114 North Commerce Street
Hinesville, Georgia 31313
(912) 368-5664 Office
(912) 368-7206 Fax

TR LONG ENGINEERING, P.C.

1000 Towne Center Blvd.
Suite 304
Pooler, Georgia 31322
(912) 335-1046

REQUEST FOR PROPOSALS
Pursuant to O.C.G.A. § 36-91-20 et. seq.

MILLER PARK PAVILION
FOR
LIBERTY COUNTY BOARD OF COMMISSIONERS

MAY 2024

PREPARED FOR

LIBERTY COUNTY BOARD OF COMMISSIONERS
112 NORTH MAIL STREET
HINESVILLE, GEORGIA 31313

2000-64

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REQUEST FOR PROPOSALS

MILLER PARK PAVILION
FOR
LIBERTY COUNTY BOARD OF COMMISSIONERS

Sealed proposals will be received by The Liberty County Board of Commissioners at 112 North Main Street Hinesville, Georgia, until 2:00 p.m. local time Tuesday, June 11, 2024, at which time and place they will be publicly opened and read. No submitted proposal may be withdrawn after the scheduled closing time for receipt of proposals for a period of sixty (60) days.

The work to be done will consist of the construction of a new picnic pavilion with restrooms and a kitchenette.

A mandatory pre-proposal meeting will be held on Wednesday, May 29, 2024, at 10:00 a.m. local time at the Liberty County Board of Commissioners Office located at 112 North Main Street Hinesville, Georgia.

Proposals for the complete work in one or more general contracts shall be made on the proposal form provided and shall contain prices in words and figures for the work proposal. All proposals shall he accompanied by a Proposal Security drawn in favor of the Liberty County Board of Commissioners, in the amount of at least five percent (5%) of the lump sum proposal for the complete work; such Proposal Security representing that the offeror, if awarded the contract will promptly enter into a contract and furnish Performance Bond and Payment Bond as provided by law and approved by the Attorney for the Liberty County Board of Commissioners. Each bond shall be equal to one hundred percent (100%) of the contract amount. The Proposal Security shall be forfeited to the Liberty County Board of Commissioners as liquidated damages if the Offeror fails to execute the contract and provide Performance and Payment Bonds within ten (10) days after being notified that he has been awarded the contract.

Drawings and Specifications are open to public inspection at the Liberty County Board of Commissioners Office, 112 North Main Street Hinesville, Georgia 31313 and at the office of T. R. Long Engineering, P. C., 114 North Commerce Street, Hinesville, Georgia, 31313.

Copies of the plans and specifications must be obtained from T. R. Long Engineering,114 North Commerce Street, Hinesville, GA, 31313, upon receipt $150.00. Such fees represent reproduction costs and are non-refundable. Bidders must purchase a Proposal Packet to be a registered bidder. Only proposals from registered bidders will be opened.

The Owner reserves the right to reject any or all proposals and to waive informalities.

REQUEST FOR PROPOSALS
Liberty County Board of Commissioners
Miller Park Pavilion
Liberty County, Georgia

1. THE PROJECT

The Liberty County Board of Commissioners is seeking proposals from qualified firms for the Miller Park Pavilion project. The work to be done will consist of the construction of a new picnic pavilion with restrooms and a kitchenette. Any and all transactions made necessary by this RFP, as well as the Proposal Documents, shall be subject to the approval of the Liberty County Board of Commissioners (the "Board").

2. A. GENERAL INFORMATION ABOUT THE SERVICES

The successful Proposer will assume responsibility for the project by issuing a lump sum proposal for the services which shall constitute a contractual obligation. The Proposer shall be required to prepare a project schedule and will be responsible for all methods of construction, safety, and coordination of all construction work and contracts related to insure successful project completion. Minimum requirements for work to be performed are attached as **Exhibit F & Section D & E**.

