Report: Sealant manufacturer shall select sealant systems for various surfaces based on the requirements of these Specifications and the actual characteristics of the materials used for construction. Manufacturer shall test samples of building materials as required to determine which sealant systems are appropriate for various applications. The result of this analysis shall be submitted to the Architect for review. All cost associated with this analysis and testing shall be done by sealant manufacturer without additional cost to the Owner. Recommended sealant systems shall be provided by the sealant contractor for locations indicated at no additional cost to the Owner. Where sealant work is the responsibility of more than one Contractor/ Subcontractor, each Contractor/Subcontractor shall perform this testing/analysis for his portion of the work. Analysis shall include interpretation of test results and written recommendations indicating the following:
 - 1. Recommended method of joint cleaning/preparation.
 - 2. Recommended type of primer.
 - 3. Recommended type of backing material. Materials forming joint substrates and joint-sealant backings must be tested for compatibility and adhesion with joint sealants.
 - 4. Recommended sealant material and installation method.

1.04 SUBMITTALS

- A. Submittal shall specifically include:
 - 1. Product Data: Including colors available and VOC compliance data.
 - 2. Compatibility and Adhesion Test Report from Sealant Manufacturer.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Elastomeric Sealant Standard: Comply with ASTM C 920 classifications for type, grade, class, and uses.
- C. Environmental Limitations: Install sealants only when ambient temperature, humidity and moisture levels are within acceptable limits of the manufacturer.

1.06 DELIVERY & STORAGE

- A. Material shall be delivered to site in legibly identifiable, undamaged, unopened containers clearly stating type product and manufacturer.
- B. Store materials in upright position within a cool and dry area not subject to freezing temperatures. Prevent damage to containers and/or cartridges during storage.

1.07 WARRANTY

- A. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to provide exterior elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: 20 years from date of Substantial Completion.
 - 2. Sealant Manufacturer shall do all testing, analysis and product selection/recommendation required to achieve this warranty.

PART 2 PRODUCTS

- 2.01 MATERIALS, GENERAL
 - A. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.260 PRODUCTS AND MANUFACTURERS.
 - B. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range of standard and special colors for this characteristic. Multiple colors will be required to match various adjacent surfaces.

D. Products:

- 1. All sealant products comprising part of the weather-proof building envelope shall be provided by one manufacturer.
- 2. Products must be capable of achieving specified warranty. Sealant manufacturer and contractor are required to verify the appropriateness of products for each application.
- E. Acceptable Manufacturers:
 - 1. BASF/Sonneborn
 - 2. Dow Corning
 - 3. Pecora
 - 4. GE
 - 5. Tremco
- 2.02 ELASTOMERIC JOINT SEALANTS

A. Interior Joints

- 1. Interior joints around hollow metal door frames, at gypsum board control joints, at wood trim and between all other dissimilar materials, unless other type of sealant is specifically indicated.
 - a. Latex (siliconized), white, paintable.
 - b. Sealant to be installed before painting.
- B. Exterior Joints
 - 1. Exterior joints.
 - a. High performance, low modulus, high moving colored sealant.
 - b. Product able to achieve specified warranty. This will likely be a silicone-based product.
 - c. Colors to match adjacent surfaces. Custom colors may be required if insufficient matches are found with standard colors.
 - d. Application: Exterior joints around window, door and louver frames; at all other exterior sealant locations unless noted otherwise.
 - 2. Exterior horizontal concrete expansion joints (concrete patios, sidewalks, architectural concrete and curbs)
 - a. Self-leveling and slope grade elastomeric polyurethane sealant for horizontal exterior joints.
 - b. Provide at all expansion joints in exterior concrete surfaces. Control joint material should be held down for installation of sealant.

2.03 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant mfr. where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleansers acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.
- D. Joint Sealant Backing
 - 1. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance. Type O: Open-cell material.
 - Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.
 - 3. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

- A. Verify that substrate surfaces and joint openings are ready to receive work. Remove loose materials and foreign matter which might impair adhesion of sealant.
- B. Verify that joint backing and release tapes are compatible with sealant.
- C. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- D. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.
- E. Perform preparation in accordance with ASTM C804 for solvent release; ASTM C790 for latex base sealants.
- F. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions.
- G. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- H. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.02 INSTALLATION OF JOINT SEALANTS

- A. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- B. Install sealant in accordance with manufacturer's instructions. Materials shall be applied by skilled workmen with proper hand or air-powered guns using correct nozzle size and type to suit each need. Tool joints concave. Apply caulking and sealants under pressure to expel air and provide solid filling. Surfaces shall be uniformly smooth, free of wrinkles.
- C. Measure joint dimensions and size materials to achieve required width/depth ratios. Install joint backing to achieve a neck dimension no greater than 1/3 the joint width.
- D. Install bond breaker where joint backing is not used.
- E. All control joints shall be caulked full height of wall.
- F. After caulking is finished, clean off all spots from other work and leave all caulking in a satisfactory condition.

SECTION 08 1113

HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section Includes:
 - 1. Doors and frames manufactured from carbon steel (hollow metal doors and frames).
 - 2. Steel frame (hollow metal) components such as sidelites, borrowed lites, transom frames and architectural stick assemblies as shown, and as conforming to ANSI A250.8-1998 (SDI-100).
 - 3. All hollow metal doors and framing and related work not specified under another Section but required for the work whether or not specifically referred to herein.
- B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.
- C. Related Work in Other Sections:
 - 1. Section 08 7100, Door Hardware
 - 2. Section 06 1000, Carpentry

1.02 SUBMITTALS

- A. Shop Drawings shall include the following:
 - 1. Door and frame sections and elevations
 - 2. Materials, finishes and gauges
 - 3. Internal reinforcement of doors and frames
 - 4. Cut-outs for glazing, etc.

1.03 QUALITY ASSURANCE

- A. Steel Door and Frame Standards:
 - 1. ANSI A250.8, unless more stringent requirements are indicated.
 - 2. SDI-100 and ANSI A151.1
 - 3. DHI Door Hardware Institute The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
 - 4. Fire Rated Door and Frame Construction: ASTM E152.
 - 5. Handicapped: ADAAG
 - 6. Tolerance: Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

B. References

- 1. ASTM E2074-00 Method of Fire Tests of Door Assemblies.
- 2. DHI A115.1G Installation Guide for Doors and Hardware.
- 3. NFPA 80 Fire Doors and Hardware.
- 4. NFPA 252 Fire Tests for Door Assemblies.
- 5. SDI-111 Standard Details for Steel Doors and Frames.
- 6. SDI-105 Recommended Erection Instructions for Steel Frames.
- 7. UL 10C Positive Pressure Fire Tests of Door Assemblies.
- 8. ANSI A151.1 Endurance Test.
- 9. ANSI 115 Hardware Preparation in Standard Steel Doors and Frames
- C. Fire Rated Door and Frame Labeling: A physical label or approved marking shall be affixed to the fire door or fire door frame at an authorized facility as evidence of compliance with procedures of the labeling agency.

1.04 SEQUENCING, DELIVERY, STORAGE, AND HANDLING

A. Do not begin fabrication of doors or frames until hardware templates are received from hardware supplier. Schedule and deliver frames at proper time(s) to prevent delaying the progress of the work.
- B. Deliver, store, and handle doors and frames in manner to prevent damage, rust or deterioration.
- C. Provide packaging such as cardboard or other containers, separators, banding, spreaders, and paper wrappings to protect items in accordance with requirements of manufacturer. Follow special storage and handling requirements of manufacturer.

PART 2 PRODUCTS

2.01 MATERIALS (GENERAL)

- A. Steel Sheet for Doors and Frames:
 - 1. Interior (Not Used): Cold Rolled Steel Sheets: ASTM A1008, Commercial Steel, Type B; suitable for exposed applications.
 - Exterior: Metallic Coated Steel Sheets: ASTM A653, Commercial Steel, Type B, with an A60 zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness. Galvanized steel shall be treated to insure proper paint adhesion. All component parts used in galvanized doors and/or frames shall meet the galvannealed specification.
- B. Door and Frame Finish: Factory primed (zinc chromate type) in accordance with ANSI A224.1 and field painted.
- C. Accessories:
 - 1. Rubber silencers: (Covered in Section 08 7100).
 - 2. Removable Stops: channel shape matching doors.
 - 3. Astragals: Provided at double doors where indicated on Hardware Sets (Section 08 7100).
 - 4. Bituminous Coating: Fibered asphalt emulsion. Use on grouted frames (1/16" minimum thickness) when an anti-freeze agent is used in grout to grout frames solid.

D. Acceptable Manufacturers:

- 1. Steelcraft
- 2. Ceco
- 3. Curries
- 4. Amweld.
- 5. MPI

2.02 STEEL DOORS

A. Exterior Steel Doors

- 1. Provide doors complying with the following requirements by referencing ANSI 250.8 for level and model and ANSI A250.4 for physical endurance level: Level 3 and Physical Performance Level A (Extra Heavy Duty), Model 2 (Seamless) or Model 3 (Stile and Rail).
 - a. Face Skin: 16 ga.
 - b. Thickness: 1 3/4"

B. Steel Door Fabrication

- 1. Fabricate doors with hardware reinforcement welded in place.
- 2. Doors shall be reinforced, stiffened, sound deadened and insulated with impregnated kraft honeycomb core completely filling the inside of the doors and laminated to inside faces of both panels using contact adhesive applied to both panels and honeycomb core.
- 3. Astragals for Double Doors: Steel, specifically for double doors.
- 4. Attach fire rated label to each door unit.
- 5. All doors shall be closed at top and bottom with weeps at bottom. All exterior out-swing doors shall have tops closed to eliminate moisture penetration. Door tops shall have no holes or openings. Top caps are permitted.
- 6. Doors shall have continuous vertical mechanical interlocking joints at lock and hinge edges with visible edge seams or with edge seam filled and ground smooth. The internal portion of the seam shall be sealed with epoxy. An intermittent fastening along the seam on the exterior of the door is not permitted.
- 7. Provide 3/4" undercut on doors indicated to receive an undercut on the HVAC Drawings and/or the Door Schedule.

2.03 STEEL FRAMES

- A. Construction of Frames: All the metal frames shall be face and back arc-welded at the corners. Closer sleeve and other hardware reinforcement shall be factory installed on the frame.
 - 1. Flush frames shall be formed from cold-rolled or galvanized steel (see below).
 - 2. Frames shall have 2" faces (except where indicated otherwise). 14 gauge (and heavier) frames shall be set-up and arc-welded. Miter corners shall have reinforcements with four integral tabs for secure and easy interlocking jambs to head.
 - 3. Frames for 1-3/4" doors shall have 7 gauge steel hinge reinforcements. Strike reinforcements shall be 16 gauge and prepared for an ANSI-A115.1-2 strike.
 - 4. Metal plaster guards shall be provided for all mortised cutouts and electrical hardware.
 - 5. All hinge and strike reinforcements shall be projection welded to the door frame.
 - 6. Reinforcements for surface closer shall be 14 gauge steel. Adequate reinforcements shall be provided for other hardware when required.
 - 7. Galvanized frames shall have galvanized hardware reinforcements. Frames shall be furnished with a minimum of 6 wall anchors and 2 adjustable base anchors of manufacturer's standard design.
 - 8. Configuration of frames shall be as shown on Drawings and as required to accommodate specified doors and hardware.
- B. Frames for Exterior Openings
 - 1. Steel Thickness: 14 ga.
 - 2. Factory primed in accordance with ANSI A224.1 and field painted.
 - 3. Weatherstripping: All exterior frames shall include a synthetic rubber pressure sensitive weatherstripping (if not provided under Section 08 7100). Weatherstripping shall be mounted to the stop of the frame. Door and frame assembly shall have an air infiltration rate of .074 CFM/lineal foot of crack when tested in accordance with ASTM E283 and SDI 116

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install doors and frames in accordance with ANSI/SDI-115.1G.
- B. Coordinate installation of doors and frames with installation of hardware specified in Section 08 1000. Necessary holes shall be drilled and tapped from template to receive hinges and lock strikes. Templates for this purpose shall be furnished to the Frame Manufacturer by the Hardware Contractor.
- C. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
 - 1. Place frames before construction of enclosing walls and ceilings.
 - 2. Masonry Contractor shall slush-in the steel frames with mortar as the masonry is being installed. If installation of frame must occur after masonry is installed, frame shall be drilled and grouted solid after installation. Holes in frames must be patched.
 - 3. In existing concrete or masonry construction, provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
 - 4. In metal-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
 - 5. For openings 90 inches or more in height, install an additional anchor at hinge and strike jambs.
 - 6. All frames shall be securely anchored to the floor construction by means of concrete nails, screws, or expansion bolts through sill clips. Check periodically to insure that frames remain securely in level and plumb condition. No screws will be permitted through the face of steel

frames for securing temporary anchors. Use clips which do not mar or deform the face of the steel frames. All damaged frames shall be replaced at no additional cost to the owner.