B. PERMITS, INSPECTIONS, TESTING AND INSURANCE

All materials and construction shall conform to the requirements of all building codes and sanitary laws in effect in the City and/or County in which the work is performed. The Contractor shall obtain and pay for all necessary permits, inspections, tests and insurance required by law, except the cost of any permit issued by the City and/or County in which the project is performed, shall be at no cost to the contractor or the project. In addition, if applicable to this project, the Owner shall pay for all utility connection fees, tap fees, impact fees and any other fees associated with utility connection/service to this project as well as Land Disturbance/Notice of Intent fees."

3. DEFINED TERMS

In addition to the terms defined elsewhere in this RFP, the following terms shall have the meanings indicated below, which are applicable to both the singular and plural thereof.

(a) **Addenda** - Graphic or written documents issued by the Owner prior to the opening of Proposals intended to clarify, revise, add to, or delete information in the original Proposal Documents or in previous addenda.

(b) **Offeror** - One who submits a Proposal directly to Owner as distinct from a sub-offeror or sub-bidder, who submits a proposal to an Offeror.

(c) **Proposal** - A complete and properly signed offer to perform the services for the prices stipulated in the form submitted by the Offeror in accordance with the Proposal Documents.

(d) **Proposal Documents** – Shall collectively refer to this RFP, the Project Program, and any and all contracts, instruments, or other documents specifically made a part of this RFP or otherwise contemplated to be entered into between the Owner and the Successful Offeror in connection with the Project.

(e) **Successful Offeror** - The responsible and responsive Offeror whose Proposal the Owner determines to be most advantageous to Owner (on the basis of Owner's evaluation as hereinafter provided) and to whom Owner makes an award.

Additionally, for purposes this RFP, "herein," "hereby," "hereunder," hereof," "hereinbefore," "hereinafter" and other equivalent words refer to this RFP and not solely to the particular portion thereof in which any such word is used, and “including” or “include” means including without limitation.

4. RESTRICTED COMMUNICATION

From the issue date of this RFP until a Successful Offeror is selected and the selection is announced and Proposal Documents are executed, Offerors are not allowed to communicate for any reason with any employees of the Owner, the Board, or members of the Selection Committee with respect to this RFP or the Project, except for (i) submission of questions as authorized by this RFP, (ii) during the pre-proposal conference, (iii) during scheduled and authorized interviews for purposes of evaluation, and (iv) during authorized negotiations following opening of the Proposals. For violation of this provision, the Owner reserves the right to reject the Proposal of the offending Offeror.

5. SCHEDULE OF RFP EVENTS

The following Schedule of Events represents the Owner’s best estimate of the schedule that will be followed. All times indicated are prevailing times in Hinesville, Georgia. The Owner reserves the right to adjust the schedule as it deems necessary or convenient.

Deadline to register and qualify for proposal	**May 29, 2024,**	**10:00 AM**
Mandatory pre-proposal meeting	**May 29, 2024,**	**10:00 AM**
Deadline for submission of questions	**May 29, 2024,**	**5:00 PM**
Deadline for submission of proposals	**JUNE 11, 2024,**	**2:00 PM**
Selection committee concludes evaluations	**JUNE 19, 2024,**	**2:00 PM**
Project award	**JUNE 20, 2024,**	**5:00 PM**

NOTE: Offerors are hereby advised that a Mandatory pre-proposal conference will be conducted at the office of the Liberty County Board of Commissioners, 112 North Commerce Street, Hinesville, Georgia 31313 on May 29, 2024, at 10:00 a.m., local prevailing time. Attendance by offerors is required, and any proposal received from an offeror who did not attend the pre-proposal conference will not be considered.

6. PROPOSAL FORM AND CONTENT

All Proposals shall be prepared in accordance with this RFP, and shall include the following (i) a Statement of Qualification (see Sec. 16 below); (ii) a Proposal Form (see Ex. A); (iii); an Authorization to Investigate (see Ex. B); (iv) a Statement Pursuant to O.C.G.A. § 36-91-21(d) (see Ex. C); (v) Contractor Affidavit and Agreement (see Ex. D); (vi) Affidavit of Certification (see Ex. E); (vii) and (viii) any and all other items or documents required or authorized by this RFP. Offerors must be sure to execute all required exhibits specifically A-D of this package. Offerors must provide one (1) original, and two (2) hard copies of the completed Proposal for a total of three **(3) sets** of the Proposal. Each such set shall be identical and include a transmittal letter. Proposals must be typed on standard (8 ½” x 11”) paper. All Proposals shall be prepared simply, succinctly and economically, to provide a straightforward and concise description of the matters requested. Emphasis must be on completeness, relevance, and clarity of content. To expedite the review of Proposals, it is essential that Offerors follow the format and instructions set forth herein. The Proposal shall be signed as follows:

(a) A Proposal submitted by a *partnership* shall list the names of all partners and shall be signed in the partnership name by one of the authorized members of the partnership. If there is no partner who is a Georgia resident, the name and address of an entity designated to receive service of process for the partnership in Georgia must be provided.

(b) A Proposal submitted by a *corporation, limited liability Company,* or other legal entity not a partnership shall be signed under the legal name of the entity by the officer, manager, or other person(s) duly authorize to bind said entity. The name of each person signing the proposal shall be typed or printed below the signature. If not a Georgia Corporation, there must also be evidence that the corporation is authorized to transact business in Georgia.

(c) A Proposal from an *individual* who is not a Georgia resident shall provide the name and address of an entity in Georgia with the authority to accept service of process for the individual.

(d) All names must be typed or printed in ink below the signature.

(e) The address, email address, facsimile and telephone number for communications regarding the Proposal must be shown.

7. EXAMINATION OF PROPOSAL DOCUMENTS, OTHER DATA, AND PROJECT SITE:

(a) It is the responsibility of each Offeror before submitting a Proposal:

(i) To examine and study thoroughly the Proposal Documents and other related data identified in the Proposal Documents.

(ii) To visit the Project Sites to ascertain by inspection pertinent local conditions such as location, character and accessibility of the site, including existing surface conditions in the work area, availability of facilities, location and character of existing work within or adjacent thereto, labor conditions, etc.

(iii) To become familiar with and satisfy Offeror as to all federal, state, and local laws and regulations that may affect cost, progress, or performance of the services requested.

(iv) To obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examination investigations, explorations, tests, studies, and data concerning conditions at the Project Site which may affect cost, progress, or performance or the services requested or which relate any aspect of the means, methods, techniques, sequences, and procedures to be employed by Offeror, including any specific means, methods, techniques, sequences, and procedures of construction expressly required of the Proposal Documents, and safety precautions and programs incident thereto;

(v) To study and carefully correlate Offeror's knowledge and observations with the Proposal Documents and such other related data; and

(vi) To promptly notify Owner of all conflicts, errors, ambiguities or discrepancies which Offeror has discovered in or between the Proposal Documents and such other related documents.

(vii) To agree at the time of submitting its Proposal that no further examinations, investigations, explorations, tests, studies or data are necessary for the determination of its Proposal for performance of the services requested at the price proposal and within the times and in accordance with the other terms and conditions of the Proposal Documents.

(viii) To determine that the Proposal Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the services requested.

(b) The submission of a Proposal will constitute an incontrovertible representation by Offeror that Offeror has complied with every requirement of this Section 7, that without exception, the Proposal is premised upon performing and furnishing the services and materials required by the Proposal Documents and applying any specific means, methods, techniques, sequences, and procedures that may be shown or indicated or expressly required by the Proposal Documents; that Offeror has given the Owner written notice of all conflicts, errors, ambiguities, and discrepancies that Offeror has discovered in the Proposal Documents and the written resolutions thereof by Owner are acceptable to Offeror; and that the Proposal Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

8. INTERPRETATIONS AND ADDENDA

(a) All questions about the meaning or intent of the Proposal Documents are to be directed to the project architect. The Offeror shall do so in writing or by e-mail and be responsible for its prompt delivery. Interpretations or clarifications considered necessary by the architect in response to such questions will be issued by Addenda mailed or otherwise delivered (e.g., electronic mail, posting on website, facsimile, etc.) to all prospective Offerors having received the Proposal Documents. Only questions answered by formal written Addenda will be binding. The Owner nor project Architect will be responsible for any oral instructions and oral or other interpretations or clarifications not issued in writing as specified herein will be without legal effect.