- 7. Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.
- D. After-set Frames: Where frames have to be replaced (e.g. due to damage during construction) or where frames are left out for constructability purposes (only permitted to be done at limited locations with the prior approval of the Architect), frames shall be after-set as follows:
 - 1. Secure frames in place with post-installed expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 - 2. Pump frame full of grout through drilled hole in frame. Fill hole and make smooth, flush, and invisible on exposed faces.
 - 3. Remove any grout from exposed surfaces that occurs from this operation.
- E. Door Installation:
 - Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.
 - 2. Fire-Rated Doors: Install within clearances specified in NFPA 80.

SECTION 08 3613

SECTIONAL DOORS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the following:
 - 1. Manually operated, overhead, section doors.
 - 2. All sectional door materials, labor and related components not specified in another section but required for the work which shall be provided under this section whether or not specifically referred to herein.
- B. Related Work in other Sections:
 - 1. Section 06 2000, Carpentry
- C. Related Documents: The provisions of the General Conditions, Supplementary General Conditions, and the Sections included under Division 01 are included as a part of this Section as though bound herein.

1.02 QUALITY ASSURANCE

- A. Fire Rated Assemblies: NFPA 80, and acceptable testing agency listing.
- B. The powder coated finish shall be such that there is no corrosion when the material is subjected to salt spray resistance test ASTM B-117 for 1000 hours.

1.03 SUBMITTALS

- A. Product Data: For each type and size of sectional door and accessory.
- B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each exposed product and for each color and texture specified.
- D. Maintenance data.
- E. Warranties: Sample of special warranties.
- 1.04 WARRANTY
 - A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of sectional doors that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.
 - B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

- 2.01 STEEL SECTIONAL DOOR:
 - A. Exterior Section Faces and Frames: Fabricate from manufacturer's standard zinc-coated (galvanized), cold-rolled, steel sheet.
 - 1. Roll horizontal meeting edges to a continuous, interlocking, keyed, rabbeted, shiplap, or tongue-in-groove weathertight seal, with a reinforcing flange return.
 - 2. For insulated doors, provide sections with continuous thermal-break construction, separating the exterior and interior faces of door.

- 3. Panel thickness: 2"
- 4. Exterior Facing: 24 gauge, zinc-coated (galvanized) sheet steel.
- 5. Interior Facing Material: 26 gauge, zinc-coated (galvanized) sheet steel.
- 6. Exterior Face Surface: Ribbed
- 7. Door Finish: Powder-coated finish in manufacturer's full range of colors. Color as selected by Architect.
- 8. Door Size: Width and height as indicated on the Drawings.
- 9. Basis of Design: Overhead Door Model 424
- B. Section Ends and Intermediate Stiles: Enclose open ends of sections with channel end stiles formed from galvanized-steel sheet welded to door section. Provide intermediate stiles formed from galvanized-steel sheet, cut to door section profile, and welded in place. Space stiles not more than 48 inches apart.
- C. Reinforce bottom section with a continuous channel or angle conforming to bottom-section profile and allowing installation of astragal.
- D. Reinforce sections with continuous horizontal and diagonal reinforcement, as required to stiffen door and for wind loading. Provide galvanized-steel bars, struts, trusses, or strip steel, formed to depth and bolted or welded in place. Ensure that reinforcement does not obstruct vision lites.
- E. Provide reinforcement for hardware attachment.
- F. Tracks: Manufacturer's standard, galvanized-steel track system of configuration indicated, sized for door size and weight, designed for lift type indicated and clearances shown on Drawings. Provide complete track assembly including brackets, bracing, and reinforcement for rigid support of ball-bearing roller guides for required door type and size. Slot vertical sections of track spaced 2 inches apart for door-drop safety device. Slope tracks at proper angle from vertical or design tracks to ensure tight closure at jambs when door unit is closed.
 - 1. Track Configuration: High-lift (sloped) track.
- G. Track Reinforcement and Supports: Galvanized-steel track reinforcement and support members. Secure, reinforce, and support tracks as required for door size and weight to provide strength and rigidity without sag, sway, and vibration during opening and closing of doors.
- H. Weatherseals: Replaceable, adjustable, continuous, compressible weather-stripping gaskets of flexible vinyl, rubber, or neoprene fitted to bottom, top and entire perimeter of sectional door unless otherwise indicated.
- Hardware: Provide heavy-duty, corrosion-resistant hardware, with hot-dip galvanized, stainless-I. steel, or other corrosion-resistant fasteners, to suit door type.
 - 1. Hinges: Heavy-duty, galvanized-steel hinges at each end stile and at each intermediate stile, according to manufacturer's written recommendations for door size. Attach hinges to door sections through stiles and rails.
 - 2. Rollers: Heavy-duty rollers with steel ball-bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Provide 3-inch diameter roller tires for 3-inch wide track and 2-inch diameter roller tires for 2-inch wide track.
- J. Locking Device Assembly: Fabricate with cylinder lock, spring-loaded deadbolt, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.
 - 1. Lock Cylinders: Provide cylinders standard with manufacturer. All cylinders shall be keyed alike. Operable from inside with thumb turn and outside with key cylinder.
 - 2. Keys: Four (4) for each cylinder.
- K. Torsion Spring: Counterbalance mechanism consisting of adjustable-tension torsion springs mounted on torsion shaft made of steel tube or solid steel. Provide springs designed for number of operation cycles indicated.
 - 1. Operation Cycles: Not less than 20,000 cycles.

- L. Cable Drums and Shaft for Doors: Cast-aluminum or gray-iron casting cable drums mounted on torsion shaft and grooved to receive door-lifting cables as door is raised. Mount counterbalance mechanism with manufacturer's standard ball-bearing brackets at each end of torsion shaft.
 - 1. Cables: Galvanized-steel lifting cables.
 - 2. Cable Safety Device: Include, on each side-edge of door, a device designed to automatically stop door if either lifting cable breaks.
 - 3. Bracket: Provide anchor support bracket as required to connect stationary end of spring to the wall and to level the shaft and prevent sag.
 - 4. Provide a spring bumper at each horizontal track to cushion door at end of opening operation.

2.02 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Clopay Building Products
 - 2. Haas Door
 - 3. Overhead Door Corporation
 - 4. Raynor
 - 5. Wayne-Dalton Corp.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install sectional doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.
- B. Tracks: Provide sway bracing, diagonal bracing, and reinforcement as required for rigid installation of track and door-operating equipment. Repair galvanized coating on tracks according to ASTM A 780.
- C. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion. Adjust doors and seals to provide weathertight fit around entire perimeter.

3.02 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sectional doors.

SECTION 08 7100

DOOR HARDWARE

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the following:
 - 1. Commercial door hardware for Swinging doors and other doors to the extent indicated on drawings.
 - 2. Cylinders for doors.
 - 3. All items of finish hardware shown in hardware sets and required for a complete installation except items specifically indicated to be by others.
- B. Related work in other Sections:
 - 1. Section 08 1113, Hollow Metal Doors/Frames
- C. Hardware for the following is specified elsewhere (unless specifically listed in the hardware sets):
 1. Overhead Doors (except cylinders provided by this Contractor)
- D. Related Documents: The provisions of the General Conditions and the sections included under Division 00 & 01 are included as part of this Section as through bound herein.

1.02 REFERENCES:

- A. Finish hardware in this section shall meet the following standards as established by and the standard latest revision will be effect:
 - 1. The Door and Hardware Institute (DHI) Various Publications
 - 2. American National Standards (ANSI)/Builders Hardware Manufacturer Association (BMHA)
 - 3. CABO/ANSI A117.1 Accessible and Usage Buildings and Facilities
 - 4. Underwriters Laboratories (UL)
 - a. UL 10C Fire Tests of Door Assemblies
 - b. UL 305 Panic Hardware
 - 5. Applicable State and Local Building Codes
 - 6. American Disabilities Act (ADA). Including (but not limited to) the following requirements:
 - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
 - b. Door Closers: Max. opening-force: Interior Hinged Doors: 5 lbf applied perpendicular to door.
 - c. Thresholds: Not more than 1/2" high bevel raised thresholds with a slope of not more than 1:2.
- B. Fire-Rated Door Assemblies: Provide hardware for assemblies complying with NFPA 80 that are listed & labeled by an acceptable agency for fire ratings indicated, based on testing according to NFPA 252.

1.03 SUBMITTALS:

- A. Submittal shall specifically include:
 - 1. Schedules: Detailed schedule of finish hardware in the Door and Hardware Institute's sequence and format. Hardware schedule to be complete with Title Page, Door Index/Keying Schedule and Manufactures legend. After review is complete and all issues have been addressed, provide submittal of the corrected, revised, final schedule for record and field use.
 - 2. Product Data: Catalog cuts, clearly marked and identified, illustrating and describing each product included in the hardware schedule. Formulate these catalog cuts into sets and include a set with each copy of the hardware schedule submitted.
 - 3. Samples: If so requested by the Architect, provide a sample of any product or item requested, properly marked and tagged, for the opening for which it is intended. After examination and

approval by the Architect, the sample shall be turned over to the Contractor, for incorporation into the project.

- 4. Templates: After schedule has been reviewed, provide a complete "Template List". Further and upon request, provide copies to manufacturers or trades, whose work includes preparation of their products, to receive hardware. Provide copies of all such transmittals to the contractor, for their files. If physical samples are required, the manufacturer may request it from the general contractor and assume all responsibility of shipping it complete to the project.
- B. Keying Schedule: The hardware supplier shall work with the Owner and the Architect to generate the keying schedule. The Contractor shall work with the School Personnel to (a.) determine the keying requirements, (b.) receive the cores, (c.) key the cores, (d.) remove the construction cores and (e.) install the final cores.
- C. Operations and Maintenance Data: At the completion of the project, provide an Owner's Operation and Maintenance Manual. The manual shall consist of a hard three ring binder. Include a copy of the latest revised and updated schedule of finish hardware, complete with catalog cuts and keying schedule. In addition, furnish one copy of maintenance and parts manual, for those items, for which they are readily available and normally provided.

1.04 QUALITY ASSURANCE:

- A. Substitutions: Manufacturers & model numbers listed are intended to establish a standard of quality. Certain products have been selected for unique characteristics and particular suitability. Substitutions require architect's approval. Written requests must be made ten days prior to bid. To propose a substitute: submit product data for specified item and proposed item; indicate basis for substitution & any savings; provide sample if requested. Substitutions (if approved) will be listed in an addendum prior to bid.
- B. Supplier Qualification: The hardware supplier must be engaged currently in the furnishing, delivery and servicing of contract builders hardware. The firm shall have been furnishing hardware on similar projects in the vicinity for not less than five (5) years. The supplier must employ a certified Architectural Hardware Consultant (AHC) with a minimum of ten (10) years experience to be available at reasonable times during the course of this project for consultation with the owner, architect and general contractor.
- C. Single source responsibility: Obtain each type of hardware (latches, locks, hinges, closers, etc) from a single manufacturer. This will be enforced for mechanical and electrical products.

1.05 COORDINATION:

- A. Coordinate work of this section with other directly affected sections requiring any integral reinforcement for the door hardware.
- B. The hardware supplier's Architectural Hardware Consultant (AHC) shall review specifications for suitability of the hardware and consult with the architect and contractors to determine if revisions are needed and/or required prior to ordering hardware. Restocking charges or others costs resulting from a failure to perform this work will not be allowed. This work shall include (but not limited to) field-checking each door opening to ascertain which type of door stop is most appropriate for each situation. Also note required AHC certification of installation described in Field Quality Control in Part 3 of his Section.

1.06 DELIVERY, STORAGE AND HANDLIING:

- A. Marking and packaging: All items of hardware shall be delivered to the job site, in the mfr.'s original packages, they shall be marked to correspond with approved hardware schedule, item number, heading number, door number and key sets symbols. Include installation instructions with each piece of hardware.
- B. Delivery: The hardware supplier shall coordinate delivery with GC, in order to compile an acceptable delivery schedule. Some items of the hardware may be delivered to fabricators for

factory installation. In such case, the GC shall be advised of such shipments, along with copies of shipping tickets and other documentation, thus transferring responsibility to the manufacturer/fabricator, for care of said hardware. Any associated delivery fees are part of this Section and will not involve additional cost to the Owner.

C. Storage: Hardware is to be delivered to the job site and stored in a clean dry, secure area, with adequate strong shelving. If requested by the contractor, the hardware supplier shall send a representative to the job site to "assist" the check in and laying-out of the hardware on the shelves. A representative of the contractor MUST be present. At this time any installation tips or special instructions will be reviewed.

1.07 MAINTENANCE SERVICE:

- A. Maintenance Service: Beginning at Substantial Completion, provide six months' full maintenance by skilled employees of door hardware installer. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper hardware operation. Provide parts and supplies as used in the manufacture and installation of original products.
- B. Six-Month Adjustment: Approx. six months after Substantial Completion, perform the following:
 - 1. Examine & readjust each item of door hardware (manual and electric) as necessary to ensure function.
 - 2. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.
- C. Maintenance Tools: Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

PART 2 PRODUCTS

- 2.01 MATERIALS AND MANUFACTURERS
 - A. General
 - The first manufacturer listed for each product is the Basis of Specification and the abbreviated name of this manufacturer (along with appropriate model numbers) is used in the Hardware Sets. Even though additional acceptable manufacturers are listed, products must still provide all of the functions and features of the Basis of Specification.
 - 2. Hand of Doors: Refer to Drawings for direction of swing/had of each door leaf. Furnish each item of hardware appropriate for operation of door movement show.
 - 3. Where the exact types of hardware specified are not adaptable to the finished shape or size of the members requiring hardware, furnish suitable types having as nearly as possible the same operation and quality as the type specified, subject to Architect's approval.
 - B. Screws and Fasteners: Provide all screws and fasteners of the proper size and type to properly anchor or attach the item of hardware they are intended for. Provide all fasteners with Phillips head; do not use through-bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of reinforcing the work adequately to fasten the hardware securely.
 - C. Hinges: The following is a guide for hinge type required for this specification:
 - 1. 1-3/4" thick doors up to and including 3'0" wide:
 - a. Exterior: standard (.134) or heavy weight (.180) ball bearing, bronze/stainless steel 4-1/2" high.
 - b. Interior: standard (.134) or heavy weight (.180) plain or ball bearing, steel 4-1/2" high.
 - 2. 1-3/4" doors over 3'0" wide:
 - a. Exterior: standard (.134) or heavy weight (.180) ball bearing, bronze/stainless steel 5" high.
 - b. Interior: standard (.134) or heavy weight (.180) plain or ball bearing, steel 5" high.
 - 3. Furnish one pair of hinges for all doors up to 60" high. Furnish one additional hinge for every additional 30" or fraction thereof. The width of hinges shall be sufficient to clear all trim.

- 4. Acceptable Manufacturers: Ives, Hager, Stanley, Bommer, McKinney
- E. Mortise Locks
 - 1. Locks shall be ANSI A156.13, Grade 1 mortise locksets, Manufactured from heavy gauge steel, containing corrosion resistant components. Lock case shall be multi-function and field reversible for handing without opening the case.
 - 2. Locks to have a standard 2-3/4" backset with a full 3/4" throw latch bolt. Deadbolt shall be a full 1" throw, constructed of stainless steel.
 - Lever trim shall be cast or forged in the design specified, with 2 1/8" dia. roses with wrought roses and external lever spring case. Levers shall be thru-bolted to assure proper alignment and shall have a 2-piece spindle. Trim shall be applied by threaded bushing "no exposed screws".
 - 4. Unless in conflict with Regulatory Requirements specified herein, provide knurling on back half of levers for use by sight-impaired persons at doors leading to mechanical rooms, electrical rooms, and other similar hazardous areas.
 - 5. Acceptable Manufacturer: Falcon MA Series (no substitutions).
- G. Door Closers
 - All closers will utilize a stable fluid withstanding temperature range of 120 degrees f to -30 degrees f without seasonal adjustment of closer speed to properly close the door. Closers on fire rated doors will be provided with temperature stabilizing fluid that complies with standard UL 10C for "Positive Pressure Fire Tests of Door Assemblies" and UBC 7-2 (1997).
 - 2. Spring power shall be continuously adjustable over the full range of closer sizes and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves.
 - 3. All closer shall have forged steel arms and forged forearms for parallel arm closers.
 - 4. Closer cylinders and arms shall have a power coating finish. For metal components that can't be power coated, a rust inhibiting finish must be used.
 - 5. All closers will not be seen on the public side or hallway side of the door. The appropriate drop plate or mounting plates will be used as conditions dictate. Pay special attention to ST numbers, these are special template numbers requiring manufacturer to include special instructions, plates, brackets and/or screws.
 - 6. Closer Accessories: Contractor shall provide all necessary plates/spaces required to make closers functional on doors, whether or not such plates/spacers are listed in hardware sets or not.
 - 7. Acceptable Manufacturers: LCN, Falcon, Norton.
- I. Door Stops and Holders: It shall be the responsibility or the hardware supplier to provide doorstops for all doors in accordance with following requirements:
 - 1. Unless overhead stop or other specialty stop is specifically indicated, doors shall receive stops as follows:
 - a. Doors that swing against CMU walls: Wall Stop (Ives #WS402, US26D).
 - 2. At any opening where a wall or floor stop cannot be used, provide a heavy-duty overhead stop.
 - 3. Hinge pin stops will not be acceptable.
 - 4. Acceptable Manufacturers: Ives, Rockwood, Trimco, Brookline
- J. Thresholds and Gasketing: Furnish as specified and per details. Match finish of other items as closely as possible. Provide only those units where resilient or flexible seal strip is easily replaceable and readily available. Threshold, sweep and weather-stripping will be supplied to weather proof the exterior doors. The thresholds will be supplied to fit the particular sill conditions and not conflict with the American Disabilities Act (ADA). Exterior pairs of doors will have split astragal to prevent air infiltration. Interior doors may require gasketing, thresholds and sweeps to act as a sound barrier.
 - 1. Acceptable Manufacturers: National Guard Products, Pemko, Reese, Zero
- K. Silencers: Provide push in type for metal frames. Provide 3 each for single doors, 2 each for pair of doors. Omit silencers where gasketing is scheduled.

- 1. Acceptable Manufacturers: Ives, Rockwood, Trimco, Brookline
- N. Overhead Stops/Holders: Overhead door stops and holders; surface or concealed at the top of the door shall have shock absorber in extruded stainless steel case. Hold open and shock absorber feature that automatically engages and releases the door. Sliding member in the channel shall have accessible adjustment screw to regulate hold open tension.
 1. Acceptable Manufacturers: Glynn-Johnson, Rixson, Sargent.
- O. Other Hardware: Where other hardware is indicated in Hardware Sets, but not specified above, provide hardware by any manufacturer approved to supply hardware under this Section and able to supply hardware equivalent to the items specified and appropriate for the application.

2.02 CYLINDERS AND KEYING

- A. Meet with Architect and Owner to finalize keying requirements and obtain keying instructions in writing. System to be keyed in the existing Grand Master Key System as selected by the Owner.
- B. Provide Schlage factory keyed into Owners existing key system.
- C. Keys and key blanks shall be protected by one or more utility patents.
- D. Cylinders shall be small format size, Interchangeable Cores to incorporate a dual-locking mechanism to check for patented features on keys.
- E. Provide temporary construction keying system, furnished along with three (3) Construction Control Keys and twelve (12) each Construction Change Keys.
- F. Furnish permanent directly to Owner's representative by secure courier, return receipt requested, from manufacturer. Failure to properly comply with these requirements shall be cause for replacement of cylinders and keys involved at no additional cost to Owner.
- G. Provide cylinders for doors that are patent protected until 2024. Provide cylinders that incorporate a dual-locking mechanism with 5 interlocking finger pins to check for patented feature on keys.
- H. Mark permanent cylinders and keys with applicable blind code for identification. Visual key control mark cores with CKC side stamping. These visual key control marks or codes shall not include actual key cuts.
- I. Cylinder and key identification stamping to be approved by Architect and Owner. Failure to properly comply with these requirements shall be cause for replacement of cylinders and keys involved at no additional cost to Owner.
- J. Provide cylinders with nickel silver bottom pins.
- K. Manufacture keys of nickel silver with a minimum thickness of 0.092".
- L. Stamp keys with Owner unique key system facility code as established by the manufacturer, key symbol (VKC) and embossed with "DO NOT DUPLICATE" along with the full patent number to enforce the patent protection.
- M. Furnish keys in following quantities:
 - 1. Furnish a sum total of three (3) change keys per cylinder. This sum total of keys shall be cut and furnished as directed by OWNER. Any unused balance of cut change keys shall be furnished as key blanks directly to Owner with the Cut Keys.
 - 2. Furnish a sum total of three (3) Permanent Control Keys and a sum total of six (6) each Master Keys of each type as directed by Owner. Any unused balance of Master Keys of any type shall be furnished as key blanks directly to Owner with the Cut Keys.

2.03 FINISHES:

A. All hardware is to be furnished in one of the following finishes, depending upon the item and it's base metal. All satin chrome or satin stainless steel or as noted.

Item	BHMA #	US #
Hinges interior Locks	652 626	(US26D) (US26D)
Door Closers Plates, Push/Pulls Door floor stops	689 630 626	(alum painted) (US32D) (US26D)
Overhead Holders	630	(US32D)
Other items to be 630 if available.	. If not, 626 over	brass or bronze.

PART 3 EXECUTION

3.01 EXAMINATION:

- A. Prior to installation of hardware, examine condition of opening size, shall be verified as to door frames being plumb and of correct tolerance, walls or any related items that would prevent proper installation of doors and hardware. Correct any and all defects prior to proceeding with installation.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation. Coordinate with any additional security requirements from Owner and Architect.

3.02 INSTALLATION:

- A. Prior to hardware installation the general contractor will set up a preinstall job site meeting with the hardware supplier, hardware installer and any other trades people deemed necessary (i.e. electrical contractor, security contractor, etc.) for communication and coordination.
- B. Review with the architect the mounting locations of various items of hardware in accordance with the DHI's "Recommended Locations for Architectural Hardware" for standard and custom steel doors and frames, and DHI's WDHS-3 for flush wood doors. Special attention to be given to all special and unusual conditions. All hardware shall be installed by carpenter mechanics skilled in the application of said hardware.
- C. Install each hardware item in compliance with the manufacturer's instructions and recommendations, using only the fasteners provided by the manufacturer.
- D. Set thresholds for exterior doors in a full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 "Joint-Sealers".

3.03 FIELD QUALITY CONTROL:

- A. After all hardware has been installed, provide the services of a qualified hardware consultant to check for proper installation of hardware, according to the final hardware and schedule. Also, check the operation and adjustment of all hardware items in accordance with the manufacturer's recommendations.
- B. Provide protection for all items of hardware during construction, to prevent damage, field painting or marring.

3.04 ADJUSTING AND CLEANING:

A. At final completion, hardware shall be left clean and free from disfigurement. Make final adjustment to all door closers and other items of hardware. Where hardware is found defective, repair or replace or otherwise correct as directed. After building is occupied, arrange an appointment with owner's representative to instruct in the proper use, servicing, adjusting and

maintenance of the hardware. Refer to Part 1 of this Section for Six-Month Maintenance and adjustment requirements.

B. Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for the owners continued adjustment, maintenance, removal and replacement of hardware.

SECTION 09 9100

PAINTING

PART 1 GENERAL

1.01 SUMMARY

- A. Exterior and interior painting with opaque finishes including painted mechanical and electrical items, primers, sealers and finish paints. Painted exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces.
 - 1. Includes surface preparation and field application of paints, transparent finishes and coatings.
 - 2. Includes all painting work and related materials not specified under another section but required for the work whether or not specifically referred to herein.
- B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.02 SUBMITTALS

- A. Submittal shall specifically include:
 - 1. Product Data: Including material make-up and application instructions for each type of paint.
 - 2. Painting Schedule: Complete schedule listing manufacturer, proprietary names/number, surfaces to be painted, primers, finish coats and tinting.
 - 3. Samples:
 - a. Complete paint deck from which to choose colors.
 - b. Provide paint match samples for custom matches as required the Architect.