(b) Subject to O.C.G.A. §36-91-20(d), the Owner expressly reserves the right to revise, amend or otherwise change, at any time, any and all of the terms and requirements for Proposals set forth herein as deemed advisable by the Owner.

(c) Questions about any aspect of the Proposal Documents or the Project shall be submitted in writing (e-mail is preferable) to:

T. R. Long Engineering, P.C.
ATTN: Trent R. Long, P. E.
114 North Commerce Street
Hinesville, Georgia 31313
trlong@trlongeng.com

(d) It shall be the Offeror's responsibility to confirm that it has received all Addenda issued by the Owner pursuant to this RFP, notwithstanding any failure in delivery or notification of said Addenda to Offeror. By submitting its Proposal, Offeror shall be deemed to have received all such Addenda and be fully apprised of their contents.

9. PROPOSAL SECURITY

(a) Each Proposal must be accompanied by appropriate security (the "Proposal Security") made payable to the Owner in an amount of five percent (5%) of Offeror's maximum estimated construction price and in the form of a proposal bond (on form attached, if a form is prescribed) issued by a surety company licensed in Georgia with an "A" minimum rating of performance. In lieu of said proposal bond, the Owner will accept a cashier's check, certified check or cash in an amount determined in accordance with the preceding sentence, payable to and for the protection of the Owner. Any Proposal submitted without said proposal bond (or an approved alternate) shall be ineligible for consideration and shall be returned to Offeror.

(b) Offerors will be required to honor their Proposals for a minimum of sixty (60) days following opening of such Proposals; provided that any Offeror that is determined by the Owner to be unlikely of being selected for award of the contract opportunity shall be released from its Proposal as soon as practicable; and the security deposited by such unsuccessful Offerors will be returned no later than sixty (60) days following opening of the Proposals, without interest or profit of any kind.

(c) If this proposal is accepted within sixty (60) days after the date set for the opening of sealed proposals and the undersigned fails to execute the contract within ten (10) days after written notice of such acceptance or if he fails to furnish both Performance and Payment Bonds from the undersigned, the obligation of the Proposal Security will remain in full force and effect and the money payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure; otherwise, obligation of the bond will be otherwise null and void.

10. SUBCONTRACTORS, SUPPLIERS, AND OTHERS

(a) Offerors are required to furnish to the Owner a listing of all subcontractors proposed to be used by said Offeror in conjunction with the project. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such subcontractor if requested by the Owner. If the Owner has reasonable objection to any proposed subcontractor the Owner may, before an award is made, request the apparent Successful Offeror to submit a substitute, in which case the apparent Successful Offeror shall submit an acceptable substitute, and said Offeror's Proposal price will be increased (or decreased) by the difference in cost occasioned by such substitution, and the Owner may consider such price adjustment in evaluating Proposals and making the contract award.

(b) If the apparent Successful Offeror declines to make any such substitution, the Owner may award the Contact to the Offeror who submitted the next most advantageous offer to the Owner that proposes to use acceptable subcontractors in connection with the Project. Any subcontractor so listed and against which the Owner makes no written objection prior to awarding the subject contract will be deemed acceptable to the Owner, subject to revocation of such acceptance after execution of all of the Proposal Documents as provided therein.

(c) The Successful Offeror shall not be required to employ any subcontractor against whom the Successful Offeror has reasonable objection.

11. SUBMITTAL OF PROPOSALS

(a) Proposals shall be submitted at the offices of the Board located at 112 North Main Street, Room 2200, Hinesville, Georgia 31313 prior to the time specified in the Schedule of RFP Events (Section 5), and shall be enclosed in a sealed, opaque envelope, marked with the Project title, and name and address of the Offeror, and other required documents. If the Proposal is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation **"PROPOSAL ENCLOSED-MILLER PARK PAVILION"** on the face of it. If proposals are delivered by U.S. Postal Services or other delivery services should be mailed to the Liberty County Board of Commissioners located at 112 North Main Street

(b) **Each Offeror is responsible for seeing that its Proposal is received by the Owner not later than the advertised time set for the submission deadline for the Proposals.**

12. MODIFICATION AND WITHDRAWAL OF PROPOSALS

(a) Proposals may be modified or withdrawn by an appropriate document duly executed (in the manner that a Proposal must be executed) and delivered to the place where Proposals are to be submitted at any time prior to the opening of proposals.