1.03 QUALITY ASSURANCE

- A. Environmental Requirements: Painting manufacturer and Contractor shall conform to State and local V.O.C. (Volatile Organic Compound) Regulations in area where Project is located. In addition, all field-applied interior paint shall comply with the maximum VOC content as follows:
 - 1. Paint Prime Coats: 100 g/L (Primers, Sealers, Undercoaters)
 - 2. Paint Finish Coats (unless otherwise listed below) : 50 g/L (Flats or Nonflat Coatings)
 - 3. Anti-Corrosive/Anti-Rust Paint Coats: 250 g/L (Anti-Corrosive/Anti-Rust Paints)
 - 4. Dry-fall Paint Coats: 150 g/L (Dry-fog Coatings)
 - 5. Transparent Wood Finishes:
 - a. Stains: 100 g/L (Stains, Interior)
 - b. Varnish/Lacquer: 275 g/L (Clear Wood Finishes, Varnish or Sealers, Lacquer)
 - B. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- C. Paint Coordination
 - 1. Verify compatibility of finish coat with manufacturer's and fabricator's shop applied prime coats.
 - 2. Provide barrier coats over incompatible primers, or remove and reprime as required.
 - 3. Notify architect in writing of any anticipated problems using finish paints specified with following:
 - a. Primed surfaces
 - b. Previously painted surfaces
 - c. Proper coverage
- D. Colors and Sample Rooms
 - 1. Multiple paint colors shall be as selected by the Architect. Before any work is done, the Architect will furnish the contractor with a set of color drawings and a schedule showing where various paint colors shall be applied. The contractor shall then prepare samples at the job as required until the colors and textures are satisfactory.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Store and apply materials in environmental conditions required by manufacturer's instructions.
- B. Do not apply paints when temperature outside or in any interior area is less than recommended by manufacturer. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- C. Do not apply finish material in areas where humidity is above acceptable limit recommended by manufacturer.
- D. Do not apply paint to wet or damp surfaces, surfaces exposed to hot sun, or during cold or frosty weather when temperature is below freezing or predicted to fall below freezing.

1.05 SYSTEM DESCRIPTION

A. To establish a level of quality, the painting schedule below references the Master Painters Institutes (MPI) categories. The MPI categories listed are to assist in providing general guidelines for paint type selection.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
- C. All paint shall be delivered to the site in manufacturer's sealed containers. Each container shall be labeled by the manufacturer. Label shall include type of paint, color of paint, and instructions for reducing. Thinning shall be done only in accordance with directions of manufacturer.
- D. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials required to achieve the finishes specified and as recommended by manufacturer whose products are used.
- E. Approved Manufacturers:
 - 1. Pittsburg Paints (P-P).
 - 2. Sherwin-Williams
 - 3. ICI

2.02 EXTERIOR PAINTING SCHEDULE

- A. Metal Galvanized (Gloss): (Acrylic Latex System), similar to MPI EXT 5.3A.
 - 1. Clean galvanized surfaces with non petroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
 - 2. Primer: DTM, 2.0-3.0 mils DFT/coat.
 - 3. Finish Coats: DTM Acrylic Coating 100 percent Acrylic, Waterborne, Semi-Gloss, 3.0 mils DFT/coat.
 - 4. Surfaces: Exterior lintels, hollow metal doors and frames.

PART 3 EXECUTION

- 3.01 SEQUENCING AND SCHEDULING
 - A. Coordinate the sequencing and scheduling of the painting to ensure the optimal application of paint without damaging adjacent surfaces.

- 1. Paint doors and frames prior to installation of door hardware.
- 2. Do not paint overhead surfaces of items which will be exposed to view when project is finished such as ductwork piping etc., until overhead work is completed.

3.02 EXAMINATION AND PREPARATION

- A. Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Examine substrates, areas and conditions, with the applicator present, under which painting will be performed for compliance with paint application requirements. Document any unsatisfactory conditions encountered (specifically damages caused by others and latent damage as defined by PDCA P1-92. Make arrangements to have unsatisfactory conditions corrected prior to painting. Do not begin painting until unsatisfactory conditions have been corrected. Starting painting will be construed as Applicator's acceptance of surfaces and conditions within that specific area.
 - 1. Schedule examination of conditions in time to allow corrective work to be undertaken without affecting the overall project schedule.
 - 2. Correct minor defects and clean surfaces which affect work of this Section.
- C. Measure moisture content of porous surfaces using an electronic moisture meter. Do not apply finishes unless moisture content is less than 12 percent.
- D. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
 - 1. Provide barrier coats over incompatible primers or remove and reprime.
 - 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
 - 4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations. Shop Primed Steel Surfaces and Existing Steel to be painted: Sand and scrape to remove loose primer and rust, hand clean, clean surfaces with solvent. Prime bare steel surfaces.
 - 5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods. Apply coat of etching primer.
- E. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
- F. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.
- G. Masking: All color changes shall be cleanly masked to achieve sharp transition of color. Verify exact location of color changes with Architect.

3.03 APPLICATION

A. General Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions. Apply materials under adequate illumination, evenly spread and smoothly flowed on without runs or sags. Apply materials at manufacturer's recommended wet film thicknesses to achieve manufacturer's recommended dry film thickness (DFT) or as otherwise specified. DFT's and number of coats indicated are minimums; provide additional thickness and/or additional coats where recommended by manufacturer. Thoroughly dry coats before applying succeeding coats; follow manufacturer's recommended drying times between coats as minimum.

2. Doors: Paint tops, bottoms and both faces of all hollow metal doors and other doors unfinished doors.

3.04 CLEANING

- A. As work proceeds, promptly remove finishes where spilled, splashed, or spattered.
- B. Upon completion, paint spots shall be removed from glass, hardware and other surfaces.
- C. Solvents or cleansing solutions, and method used to clean finish surfaces shall not cause damage thereto. When in doubt, verify proper method of removing paint spots from finish surfaces before attempting to remove them.
- D. Rubbish and accumulated materials shall be removed from premises.

SECTION 10 4400

FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.01 SUMMARY

- A. Firefighting devices, except items or devices connected to a fire protection system:
 - 1. Portable fire extinguishers.
 - 2. All labor, material and components required for a complete installation of fire protection specialties not specified under another section but required for the work whether or not specifically referred to herein.
- B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.02 SUBMITTALS

- A. Submittal shall specifically include:
 - 1. Product Data: For all manufactured items in this Section

1.03 QUALITY ASSURANCE

- A. Integrity of fire rated walls must be maintained with installation of recessed or semi-recessed fire extinguisher cabinet.
- B. Fire Extinguishers:
 - 1. Fabricate and label fire extinguishers to comply with NFPA 10, "Standard for Portable Fire Extinguishers".
 - 2. Provide extinguishers listed and labeled by FM.

PART 2 PRODUCTS

2.01 FIRE EXTINGUISHERS AND CABINETS

- A. Approved Manufacturers (Subject to compliance with requirements):
 - 1. Larsen's Manufacturing Company
 - 2. J.L. Industries, Inc.
 - 3. Potter-Roemer.

B. Surface Mounted

- 1. Mounting: Metal bracket mounted
- 2. Extinguisher: 5 lb., multipurpose dry chemical type.
- Identification: Provide lettering to comply with authorities having jurisdiction for letter style, color, size, spacing, and location. Locate as directed by Architect. Text: "FIRE EXTINGUISHER" in red letter vinyl decal applied to wall surface above extinguisher.
- 4. Application: Typical wall mounted fire extinguishers indicated on Drawings.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install fire extinguishers in accordance with manufacturer's instructions.
- B. Install units level in wall openings. Leave in proper working order.

SECTION 13 3613

PREFABRICATED STEEL STRUCTURES

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

This section includes the observation/video tower to be located on the band practice field.

All related materials and components for the above-named specialty items not specified under another section but required for the work whether or not specifically referred to herein.

Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.02 REFERENCED STANDARD

AWS D1.1

1.03 SUBMITTALS

Submittal Package: Vendor to supply one .pdf copy of the submittal package, which consists of a set of SEALED elevation, frame, roof and base drawings (in addition to the drawings and instructions in the base kit).

1.04 OPERATION AND MAINTENANCE

Include data on warranty and regular maintenance.

1.05 REGULATORY REQUIREMENTS

OSHA 1910.25

1.06 QUALITY ASSURANCE

- A. Vendor shall be a firm engaged in the supply of observation towers to educational institutions.
- B. Manufacturer shall be a firm engaged in the fabrication of steel assemblies in the United States.
- C. Vendor and Manufacturer shall each have a minimum of 5 years' experience in A & B, respectively.

1.07 FIELD CONDITIONS

Vendor is not responsible for field measurement but will be provided access to the project site.

1.08 WARRANTY

Submit a standard warranty, stating that observation tower is guaranteed for one year against defects in materials and workmanship. Vendor guarantee does not cover normal wear and tear, improper handling, any misuse, or any defects caused by vandalism or subsequent abuse.

PART 2 PRODUCTS

2.01 VENDOR

Approved product (all others must be approved in advance of bid): Tower model FWS28 (628-29S) – by Educational Steel Products, LLC, 765-534-4092 - www.fieldtowers.com

2.02 MATERIALS Prefabricated Steel Personnel Tower:

- A. Provide a complete, integrated set of mutually dependent components that form a completely assembled, prefabricated steel personnel tower.
- B. Provide drawings and instructions, along with all embedded components for the concrete slab:
 - 1. Anchor bolt/rebar assembly
 - 2. Installation jig
 - 3. Precut rebar for the grid with chairs and verticals
 - 5. Rebar tie wire with tie tool
- C. Tower shall be capable of withstanding structural and other loads without failure. Project includes structural framing, stair landings, treads, stringers, handrails, platform railings and panels, gate fabric and hardware.
 - 1. Main Frame: Structural steel tubing and angle iron
 - 2. Platforms: Diamond grip-strut treads
 - 3. Side railings: Galvanized expanded metal in-fill
 - 4. Safety items:
 - a. OSHA-compliant caution signage on all levels.
 - b. Safety chain on top level.
 - c. Limited-access grates to nominal 12'.
 - d. Gate with padlock.
- D. Model FWS28 (628-29S): Include all materials and labor to fabricate a 28-foot fixed viewing tower with stairs, which is to be bolted onto a concrete pad utilizing a welded embedded assembly provided by the same vendor as the tower.
- E. Coatings: Finish exposed metal frame surfaces with a minimum of two coats of Rustoleum 9800 series DTM urethane in a ®Pantone or national brand color: (to be determined) for the frame. All other exposed surfaces to be galvanized.
- F. Viewing levels: Three (3) two-person levels (at 12', 20', & 28') facing the practice field AND three (2) two-person levels (at 8', 16', & 24') opposite the field (ignore if not needed).
- G. Capacity: Maximum allowed by local authorities...not to exceed two per front level.
- H. Roof: Provide manufacturers standard
- I. Overall dimensions: Approximately 5'-10" X 9'-81/2" X 31'-6"

- J. Limited Access: Expanded metal grates to enclose up to approximately 12'. Nominal 8' gate one half of narrow end of structure opposite the field.
- K. Wind rating: 115 m. p. h. when the specified floating ballast slab is provided. On normal (2500# bearing) soil, the footprint to obtain this wind rating is 11' X 11' X 18"

2.03 FABRICATION

Prefabricated: No field welding shall be performed.

PART 3 EXECUTION

3.01 DELIVERY

Delivery to job site is to be included. Adequate ingress/egress is to be provided by others.

3.02 INSTALLATION

By others, consists of a crane with operator and signaler/rigger to erect the unit and labor to apply fasteners to the 16 anchor bolts.

3.03 CLEAN AND ADJUST

Tower is to be fully assembled by vendor prior to delivery.

Clean, adjust, touch up paint and leave ready for school use.

SECTION 26 0500

GENERAL ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the following:
 - 1. General electrical installation requirements.
 - 2. General standards and codes.
 - 3. Workmanship.
 - 4. Coordination.
 - 5. Sleeves for raceways and cables.
 - 6. Mounting heights.
- B. Related Documents: The provisions of the General Conditions, Supplementary General Conditions, and the Sections included under Division 01 are included as a part of this Section as though bound herein.

1.02 GENERAL STANDARDS / CODES

- A. The applicable provisions of the following standards shall govern. All electrical equipment must contain UL label and be manufactured and assembled in the USA.
- B. All work shall be installed in strict accordance with the latest edition of all applicable codes including (but not limited to) the following codes and standards.
 - 1. National Electrical Code, NFPA 70.
 - 2. Life Safety Code, NFPA 101.
 - 3. Other Provisions of NFPA as applicable.
 - 4. Local Electrical Codes.
 - 5. Local utility company requirements.
 - 6. ADA/ADAAGrequirements.
 - 7. ASME.
 - 8. Ohio Building Code.

1.03 PERMITS AND FEES

A. Obtain and pay for all permits required by all laws and regulations or public authority having such jurisdiction. File drawings necessary to obtain permits.

1.04 SUBMITTALS

- A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 01 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in Division 01.
- B. Submittal shall specifically include:
 - 1. Product Data for each type of material specified.
 - 2. Certified test reports showing compliance with specified performance characteristics.
 - 3. Manufacturer's installation instructions.

1.05 GENERAL REQUIREMENTS

- A. Furnish and install all necessary hangers, supports, straps, boxes, fittings and other similar appurtenances not indicated on the Drawings but which are required for a complete and properly installed system consistent with the architectural treatment of the building.
- B. The Contractor shall be responsible for acquiring all pertinent information regarding peculiarities and limitations of space available for installation of materials and apparatus under this contract, and see that all equipment necessary to be reached from time to time for operation and maintenance are made easily accessible. Clearances, when possible, shall be greater than those required by code. Code required clearances shall always be maintained.

- C. Refer to Architectural Drawings to verify all building dimensions. The Contractor shall immediately inform the Architect in writing of any conflicts and discrepancies regarding the installation of any items.
- D. The Contractor shall be responsible to ensure that all equipment the Contractor proposes to install in lieu of specified equipment will fit in available space. The Contractor shall be responsible for any additional costs associated with relocation of other Trade's equipment caused by this change.
- E. All electrical work installed in finished areas shall be concealed. All electrical work installed in unfinished areas may be exposed at the discretion of the Owner's representative. Where exposed conduit and boxes are installed in areas which are already finished, such work shall be painted by the electrical contractor to match adjacent surfaces as directed in field.
- F. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for electrical installations. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work.
- G. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Install all equipment and materials in strict accordance with manufacturer's written instructions.
- H. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and architectural/structural components.
- I. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. Connect equipment for ease of disconnecting, with minimum of interference with other installations.
- J. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.
- K. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.
- L. Branch subfeeder circuits shall be installed as shown on the plans. The symbols used to indicate the purpose of which the various outlets are intended are identified in the Legend.
- M. No wire size smaller than No. 12 shall be used for any branch circuit unless otherwise noted on plans for control circuits. Larger sizes shall be used where required and/or indicated on the plans. Minimum conduit size shall be 3/4".
- N. Device or fixture outlets shall not be installed directly back to back, where located on opposite sides of common walls. Outlets shall be offset by at least two feet.
- O. All wires shall be run continuous from outlet to outlet and all joints shall be properly spliced. Insulation value of joints shall be 100% in excess of that of the wire. Mechanical wire splicers may be used. The conductors terminating at each wired outlet shall be left not less than 8" long at their outlet fittings to facilitate installment of devices of fixtures.
- P. Materials installed shall be new, full weight, of the best quality. All similar materials shall be of the same type and manufacturer. All materials, apparatus and equipment shall bear the Underwriter's Laboratory, Inc. label where regularly supplied.
- Q. Contractor is responsible for the safety and good condition of the materials and equipment installed until final acceptance by the Owner. Materials shall be stored to prevent damage or weathering prior to installation.

- R. The quantity or quality level shown or specified shall be the minimum provided or performed. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Should there be a conflict between the plans and specifications, the greater quantity or better quality shall be furnished.
- S. Tighten electrical connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified by applicable UL Standards. Accomplish tightening by utilizing proper torquing tools, including torque screwdriver, beam-type torque wrench, and ratchet wrench with adjustable torque settings. Ensure that sealing grommets expand to form watertight seal.
- T. Upon completion of installation of equipment and electrical circuitry, energize circuitry and demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.
- U. Prior to energizing, check installed wires and cables with megohm meter to determine insulation resistance levels to assure requirements are fulfilled. Prior to energizing, test wires and cables for proper phase to phase connections, for electrical continuity and for short-circuits. Ensure that direction of rotation of each motor fulfills requirement.

1.06 WORKMANSHIP

- A. Electrical work shall meet or exceed the standards of installation and workmanship set forth in the latest edition of the National Electrical Contractors Association publication entitled NECA Standard of Installation, except as otherwise modified in these specifications or shown on the Drawings.
- B. The Architect and Engineer reserve the right to direct the removal and replacement of any item which, in their opinion, does not present an orderly, neat or workmanlike appearance, or which does not comply with the contract drawings or these specifications. Perform such removals or replacements when directed in writing by the Architect and at the Contractor's expense.
- C. The Contractor, insofar as the work is concerned, shall at all times keep the premises in a neat and orderly condition, and at the completion of the work shall properly clean up and cart away debris and excess materials.
- D. The location of items shown on Drawings is approximate and the Architect shall have the right to relocate any item before it is installed, and without additional cost,
- E. Marks, dents or finish scratches will not be permitted on any exposed materials, fixtures or fittings. Inside of panels and equipment boxes shall be left clean.

1.07 DRAWINGS

- A. The Drawings accompanying these Specifications are complementary each to the other and what is called for by one shall be as if called for by both.
- B. Consult all Contract Drawings which may affect the location of equipment, conduit and wiring and make minor adjustments in location to secure coordination.
- C. Wiring layout is schematic and exact locations shall be determined by structural and other conditions. This shall not be construed to mean that the design of the system may be changed; it refers only to the exact locations of conduit and equipment to fit into the building as constructed and with the coordination of conduit and other equipment with piping and equipment included under other divisions of the Specifications.
- D. Coordinate layout of work with other trades. Make minor adjustments in location required for coordination. Locations of structural systems, heating work, fire protection and plumbing lines shall take preference over locations of conduit lines where conflict occurs.

E. Other than minor adjustments shall be submitted to the Architect for approval before proceeding with the work.

1.08 COORDINATION

- A. Drawings are diagrammatic indicating design intent and indicating required size, points of termination and, in some cases, suggested routes of raceways, etc. However, it is not intended that drawings indicate fully coordinated conduit routing, all necessary offsets, etc. All ductwork, piping, conduit, raceways, cable assemblies, etc. shall be run as straight as possible and symmetrical (perpendicular to or parallel with) with architectural items. Work installed diagonal to building members shall not be permitted. The contract document drawings are an outline to indicate the approximate location and arrangement of ductwork, piping, equipment, outlets, raceways, cables, etc.
- B. The Electrical Contractor shall work in harmony with all building contractors and sub-contractors, so as not to cause any delays in pouring concrete, building masonry walls, etc. The location of risers and branch conduits are approximate, but owing to the lack of space in some instances, the all trades must work in harmony to insure space and satisfactory arrangement for all work to be installed under this contract. The Electrical Contractor shall consult the Architectural, Plumbing, HVAC and Structural plans in all instances before installing electrical work so that electrical work will not interfere with those trades.
- C. The Electrical Contractor shall participate in coordination efforts and in preparation of coordination drawings prior to fabrication or installation of any equipment, materials, etc. Coordinate actual clearances of all installed equipment. Exact location of electrical outlets, lighting fixtures, conduits, raceways, equipment, cable assemblies, applicable devices, etc. and of mechanical equipment, piping, ducts, fixtures, diffusers, grilles, louvers, dampers, etc., shall be coordinated well in advance by all affected contractors so there will be no interferences at installation between the various trades. Ensure that work of all trades, as well as working clearances, in electrical rooms or spaces complies with NEC Article 110.
- D. Conflicts in equipment and materials shall be corrected prior to installation. Should there be a conflict with drawings of other trades, this contractor shall work with the trades to correct the conflict while coordinating the project (prior to installation). If the conflict cannot be resolved, refer the matter to the owner's representative for a final decision as to method or material. Any work installed or equipment placed in position by this contractor creating a conflict shall be readjusted to the satisfaction of the Owner's Representative at the expense of this contractor.

PART 2 PRODUCTS

2.01 SLEEVES FOR RACEWAYS AND CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- C. Sleeves for Rectangular Openings: Galvanized sheet steel.
 - 1. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches and no side more than 16 inches, thickness shall be 0.052 inch.
 - b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches and 1 or more sides equal to, or more than, 16 inches, thickness shall be 0.138 inch.

PART 3 EXECUTION

3.01 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
- B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- E. Cut sleeves to length for mounting flush with both surfaces of walls.
- F. Extend sleeves installed in floors 2 inches above finished floor level.
- G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.
- H. Seal space outside of sleeves with grout for penetrations of concrete and masonry
 - 1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.
- I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants.".
- J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."
- K. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boottype flashing units applied in coordination with roofing work.
- L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

3.02 FIRESTOPPING

A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly.

3.03 HEIGHT OF BOXES

- A. Outlet mounting heights as indicated on the plans are approximate to be used for bidding purposes only. The exact mounting height (and locations) of outlets shall be determined in the field with relation to architectural detail and equipment being served. It shall be the responsibility of the Electrical Contractor to coordinate outlet location with equipment, with furniture plans and with architectural elevation plans. Where mounting heights are not detailed or dimensioned, contact the Owner's Representative for direction.
- B. Prior to rough-in, coordinate final mounting heights of all system outlet boxes in field with Owner's Representative. Height of boxes from finished floor to center of boxes shall be as follows, unless directed otherwise in field or otherwise noted on electrical plans or architectural plans. Height of boxes dimensioned from ceiling as given above apply to rooms having ceilings 9' or less. In rooms having higher ceilings, these outlets shall be located as directed in the field.

Height above finish floor
3'-8" (verify and match counter receptacle heights)
4'-0"
3'-8" (verify)
1'-6" to bottom of box
4'-0"
4'-0"
6'-0" to top of panel
As noted on plans or as directed by Architect
4'-0"
Per Manufacturer's literature
t As directed by Architect

3.04 PROTECTION OF ADJACENT WORK

A. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent finished areas and/or other system components. During cutting and patching operations, protect adjacent installations. Remove protection and barriers after demolition operations are complete.

3.05 AFFECT ON ADJACENT OCCUPIED AREAS

- A. Locate, identify, and protect electrical services passing through demolition areas and serving other areas outside the demolition limits. Maintain services to areas outside demolition limits. When services must be interrupted, install temporary services for affected areas.
 - B. It is recognized that there may be some conduit systems rendered inactive by demolition, causing disconnection of "downstream" outlets, etc. It shall be the responsibility of the Electrical Contractor to investigate these types of conditions (for all systems) prior to demolition. Provide all necessary corrective electrical work prior (including conduit, boxes, wiring, connections, etc.) to demolition to ensure that such "downstream" devices remain permanently active throughout demolition, new construction and after project completion.
 - C. All work and system shutdowns shall be carefully coordinated in advance with Owner's Representative and all affected trades so that normal building activities and other construction trades are minimally affected. All required electrically related demolition and/or new construction work, which will affect any and all occupied areas (including those which are located outside the immediate area of project work) shall be performed at special times if/as directed by Owner's Representative in field.
 - D. Determine in field which of the existing branch circuits will remain active. Reconnect (or maintain in operation) and schedule same as required. Re-type panelboard directories for all panelboards affected by this project. Where applicable ensure that all reconnected shared neutrals are properly balanced with the right phase conductors. Also, ensure that insulation for reconnected conductors is properly color-coded; phase tape alone shall not be acceptable.
 - E. All existing systems and components shall remain fully operational in all occupied spaces during all occupied periods.

3.06 PRE-EXISTING CODE VIOLATIONS

A. All existing wiring, conduit, etc. which is accessed and/or used under this project shall be inspected and brought into compliance with current NEC by the Electrical Contractor. This shall apply only to the extent that such work is uncovered in the immediate project areas affected by demolition and/or new construction, and only to the limited extent that it applies to pre-existing general installation methods (i.e. a missing junction box plate, an open junction box knockout, minor conduit re-anchoring, minor exposed wiring/connections, re-supporting of junction boxes, etc.).

B. If more extensive code or safety violations are discovered by the Electrical Contractor, they shall be immediately brought to the attention (detailed in writing) of the Owner's Representative along with the contractors proposed cost for corrections and impact (if any) on the construction schedule.

SECTION 31 2000

EARTH MOVING

PART 1 GENERAL

1.01 SUMMARY

A. This Section Includes:

- 1. Grading, excavation, embankments
- 2. Sedimentation and erosion control
- 3. Earth moving for foundations, structures, pavement, ditches, culverts, drains, utilities, etc.
- 4. Soil stabilization and treatment
- 5. Rock excavation
 - a. Removal of identified and discovered rock during excavation.
 - b. Incorporating removed rock into fills and embankments.
- 6. Staking out of the Work
- 7. Topsoil Placement and Finish Grading
- 8. All earth moving work and related materials not specified under another section but required for the work, whether or not specifically referred to herein.
- B. Related work in other Sections:
 - 1. Section 03 3000, Granular fill under slabs-on-grade
 - 2. Section 32 1216, Asphalt Pavement base
 - 3. Section 32 1313, Concrete Pavement base
- C. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.02 QUALITY ASSURANCE

- A. Requirement of Regulatory Agencies: All work shall conform to regulations, codes, safety requirements, ordinances, and laws of federal, state, and local governing bodies having jurisdiction.
- B. Tolerances
 - 1. Top Surface of Exposed Subgrade: Plus or minus 1".