(b) Once Proposals have been opened, Proposals may only be withdrawn for appreciable error in accordance with (and as limited by) O.C.G.A. § 36-91-52, and only upon duly signed, written notice actually received by the Owner prior to award of the contract and not later than 48 hours after the opening of the Proposals, excluding Saturdays, Sundays, and legal holidays. Thereafter, that Offeror will be disqualified from further consideration.

13. OPENING OF PROPOSALS

Sealed Proposals will be opened immediately following the time required for receipt of such Proposals at the offices of the Board physically located at 112 N. Main Street, Hinesville, Georgia 31313. All sealed proposals shall be opened so as to avoid disclosure of contents to competing Offerors. **Unless otherwise stipulated by the Owner by appropriate Addendum, the attendance of Offerors at the Proposal opening shall not be required.**

14. STATEMENT OF QUALIFICATIONS

A Statement of Qualifications shall be included and made a part of the Proposal and shall be formatted as provided in Section 6 above and the other provisions of this RFP. The content of said Statement of Qualifications **must be categorized and numbered as outlined below**, and responsive to all requested information:

A. Description and Resources of Firm

A1. Basic Company Information. Provide company contact information including e-mail address, and company website (if available). Identify the location of the office from which services will be managed and this office's proximity to the Project Site. Provide form of ownership, including state of residency or incorporation, and number of years in business. Identify whether the firm is a sole proprietorship, partnership, corporation, limited liability corporation (LLC), joint venture, or other legal organizational structure.

A2. Firm History. Describe the history and growth of the firm. Provide general information about the firm's history, including disciplines and numbers and classifications of employees, and locations and staffing of offices.

A3. Litigation History. Has the firm been involved in any litigation in the past ten (10) years with clients where the firm was found responsible or paid settlement charges? List any active or pending litigation and explain its nature and current status. List any active claims against your firm or against clients where your firm is named.

A4. Involuntary Terminations. Provide information as to whether or not the firm, or member thereof, has ever been involuntarily removed from a contract or failed to complete a contract as assigned.

A5. Confirming Statement. The Offeror will issue the following statement asserting that the firm meets the minimum qualifications required to properly and adequately provide the services contemplated hereby (supporting information is requested further into the process). The signed statement shall include the following categories and read as shown below:

a.	We certify that our firm has sufficient bonding capacity as described in the RFP.
b.	Our firm has a current Commercial General Liability Insurance policy, and our firm is insurable in the following minimum amounts: Bodily injury, including death- limits of $1,000,000 for each accident. Property damage- limits of $500,000 for each accident and $1,000,000 for the aggregate of operations.
c.	Our firm will maintain Worker's Compensation insurance as required by the State of Georgia Workers Compensation statutes.

B. Provide information on the firm's experience providing services for projects and clients of similar size, function, and complexity. Describe no more than five (5) and no less than three (3) projects, in order of most relevant to least relevant, which demonstrate the firm's capabilities to perform the scope at hand. For each project, the following information shall be provided:

a.	Owner's and user's name, location and dates of project.
b.	Description of services provided.
c.	Information on successes achieved by your firm.
d.	Respective owner's and user's stated satisfaction in service from your firm. Provide any client-written letters of reference/recommendation about the firm's performance.
e.	Owner's and user's contact information (current address and phone number).

C. Statement of Suitability

C1. Provide any information that may serve to differentiate the firm from other firms in suitability for the services contemplated in this RFP. Include all unique qualifications the firm feels are especially relevant to the Project.

C2. Provide information on current and projected workloads of the firm and any potential impact to the services to be provided in connection with the Project.