2. Finish Grading: Adjacent to buildings, fine grade to within 1/2" of required grades. Elsewhere, fine grade to within 1" of required grades. Slopes between all lines and grades to be smooth and uniform.

- C. Testing: The services of a Special Inspection/Testing Agency will be engaged for the making of tests to determine the moisture-density relationships, and suitability of materials for compaction, for inspection of the site preparation, and for field testing to verify the proper placing, and compaction of the fill. These services will be provided by the Owner. General Contractor shall schedule inspections.
- D. Definitions: For the purposes of this Specification, the following Definitions shall serve as clarification:
 - 1. Earthwork Cut and Fill: Moving of soils on site to change the sub-grade from what currently exists to the designed condition.
 - a. Cut: Areas where the existing grade is at a higher elevation than the required sub-grade. Removal of soil is required to achieve the designed grade. For this project, all cut required to achieve the designed sub-grade is part of the Base Bid Work. Soil from cut areas may be re-used in fill areas of the site per the direction/approval of the Geotechnical Engineer.
 - b. Fill: Areas where the existing grade is at a lower elevation than the required sub-grade. Addition of soil is required to achieve the designed grade. For this project, fill soil will consist of soil (from cut areas of the site). Supplemental fill (as required) may be imported. For this project, all fill from the existing grade to the designed sub-grade is part of the Base Bid Work. Isolated areas of minor undercutting of unsuitable soils should be expected at fill locations and should be considered part of the Base Bid Work.

- 2. Undercut: Areas requiring significant additional removal of soil beyond the required cut. Areas/quantities of undercut will be identified in the field by the Owner's Testing Agent. Isolated areas of minor undercutting of unsuitable soils should be expected at earthwork locations and should be considered part of the Base Bid Work. Significant areas of undercutting will be considered extra work and will be handled via Change Order. Undercut material shall be removed from site.
- 3. Import: Soil obtained from an approved off-site borrow location.
- 4. Export: Soil required to be removed from the Site.
 - a. Grading: All excess or surplus soil shall be exported from site and shall be considered as part of the Base Bid Work.
 - b. Spoils: Undercut areas of unsuitable soil, trench excavations, and footing/grade beam excavations shall be considered "spoils" and shall be removed from site by the Contractor creating the spoils. All such export is part of the Base Bid Work.

1.03 JOB CONDITIONS

A. Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services in operation. Repair damaged utilities to satisfaction of utility owner.

B. Protection:

- Drainage: Drainage of the area shall be maintained in good order. Existing drains, culverts, ditches, and sewers shall be kept clean and operating during the construction operations. All areas shall be sufficiently bladed to grade and cross-section to provide drainage at all times. Protect the existing storm sewer culverts and inlets from contamination by the use of silt fences, straw bales or other protection.
- 2. Compaction Areas: The surface of unfinished fills shall be bladed smooth to a crown or grade at the conclusion of each day's work or before shutdown for any cause, to permit the runoff of water.
- 3. Protected Vegetation: Trees, bushes, shrubs, or growth designated to remain shall be protected and saved from harm during the progress of the work.
- 4. Existing Features: All features intended to remain on the site shall be protected from damage.
- 5. Erosion Control: Shall be installed in strict accordance with the local and State Standards before any earth moving activities begin and maintained throughout construction.
- 6. Building Pad Subgrade Protection: Contractor shall protect the Building Pad subgrade as required during Construction.

C. Rock

- 1. Test borings and other exploratory operations may be made by Contractor at no additional cost to the Owner.
- 2. Immediately report any discrepancy between Contract Documents and amount and type of rock to be removed to the Architect.
- 3. Environmental Requirements: Determine all environmental effects associated with proposed rock removal Work and safeguard those concerns as regulated by law and authorities having jurisdiction by approved methods.

1.04 SUBMITTALS

- A. Submittal shall specifically include:
 - 1. Product Data: For each type of geotextile and fill material.

PART 2 PRODUCTS

2.01 EXCAVATION AND FILL MATERIALS

A. All aggregates shall be 100 percent crushed and natural aggregate. Aggregates used for subsurface storage of storm water or for use with underdrains shall be washed limestone, washed gravel, or river rock. In all cases the aggregates shall be 100 percent crushed.

- B. Drainage Fill: Drainage fill shall be #5, #56, or #57 in accordance with the Ohio Department of Transportation Standard Specifications. Drainage fill shall be clean and washed gravel.
- C. Topsoil: Shall be fertile, friable, natural loam, surface soil, reasonably free of subsoil, clay lumps, brush, weeds, and other litter or stones larger than 1/2 inch. Topsoil shall have pH range of 6.0 to 7.5, 5 percent organic material minimum.
 - 1. Topsoil Depth: Redistribute stockpiled topsoil on site according to the following guidelines:
 - a. Provide 6 inches minimum topsoil in excavated areas.
 - b. Re-distribute remainder of topsoil evenly in lawn areas up to a depth of 6"
 - c. If additional topsoil remains, increase depth of topsoil evenly across the site.
 - 2. Topsoil Source:
 - a. Existing on-site topsoil: Stockpiled from stripping, cleared of debris and rocks over 1/2", amended as required.
- D. Topsoil amendments and fertilization: See Section 32 9200.
- E. Sand: ASTM C33; Clean, general purpose sand, free of organic and deleterious materials.
- F. Subsoil: Excavated material, graded free of lumps larger than 6", rocks larger than 2", and debris.

2.02 BACKFILL AND FILL MATERIALS

- A. Backfill and Fill Material: Provide soil materials for backfill and fill, free from rock or gravel larger than 2 inches, in any dimension, debris, waste, frozen material, vegetable or other deleterious matter. All materials shall be approved prior to use.
 - 1. Excavated material meeting the above requirements may be used for fill, subject to approval.
- B. Engineered Fill: Graded mixture of gravel, crushed stone, and sand with 90% passing a 1-1/2inch sieve and not more than 12% passing a No. 200 sieve.
- C. Fill Types
 - 1. Type A Coarse gravel: Pit run, or Crushed, natural stone; free of shale, clay, friable material, sand, debris; graded within the following limits:
 - a. Minimum Size: 1/2 inch
 - b. Maximum Size: 2 inch
 - 2. Type B Pea Gravel: free of clay, shale, organic matter;
 - a. Minimum Size: 1/4 inch
 - b. Maximum Size: 5/8 inch
 - 3. Type C Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter.
 - 4. Type D Subsoil: Reused, free of rock larger than 2 inch size, debris and organics.
 - 5. Type E 3/4" to 1" diameter round washed graded gravel.
 - 6. Type F Clean Sand: Washed white sand.
 - 7. Type G #10 Limestone Screenings.
- D. Fill Schedule
 - 1. Backfill of trenches: Type A fill (except where concrete is specified herein).
 - 2. Backfill indicated to be granular: Type B fill.
 - 3. Fill at building pad and paved areas: Type D fill and Type A fill.
 - 4. Bedding fill under pipes: Type C fill.

PART 3 EXECUTION

- 3.01 EXAMINATION AND PREPARATION
 - A. Identify required lines, levels, contours, and datum. Staking out of the work shall be done by the GC, using a registered surveyor who shall provide all necessary stakes, batter boards, lines, etc., and shall establish grades required from determined bench marks. The cost of surveying shall be included in the General Contract Bid. Identify and flag utility locations. Notify utility company to remove and relocate utilities as appropriate.

B. Notify Architect of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

3.02 SUBSOIL EXCAVATION

- A. Excavate subsoil required for construction operations, and other Work. Excavate to elevations and dimensions shown. Excavation consists of removal and disposal of material encountered when establishing required finish grade elevations. Excavations shall be made in accordance with the lines and grades established on the Drawings. Excavated materials shall be classified and approved prior to use in structural fills. Unless specifically shown otherwise, all permanent cut slopes in soil shall not be steeper than 2 horizontal to 1 vertical. Slope banks to angle of repose or less. Maintain excavations in safe conditions. Take precautions to prevent slides, cave-ins, etc.
- B. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be at Contractor's expense. Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Architect.
- C. Water Management: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
 - Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, sumps, suction and discharge lines, and other dewatering system components necessary to convey water way from excavations.
 - Convey water removed from excavations and rain water to collecting or runoff areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.
 - 3. Do not allow water to saturate building pad or pavement sub-base areas while under construction. Contractor shall take all means necessary to protect the building pad and pavement sub-base areas from water damage during construction including (but not limited to) construction of temporary swales around building pad, providing temporary sumps, providing pumps at multiple locations, sequencing construction activities to minimize accumulation of water, sloping areas to provide positive drainage (and removing slopes as required), and sealing off exposed areas during construction process.
 - 4. Prior to start of Construction, Contractor shall provide a Water Management Plan to the Architect for review and coordination. This Plan shall outline the Contractor's proposed means and methods of water management for the site including excavation, building pad and pavement water control as well as erosion control installation and maintenance plan. This plan shall be periodically updated as conditions on the site dictate.
- D. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage. Locate soil materials away from edge of excavations.
- E. Excavation for Trenches: Dig trenches for storm sewers, drain structures and other utilities to width required for particular item to be installed, sufficiently wide to provide working room and allow for inspection.
 - Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups. Hand trim excavation and leave free of loose matter.
 - 2. Where rock is encountered, carry excavation 6" below required elevation and backfill with a 6" layer of crushed stone or gravel prior to installation of pipe.
 - 3. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe. Support pipe during placement and compaction of bedding fill.

- 4. Do not backfill trenches until tests and inspections have been made and backfilling authorized by Architect. Use care in backfilling to avoid damage or displacement of pipe systems.
- 5. Backfill trenches with concrete where trench excavations pass within 18" of column or wall footing and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing. Backfill trenches to required contours and elevations using Type A fill material. Place and compact Type A fill materials as for backfilling.
- 6. Soil from trench excavation shall be removed from site by Contractor installing trench.
- F. Cold Weather Protection: Protect excavation bottoms against freezing when temperature is less than 35° F.

3.03 ROCK EXCAVATION

- A. Rock excavation consists of removal and disposal of materials encountered that cannot be excavated with a 3/4 cubic yard capacity power shovel without drilling, or requiring use of special equipment, except such materials that are classified as earth excavation.
 - 1. Typical of materials classified as rock are boulders 1/2 cu.yd. or more in volume, solid rock, rock in ledges, and rock-hard cementitious aggregate deposits.
 - 2. Intermittent drilling or ripping performed to increase production and not necessary to permit excavation of materials encountered will be classified as earth excavation.
- B. Perform rock excavation in a manner that will produce material of such size as to permit it being placed in embankments in accordance with specifications. Remove rock to limits indicated. Remove loose or shattered rock, overhanging ledges and boulders which might dislodge.
- C. Rock Excavation Mechanical Method:
 - 1. Excavate for and remove rock by mechanical method. Drill holes and utilize expansive tools and wedges to fracture rock. The use of explosives is not permitted.
 - 2. Cut away rock at excavation bottom to form level bearing. Remove shaled layers to provide sound and unshattered base for foundations.
 - 3. In utility trenches, excavate to 6" below invert elevation of pipe and 24" wider than pipe diameter.
 - 4. Remove shaled layers to provide sound unshattered base for footings and foundations.
 - 5. Re-use excavated rock materials on-site in accordance with specifications.
 - 6. Remove excavated rock materials not re-used off-site.

3.04 BACKFILLING AND GRADING

- A. Preparation for Filling/Backfilling: After removal of all visible organic and undesirable material, the areas which are to receive compacted fill, or which are at the approximate required subgrade elevation, shall be proof-rolled to locate soft or yielding areas. Proofrolling shall be done in accordance with the procedures recommended in the Geotechnical Report and under the direction of the Owner's Testing Agency. Any soft, loose, or excessively yielding material encountered shall be stabilized, or removed and replaced with inert controlled fill by this Contractor.
- B. Backfilling/Grading General:
 - 1. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces. Use unfrozen and unsaturated materials in accordance with paragraph 2.02.
 - 2. Place and compact soil material in continuous layers not exceeding 8 inches loose depth in accordance with recommendations of soils report.
 - 3. Maintain optimum moisture content with tolerances as acceptable to geotechnical engineer of backfill materials to attain required compaction density.
 - 4. Fine grade top surface of earth building pads as required to achieve level pad at proper elevation.
 - 5. Backfill areas to subgrade contours and elevations indicated (if required) using Type D subsoil fill and compacted in accordance with soil report recommendations.
 - 6. Proof roll the earth building pads and/or subsoil surface layer scheduled for the construction of floor slabs or paving and recompact the upper foot to compaction as indicated in the geotechnical report and as directed by the geotechnical engineer.

- Uniformly grade areas within limits of grading under this section including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such point and existing grades.
- C. Compacted Pavement/Building Pad Sub-Base:
 - All cut areas at pavement/building pad areas shall be proofrolled as previously described. If soft or yielding material are encountered in cuts, or in fills as a result of trapping water, overrolling, or improper control of construction traffic, and cannot be satisfactorily stabilized by moisture control, compaction, or other means approved by the Soils Engineer, the unstable material shall be excavated to the depth required by the Engineer. The excavation shall then be filled with suitable compacted material in accordance with the requirements outlined above.
 - 2. At the close of each day's work, or where work is to be interrupted for a period of time, the surface of the site shall be shaped to drain freely, and sealed. If, after a prolonged rainfall, the surface of the area to be filled or cut is too wet to work properly, the water-softened material shall be removed to expose workable soil. The wet material removed may be dried and reused, or disposed of. Construction traffic shall be controlled so as to prevent rutting of graded areas and to avoid overrolling of any section.
 - 3. Compaction Requirements: After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.
- D. Maintenance:
 - 1. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
 - 2. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.
 - 3. Means and Methods of maintenance and protection of graded areas are the responsibility of the Contractor. Refer to Geotechnical Report for cautions and suggestions pertaining to protection of graded areas. Areas damaged due to lack of protection by the Contractor shall be restored by the Contractor at no additional cost to the Owner.
- E. Disposal of Excess and Waste Materials: Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off Owner's property.

3.05 TIMING/COORDINATION OF EARTHWORK

A. Refer to the Scopes of Work, Site Logistics and Project Schedule for additional information regarding the timing and sequence of the earthwork for various areas on site.

3.06 FINISH GRADING OPERATIONS

A. Finish Grading Design Intent: It is the intent of the Construction Documents to provide smooth, positive draining finished grades free of high or low spots and loose or compacted areas. Any items not specifically indicated, but are required to achieve the Design Intent, shall be considered part of the work.

B. Preparation:

- 1. Remove any construction debris, large stones and other foreign matter from surfaces receiving topsoil.
- 2. Scarify subgrade surface in lawn areas to depth of 2".
- C. Application of Topsoil
 - 1. Apply topsoil for lawns to the depth indicated.
 - 2. Grade with uniform slope between grades indicated and between new and existing grades.
 - 3. Apply irrigation as required to induce settlement and melt clods.
 - 4. Fill any depressions and remove all loose material to achieve final grades, presenting a smooth, compacted, and unyielding surface.

- 5. Fine rake until the surface is smooth, friable, and of a uniform fine texture and compaction. No lumps or stones over 1" in size will be acceptable.
- D. Surface Drainage: Slope finish grades to drain surface water away from building, walks, paving, and other structures U.N.O. Slope finish grades to drain surface water to storm structures as shown on Drawings.

3.07 SOIL EROSION CONTROL

- A. Provide/maintain all sediment control indicated on the Site Drawings. In addition, provide silt fences or straw bales where site drainage discharges into adjacent culvert pipes to confine eroded silt to the project site. Erosion protection must meet the erosion control standards of authority having jurisdiction. Contractor shall take all measures necessary to control erosion including installation, maintenance and re-installation of silt fences and erosion barriers whether shown on the drawings or not.
- B. Place barriers in newly formed ditches and swales to control erosion until new grass cover is grown.
- C. At construction completion, after grass is established, remove all new and existing soil erosion control barriers and restore surfaces to finished condition.

SECTION 321216

ASPHALT PAVEMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This Section Includes:
 - 1. Standard duty asphalt concrete paving, base course and pavements above base course including conventional pavements for roads, and parking lots.
 - 2. Bituminous base course, and bituminous surface courses.
 - 3. Tack coat
 - 4. Demolition of existing asphalt paving required for the installation of new site utilities.
 - 5. All asphaltic concrete paving work (flexible pavement), and related materials not specified under another section but required for the work whether or not specifically referred to herein.
- B. Related Documents: The provisions of the General Conditions, Supplementary General Conditions, and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.02 QUALITY ASSURANCE

- A. Road and paving materials and methods shall be in accordance with the State of Ohio Department of Transportation (ODOT), "Construction and Material Specifications", latest edition. Pavement markings within public right-of-ways shall be in accordance with US Manual on Uniform Traffic Control Devices.
- B. Mixing Plant: Conform to the ODOT's Construction and Material Specifications.
- C. Installer Qualifications: Installer experienced to perform work of this section who has specialized in the installation of work similar to that required for this project.
- D. Conduct pre-installation meeting to verify project requirements and substrate conditions.
- E. Tolerances:
 - 1. Flatness: Maximum variation of 1/4 inch measured with 10 ft. straight edge.
 - 2. Compacted Scheduled Thickness: Within 1/4 inch of design thickness.
 - 3. Variation from True Elevation: Within 1/2 inch.
- F. Environmental Requirements: Do not place asphalt when ambient or base surface temperature is less than 40 degrees F or base surface is wet or frozen.

1.03 <u>SUBMITTALS</u>

- A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in Division 1.
- B. Submittal shall specifically include:
 - 1. Certified test reports showing compliance with specified performance characteristics.
 - 2. Product data for marking paint.

PART 2 PRODUCTS

2.01 PAVING MATERIALS

- A. General: Use locally available materials and gradations which exhibit a satisfactory record of previous installations. Comply with Section 401 for plant mix pavement.
- B. Base Course: See Pavement Designs Below.
- C. Surface Course: See Pavement Designs Below.
- D. Tack Coat: ODOT 407 for intermediate course.

2.02 PAVEMENT DESIGN

- A. Standard Duty Asphalt Pavement: (See site plan for locations)
 - A. Surface Course- 1 1/2" compacted thickness of Asphalt Concrete ODOT 441, Type 1, PG64-22
 - B. ODOT Item 407 tack coat, apply if time between asphalt lifts exceeds 30 days
 - C. Intermediate Course- 2" compacted thickness of Asphalt Concrete ODOT 441, Type 2, PG64-22
 - D. 8" ODOT Item 304 aggregate base
 - E. Subgrade compaction, Reference ODOT Item 204, earthwork specification 312000 and soils report

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

- A. Verify gradients and elevations of subgrade and/or base.
- B. Proof roll sub grade with fully loaded truck areas to be paved, in presence of General Contractor and Architect. If proof rolling indicates soft areas, undercut subgrade to a minimum depth of 12 inches and recompact. Refer to Section 2300. Verify subgrade is dry and ready to support paving and imposed loads.

3.02 PLACING ASPHALT PAVEMENT

- A. Conform to City of Mason, ODOT "Construction and Material Spec." for compaction. Begin rolling when mixture will bear roller weight without excessive displacement. Compact mixture with hot hand tampers or vibrating place compactors in areas inaccessible to rollers.
- B. Coat surfaces of catch basin frames with oil to prevent bond with asphaltic pavement.
- C. As directed by Architect/ Owner place asphalt pavement as follows:
 - 1. Place first asphalt concrete course to design thickness.
 - 2. Check surface by applying water and patching any low areas that do not drain freely.
 - 3. Where surface course is delayed beyond 48 hours or where binder course is contaminated, apply tack coat per ODOT 407 just prior to installation of surface course.
 - 4. Where base course is used for construction traffic without application of wearing course, base course shall be inspected by Owner's testing agency and failing areas will be identified. Failures determined to be caused by material defect will be replaced at the expense of the Contractor. Failures determined to be caused by negligent acts of certain Contractor(s) will be replaced at the expense of the negligent Contractor(s). Failures determined to be caused by normal construction traffic or sub-surface failure will be replaced at the expense of the Owner. Base course used for construction traffic shall be cleaned as required before placing wearing course. This cleaning includes but is not limited to sweeping, removal of dirt and construction debris, and/or power washing as required.
- D. Compact pavement by rolling to achieve even and smooth finish, with positive drainage, without roller marks. Hand compact in areas inaccessible to rolling equipment.
- E. At locations where new asphalt meets existing, saw cut existing asphalt straight and seal joint.

SECTION 32 1313

CONCRETE PAVING

PART 1 GENERAL

1.01 SUMMARY

- A. This Section Includes:
 - 1. Rigid cement concrete pavements above base course including conventional and modified pavements for walks, roads, and exterior mechanical equipment support slabs and service areas.
- B. Concrete paving, formwork, reinforcement, accessories, finishing and curing, and includes all concrete work and related materials not specified under another section but required for the work which shall be provided under this section whether or not specifically referred to herein.
- C. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.
- D. Related work in other Sections
 - 1. Section 03 3000, Interior Concrete and below grade exterior concrete
 - 2. Section 07 9200, Sealant at exterior concrete expansion joints
 - 3. Section 32 1216, Asphalt Pavement

1.02 SUBMITTALS

- A. Submittal shall specifically include:
 - 1. Product Data and application instructions for exterior concrete sealer and curing compound. Include confirmation from product manufacturer of compatibility of curing compound and sealer.
 - 2. Concrete mix designs shall be submitted for each type of concrete to the architect for approval in accordance with ACI 301 Section 4.2.3.4 field test data or trial mixtures.

1.03 QUALITY ASSURANCE

- A. Perform concrete reinforcing work and cast-in-place concrete work in accordance with ACI 301-96, unless specified otherwise in this Section.
- B. Concrete work in cold weather shall conform to all requirements of ACI 106.1-90 "Standard Specification For Cold Weather Concreting" and ACI 306R-88 "Cold Weather Concreting".
- C. Concrete work in hot weather shall conform to all requirements of ACI 305R-91 "Hot Weather Concreting". The air temperature, relative humidity, concrete temperature, and wind velocity shall be entered into nomograph figure 2.1.5 to determine if precautions against plastic shrinkage are required.
- D. All work in the public right-of-way shall be performed according to municipal standards. Where municipal Standards conflict with These Specifications, the municipal standards shall prevail. Contractor is required to obtain all permits required for work within the public right-of-way and perform work by appropriately licensed contractors.

PART 2 PRODUCTS

- 2.01 EXTERIOR CONCRETE MATERIALS
 - A. Standard Gray Exterior Concrete: ASTM C 150, Type 1, Portland cement: ASTM C 33, normal weight aggregates; potable water.
 - 1. Design Mix: ODOT Class C Mix, 4,000 psi.
 - 2. Slump Limit at Point of Placement: 3 inches
 - Slump limit for concrete containing high-range water reducing admixture (superplasticizer): Not more than 8 inches after adding admixture to site-verified 2 to 3 inch slump concrete.

- 3. Air Content: 5 to 8 percent.
- 4. Finish: Broom finish.
- 5. Configurations: Refer to Drawings for pavement sections, curb types/profiles, etc.
- B. Accessories
 - 1. Wire Mesh: Welded plain steel wire fabric, ASTM A 185. Required at all exterior concrete areas (typical)
 - 2. Reinforcing Bars: Deformed steel bars, ASTM A 615, Grade 60.
 - 3. Fabricated Bar Mats: Steel bar or rod mats, ASTM A 184, using ASTM A 615, Grade 60 steel bars.
 - 4. Joint Dowel Bars: Plain steel bars.
 - 5. Air Entrainment Admixture: ASTM C260, 5% to 8%.
 - 6. High-Range Water-Reducing Admixture (Super Plasticizer): Subject to compatibility with other admixtures, slump requirements, approval by Architect and used in accordance with manufacturer's recommendations, super plasticizer admixture may be used.
- C. Base:
 - 1. All concrete paving (walks, patios, drives, etc.) inside the property line shall be installed on 4" min compacted gravel (#304) base (whether or not specifically shown in pavement sections).
 - 2. All concrete paving in the public right-of-way shall be installed on base meeting municipal requirements.
- D. Concrete Curing Compound and Sealer:
 - 1. Curing Compound: Water based solution; combination curing compound, chemical hardener, and dust-proofer; compatible with concrete sealer. Acceptable Products:
 - a. Dayton Superior Day-Chem Sil-Cure (J-13)
 - b. Symons Cure & Hard
 - c. Tamms Hardener
 - 2. Concrete Sealer: 40% Silane Concrete Sealer. Acceptable Products:
 - a. Dayton Superior Weather Worker S-40 (J-29)
 - b. Symons Silane 40
 - c. Tamms Baracade Silane 40
 - 3. Contractor shall verify compatibility of curing compound and sealer.