C3. Provide evidence of your firm's ability to deliver the Project within the completion dates specified in this RFP with the least risk of delay or dispute.

C4. Provide information on any special, relevant, innovative or unique qualifications for the requested scope of services.

C5. Provide information on any management techniques or methodologies offered by the firm that may be particularly suitable for the required services.

D. Local Preference

Offers may be eligible to receive credit for local preference in contracting as part of this project provided that certain criteria are met. Liberty County's Local Preference in contracting requirements is included as an attachment to this request for services. Proposers attempting to claim credit under these criteria **must** be able to fully demonstrate full compliance with the policy and must execute certification of this compliance as part of the proposal package.

Please note: Execution of the certificate if not fully qualified to do so shall be grounds for automatic rejection of the proposal. (Appendix A – Local Vendor Preference Policy)

15. M/WBE PARTICIPATION

This project will require minority participation. Reference the "Liberty County Minority/Women Business Enterprise Policy" (**Appendix B**) for compliance and documents required.

1. Offerors shall submit with their proposal **a separate sealed envelope** containing all requested M/WBE forms and documentation listed in the M/WBE Policy.
2. Forms for minority participation program are enclosed at the end of **Appendix B.**
3. The project is required to minimally achieve a participation goal with respect to MBE firms of 10% and participation goal with respect to WBE firms of 3%, with a combined desired minimum participation goal for W/MBE of 13%. Contract goals will be expressed as a percentage of the total dollar amount of contract. P**roposers should pay special attention to this policy and forms provided therewith. Liberty County's MWBE compliance officer is Ms. Delisa Clift who may be reached at (912)-368-3471 or delisa@strategicbiz.co concerning questions and policy application**.

16. EVALUATION AND AWARD OF CONTRACT. The owner shall evaluate Proposals in order to obtain the most advantageous Proposal from said responsive and responsible offers. The Owner will award the contract in accordance with this procedure.

(a) **Rating of Evaluations**

Following the opening of the sealed Proposals, The Owner will evaluate all Proposals based on criteria set forth in Section 16 of this RFP, final cost associated with completion of the project and estimated time for completion. In making such evaluation, the maximum points which the Owner may assign to the evaluation criteria shall be as follows: (i) Description and Resources of Firm (up to **10 points**); (ii) Experience and Qualifications (up to **15 points**); (iii) Statement of Suitability (up to **10 points**); (iv) construction cost (up to **50 points);** (v) Project completion time (up to **15 points**) for a total possible

maximum of 100 points. An additional **10 points** maybe added for Qualified Local Vendor Preference, if applicable.

(b) Evaluation of the Proposals described in the preceding paragraph will be undertaken by the Owner through a selection panel consisting of representatives of the Owner. As soon as practicable following said evaluations, the members of the Owner, taking into consideration those same criteria relied upon by the Selection Panel, shall consider and confirm (in writing) which Proposal is the most advantageous to Owner (in its sole judgment), and, subject to its right to reject any such Proposal, the Owner will award the Proposal to such Offeror, subject to the execution and delivery by the Owner of the Project Contract.

(c) Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Proposal and to establish the responsibility, qualifications and financial ability of Offerors, proposed subcontractors, suppliers and other persons and organizations to perform and furnish the services contemplated by this RFP.

(d) The submission of Proposals hereunder shall invest offeror with no interest, right or claim of any kind with respect to the contract to be awarded. Furthermore, the Owner reserves the right to reject all Proposals in its absolute discretion for any reason whatsoever, with or without cause, and thereafter re-advertise the contract opportunity.

(e) **The Owner, in its absolute judgment, reserves the right to waive any technicality, noncompliance, or informality in evaluating Proposals or otherwise in administering the RFP process.**

17. OWNER NOT BOUND

This RFP is not an offer to contract or a solicitation of proposal, and any Proposal submitted in response hereto, regardless of whether the Proposal is determined to be the most advantageous Proposal (or is in fact awarded), is not binding upon the Owner, and does not obligate the Owner to procure or contract for any services. Neither the Owner, nor any Successful Offeror, will be bound unless and until all Proposal Documents required by the Owner are negotiated and fully approved and accepted by the Owner, and the Successful Offeror, as evidenced by said parties' signature and delivery of the Proposal Documents.