PART 3 EXECUTION

- 3.01 EXAMINATION AND PREPARATION
 - A. Verify gradients and elevations of base. Verify compacted base is ready to support work and imposed loads.
 - B. Moisten substrate to minimize absorption of water from fresh concrete.
- 3.02 FORMING, REINFORCEMENT AND CONCRETE PLACEMENT
 - A. Place and secure forms to correct location, dimension, and profile.
 - B. Fabricate concrete reinforcing in accordance with ACI 315. Place reinforcement where shown. Unless noted otherwise patios and plazas are reinforced with wire mesh.
 - C. Place concrete in accordance with Section 03 3000. Do not disturb reinforcement or formwork components during concrete placement. Place concrete continuously between predetermined joints. Form edge of all paving true and straight. All radius to be continuous and uniform.
 - D. Provide control and expansion joints in concrete flatwork as follows:
 - 1. Sidewalks (inside the property line):
 - a. Control Joints: Provide tooled control joints at locations shown Where not shown, provide as follows:
 - i. For walks up to 8' wide, provide control joints at interval approx. equal to the width of the walk.

- ii. For walks over 8' wide, provide a continuous control joint parallel with the walk, dividing the walk width in half. Provide cross control joints at interval approx. equal to half the walk width.
- b. Expansion Joints: Provide caulked expansion joints at locations shown. Where not shown, provide at 30' o.c. max.
- c. Integral Curbs: At walks with integral curbs, provide an additional tooled control joint 6" from the face of the curb, parallel with the edge of the curb. Extend cross control joints down the face of the curb. These cross control joints may be saw-cut down the face of the curb (soon after forms are removed) to facilitate forming of the curb.
- 3. Sidewalks and Exterior Slabs:
 - a. Control Joints: Provide tooled control joints at locations shown Where not shown, provide at approx. 6' o.c. Verify layout with Architect prior to installation.
 - b. Expansion Joints: Provide caulked expansion joints at locations shown. Where not shown, provide at 30' o.c. max. Verify layout with Architect prior to installation.
- 5. Barrier Curbs (inside the property line):
 - a. Control Joints: Provide tooled or saw-cut control joints at 10' o.c.
 - b. Expansion Joints: Provide caulked expansion joints at 30' o.c.
- 6. Integral Curbs:
 - a. Control Joints: Provide tooled or saw-cut control joints to align with sidewalk joints.
 - b. Expansion Joints: Provide caulked expansion joints to align with sidewalk joints.
- E. At all expansion joints and cold joints, provide epoxy-coated smooth #4 dowels at 16" o.c.
- F. At all expansion joints, provide joint filler, held down for placement of joint sealant. Place joint filler between paving components and other appurtenances.
- G. Construct handicapped and depressed ramps as shown on drawings.
- H. Apply concrete curing compound and concrete sealer in accordance with manufacturer's instructions. Concrete sealer to be applied to all exposed concrete surfaces. Clean concrete surfaces and coordinate timing of sealer installation to allow required cure time per manufacturer instructions.
- I. Where existing street curb cuts are removed and/or replaced, provide new sidewalk and street curb to municipal standards.
- J. Where new curbs, sidewalks or curb cuts are installed within the public right-of-way, install per local authority requirements.

3.03 FINISHING CONCRETE

- A. Finish exterior concrete as follows (unless specifically noted otherwise):
 - 1. Sidewalks and Exterior slabs (inside the property line):
 - a. Light broom, perpendicular to main traffic route
 - b. Radius and trowel joint edges and restrike borders at control joints, expansion joints, edges, unless noted otherwise.
 - 2. Curbs:
 - a. Light broom
 - b. Finish to extend to edges of joints

END OF SECTION

SECTION 32 9200

TURF AND GRASSES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes requirements for application of seed, straw, fertilizer; lime and mulch; and maintenance until acceptance.
 - 1. Lawn Seeding
 - 2. Reconditioning existing lawns
 - 3. Topsoil analysis, modification, and fertilization
 - 4. Maintenance of lawns and grasses until acceptance

B. Related work in other Sections:

- 1. Section 31 2000, Earthmoving
- C. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.02 SUBMITTALS

- A. Submittal shall specifically include:
 - 1. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
 - 2. Proposed planting schedule
 - 3. Topsoil Analysis

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer, with five (5) years minimum experience with projects of similar scope and size.
- B. Topsoil Analysis: Furnish a soil analysis of the stockpiled and any imported topsoil made by a qualified independent soil-testing agency stating percentages of organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH; and mineral and plant-nutrient content of topsoil.
 - 1. Report suitability of topsoil for lawn growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil.

1.04 SCHEDULING

- A. Time of planting: Plant during one of the following periods.
 - 1. Spring Planting: March 15 through May 15.
 - 2. Fall Planting: September 1 through October 1.
 - 3. Additional planting times may be granted before and after the above dates if weather permits.

1.05 LAWN MAINTENANCE

- A. Begin maintenance of lawns immediately after each are is planted and continue until acceptable lawn is established, but for not less than the following periods:
 - 1. Seeded Lawns: Date of Contract Completion. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established at that time, continue maintenance during next planting season.
 - 2. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, etc. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf.
 - 3. Watering: Provide and maintain temporary piping, hoses, and watering equipment to convey water from sources and to keep lawn uniformly moist to a depth of 2 inches.

B. Fertilization: Apply fertilizer after first three initial mowings and when grass is dry. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft to lawn area.

PART 2 PRODUCTS

- 2.01 LAWN SEED
 - A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
 - B. Lawn/Field Area Seed Species: State-certified seed of grass species as follows, with not less than 85 percent germination, not less than 90 percent pure seed, and not more than 0.5 percent weed seed:
 - 1. Typical Lawn/Field Seeding Mixture:
 - a. Tall Fescue: Use one or more of the following cultivars: Apache II, Austin, Barlexas II, Bonanza, Chieftan II, Crossfire II, Finelawn 88, Finelawn Petite, Guardian, Jaguar II, Jaguar III, Masterpiece, Millenium, Pixie, Plantation, Rebel Jr., Rebel III, Rembrandt, Shenandoah, SR 8200, Tomahawk, Trailblazer II, Vegas.
 - b. Perennial ryegrass, Use one or more of the following cultivars: APM, Brightstar II, Calypso II, Catalina, Citation III, Imagine, Omni, Pennant II, Prelude III, Riviera II, Saturn II, Secretariat, SR 4100, SR 4200.
 - 2. Proportioned by weight as recommended by seed manufacturer for Athletic Seeding Mixture in this climate.

2.02 TOPSOIL

A. Refer to Section 31 2000.

2.03 TOPSOIL AMENDMENTS

- A. Inorganic Amendments
 - 1. Lime: ASTM C 602, Class T or O, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent.
 - Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, with a minimum 99 percent passing through No. 6 sieve and a maximum 10 percent passing through No. 40 sieve.
 - 3. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
 - 4. Aluminum Sulfate: Commercial grade, unadulterated.
 - 5. Perlite: Horticultural perlite, soil amendment grade.
 - 6. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through No. 50 sieve.
 - 7. Sand: Clean, washed, natural or manufactured, and free of toxic materials.
 - 8. Diatomaceous Earth: Calcined, 90 percent silica, with approximately 140 percent water absorption capacity by weight.
 - 9. Zeolites: Mineral clinoptilolite with at least 60 percent water absorption by weight.
- B. Organic Amendments
 - 1. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8.
 - 2. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture, with pH range of 3.4 to 4.8.
 - 3. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.
 - 4. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.04 FERTILIZER

A. Bonemeal: Commercial, raw, or steamed, finely ground; a minimum of 1 percent nitrogen and 10 percent phosphoric acid.

- B. Superphosphate: Commercial, phosphate mixture, soluble: a minimum of 20 percent available phosphoric acid.
- C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in topsoil analysis.

2.05 MULCHES

- A. Fiber Mulch (for Hydroseeding): Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; free of plant-growth or germination inhibitors; with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8.
- C. Straw Mulch: Clean oat or wheat straw well seasoned before bailing, free from mature seed bearing stalks or roots of prohibited or noxious weeds.
- D. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine finish graded surfaces, grades, topsoil quality and depth. Lawn areas shall be free of brush piles, construction debris and other deleterious materials. Do not start topsoil, seeding work until unsatisfactory conditions are corrected and after finish grading and any other work affecting ground surface is completed.

3.02 SOIL EROSION CONTROL

- A. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent areas. Erosion control measures include placement of erosion barriers such as silt fence or staked hay bales, and temporary seeding.
- B. Provide temporary seeding to stabilize soils when permanent seeding is prohibitive due to inappropriate planting season or limitations from project sequencing.
- C. Erosion-control mats/mesh:
 - 1. Install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.
 - 2. Fill cells of erosion-control mat with planting soil and compact before planting.
 - 3. Install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
 - 4. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.03 LAWN PLANTING PREPARATION

A. Soil Preparation:

- 1. Verify that topsoil has been redistributed to a minimum depth of 6". Provide increased depth of topsoil where indicated.
- 2. Limit preparation to areas which will be immediately seeded.
- 3. Till areas with existing temporary cover with a disc to a depth of 4"-5" to turn under existing cover. Finish graded areas without existing cover shall be tilled if compacted.
- 4. Remove sticks, roots, stones over 3/4" in any dimension and other extraneous matter. Grade lawn areas to a smooth, free-draining even surface with a loose, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain. Surface shall be

graded to such elevation so the lawn shall be flush with any adjacent turf area, pavement or curb.

- 5. Insure that soil at all pavement edges where lawn will be established are hand tamped to minimize settling.
- 6. Restore prepared areas to specified condition if compacted, eroded, settled, or otherwise disturbed after fine grading and prior to seeding operations.
- Topsoil Amendments: Apply amendments at the rate indicated in the Topsoil Analysis to adjust the pH to between 6.0 and 7.5. Distribute evenly by machine and incorporate thoroughly into topsoil.
- 8. Apply fertilizer to indicated turf areas at a rate equal to 1.0 lb. of actual nitrogen per 1,000 sq. ft., or as determined by the topsoil test report. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 3" by discing or other approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.

3.04 LAWN INSTALLATION

A. Seeded Lawn:

- 1. Perform seeding operations when the soil is not saturated and when winds are not excessive.
- 2. Seeding Rates:
 - a. For new lawn areas, sow seed at the rate of 7 lbs./1000 sq.ft.
 - b. For reconditioned lawn areas, sow seed at the rate of 6 lbs./1000 sq.ft.
- 3. Spread evenly sowing equal quantities in 2 directions, at right angles to each other.
- 4. Rake or drag surface of the soil lightly to incorporate seed into top 1/8" of soil. Roll with light lawn roller.
- 5. Immediately after seeding, cover areas with straw evenly spread at a rate of 2 1/2 tons per acre. Anchor straw with liquid tackifier applied uniformly at rates recommended by the manufacturer. Protect buildings, pavements, plantings and all non-seeded areas from tackifier overspray.
- B. Watering: Following lawn installation, water entire area by use of lawn sprinklers. Initial watering shall continue until the equivalent of a 2" depth of water has been applied over the entire lawn area, at a rate which will not dislodge seed. Watering methods and equipment shall not cause erosion and /or compaction of the surface. Water lawns until final acceptance, at such frequency as weather conditions require, to maintain appropriate soil moisture for seed germination and establishment.

3.05 HYDROSEEDING

- A. Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
 - 1. Mix slurry with tackifier.
 - 2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply mulch at a minimum rate of 1500-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate.

3.06 RECONDITIONING EXISTING LAWNS

- A. Recondition existing lawn areas within the project limits that are to remain unchanged, that are bare, or have been disturbed by construction operations, including storage of materials or equipment and movement of vehicles. Also recondition lawn areas where settlement or washouts occur or where minor regrading is required to correct surface drainage conditions.
 - 1. Remove topsoil containing foreign materials resulting from construction operations, including oil drippings, fuel spills, stone, gravel and other construction materials, and replace with new topsoil.
 - 2. Where substantial lawn remains, mow, dethatch, core aerate and rake. Remove weeds before seeding. Where weeds are extensive, apply selective herbicide as required. Do not use pre-emergence herbicides.
 - 3. Remove waste off-site all foreign materials.
 - 4. Till stripped, bare and compacted areas thoroughly to a depth of 6".

- 5. Apply initial fertilizers and mix thoroughly into top 4 inches of soil. Provide new topsoil as required to fill low spots and meet new finish grades.
- 6. Apply seed and mulch as required for newly seeded lawns.
- 7. Water newly seeded areas and keep moist until new grass is established.

3.07 SATISFACTORY LAWNS

- A. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
- B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

END OF SECTION