18. CONTRACT SECURITY/BONDING

When the Successful Offeror delivers the executed contract to the Owner, it must be accompanied by appropriate payment and performance bonds approved by the owner. These bonds, equal to one hundred percent (100%) of the contact sum shall be issued by a surety company licensed in Georgia with an "A" minimum rating of performance. In lieu of said bonds, the owner may accept a cashier's check, certified check, letter of credit or cash made payable to the owner in an amount equal to one hundred percent (100%) of the contract sum.

19. SIGNING THE PROPOSAL DOCUMENTS

When the Owner gives a conditional notice of award to the Successful Offeror, it will be accompanied by the required number of unsigned counterparts of the Proposal Documents required by the Owner in connection with the Project. Unless otherwise extended by the Owner, the Contractor shall, within fifteen (15) calendar days from the receipt of such documents, sign and deliver the same to the Owner, accompanied by the required payment and performance bonds.

20. LAWS AND REGULATIONS

The Successful Offeror and its subcontractors shall comply with local, State and Federal regulations, rules, order, and laws applicable to the Project.

21. CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

The Successful Offeror shall not commence work under the Proposal Documents until it has obtained all the insurance required by said Proposal Documents.

22. CONFLICT

Any conflict between the public notice advertising this RFP and the Proposal Documents made available to Offerors following such advertisement shall be controlled by the latter.

23. COSTS INCURRED BY OFFEROR

All costs incurred by Offeror in connection the Proposal, of whatever amount and nature, direct or indirect, shall be borne exclusively and completely by Offeror, and neither the Owner nor the Agency shall have absolutely no liability or obligation of any kind for such costs. **All Proposals upon receipt by the Owner shall become the property of the Owner.**

24. PUBLIC RECORDS

Subject to O.C.G.A. 36-91-21(c)(2), Offerors are advised that the contents of any Proposal and all documents and information submitted in connection therewith may be subject to disclosure as required by The Georgia Open Records Act and any and all other applicable laws, and the Offeror does hereby release and forever discharge the Owner and the Agency, and its members, officers, employees, representatives, and agents from any damage, suit, costs, or other liabilities of whatever kind arising from such disclosure. Without limiting the foregoing, Offerors are specifically advised that labeling information provided in Proposals “proprietary” or “confidential”, or any other designation of restricted use will not protect the information from public view.

25. SUBJECT TO PROVISIONS OF ACT

This RFP is made expressly subject to, and is qualified in its entirety by, all applicable provisions of the Georgia Local Government Public Works Construction Law, O.C.G.A. § 36-91-1 et seq. (the “Act”). To the extent any portion of this RFP directly conflicts with the provisions of the Act, this RFP shall be deemed modified so as to comply with said Act.

26. INTERPRETATION OF DRAWINGS AND SPECIFICATIONS:

If any person contemplating submitting a proposal for the proposed contract is in doubt as to the true meaning of any part of -the Drawings, Construction Specifications and other documents, and as to the scope of any part of the work, he must submit to the Engineer a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery in ample time for an interpretation to be issued before the proposal opening date. Interpretations of the Project Documents will be made only by Addendum; a copy of each Addendum will be mailed or delivered to each person receiving a set of the Project Documents. The Engineer will not be responsible for other interpretations of the Project Documents.

27. COMPLETE WORK REQUIRED:

The Construction Specifications, Drawings and all other documents are essential parts of the contract; requirements occurring in one are as binding as though occurring in all. Documents are intended to be cooperative, and to describe and provide for a complete work. In case of discrepancies on the Drawings, figured dimensions shall govern. In case of omissions from the Construction Specifications as to items of equipment, and materials or quantities therefore, the Drawings shall govern. It shall be the responsibility of the Offeror to call to the attention of the Engineer obvious omissions of those magnitudes which would affect the strength, adequacy, function, completeness (and cost of any part of the work, and in ample time for amendment by Addendum prior to the proposal opening date).

28. DRAWINGS:

The character, location, and essential details of the work are shown upon a set of Drawings, entitled:

MILLER PARK PAVILION
FOR
LIBERTY COUNTY BOARD OF COMMISSIONERS

The Drawings and Specifications shall form a part of the contract for the work. The Drawings shall be supplemented by working drawings as necessary. All authorized alterations affecting the requirement and information given on the Drawings shall be in writing.

29. NOTICE OF SPECIAL CONDITIONS:

Attention is particularly called to those parts of the Contract Documents and Specifications which deal with the following:

A. Inspection and testing of material.
B. Insurance requirements

30. POWER OF ATTORNEY:

Attorneys-in-fact who sign Proposal Bonds or Contract Bonds must file with each bond a certified and effectively dated copy of their Power of Attorney.

31. AUTHORITY TO SIGN:

If a proposal is made by an individual, his name and Post Office address must be shown. If made by a firm, or partnership, the name and Post Office address of each member of the firm or partnership must be shown. If made by a corporation, the person, or persons, signing the proposal must show the name of the State under the laws of which the Corporation is chartered and his or their, authority for signing same, and the names, titles and addresses of the President Secretary and Treasurer, and the Corporate Authority for doing business in this state.

32. WORKING DRAWINGS:

Working drawings for any structure shall consist of such detailed plans as may be required for the prosecution of the work but not included in the plans. All necessary working drawings shall be furnished by the Contractor. They shall include shop details, erection plans, masonry layout diagrams, and bending diagrams for reinforcing steel, approval of which by the Engineer must be obtained before any work involving these plans may be performed. Plans for false work, centering and form work may also be required and such cases shall be likewise subject to approval by the Engineer.

It is expressly understood, however, that approval by the Engineer of the Contractor's working drawings does not relieve the Contractor of any responsibility for accuracy of dimensions and details. The Contractor shall be responsible for agreement and conformity of his working drawings with the Drawings and Specifications.

The contract price shall include the cost of furnishing all working drawings and the Contractor will be allowed no extra compensation for such drawings.

33. COOPERATION OF CONTRACTOR:

The Contractor will be supplied with five (5) copies of the Drawings and Specifications. The Contractor shall have available on the work, at all times, one (1) copy of each of said Drawings and Specifications. He shall give the work the constant attention necessary to facilitate the progress thereof and shall cooperate with the Engineer and with other contractors in every way possible. The Contractor shall at all times have a

Superintendent, satisfactory to the Engineer, capable of acting as his agent on the work, who shall receive instructions from the Engineer or his authorized representatives. The superintendent shall have full authority to execute the orders or directions of the Engineer without delay and to promptly supply such materials, tools, plant equipment and labor as may be required.

34. CONSTRUCTION STAKES:

Subsidiary lines and grades shall be laid out by the Contractor from the controlling lines and benchmarks furnished by the Engineer or from measurements shown on the Drawings. All lines and grades shall be subject to checking by the Engineer, but this checking shall in no way relieve the Contractor from responsibility for their correctness.

The Contractor shall provide such stakes, materials, and such labor and assistance as the Engineer may require in laying out work, establishing benchmarks and checking and measuring the work.

35. AUTHORITY AND DUTIES OF INSPECTOR:

Inspectors shall be authorized to inspect all work done and materials famished, including preparation, fabrication and manufacture of the materials to be used. The Inspector shall not be authorized to alter or waive any requirements of the Specifications. He shall call the attention of the Contractor to any failure of the work or materials to conform to the Specifications and Contract. He may reject materials or suspend the work until any questions at issue can be referred to and decided by the Engineer.

The presence of the Inspector shall in no way lessen the responsibility of the Contractor. The Contractor in no way relieves himself of responsibility for adequacy of the work by following the directives of the Inspector.

36. INSPECTION:

The Contractor shall furnish the Engineer with every reasonable facility for ascertaining whether or not the work performed, and materials used are in accordance with the requirements and intent of the Specifications and Contract. No work shall be done, or materials used without suitable supervision or inspection by the Engineer or his representative. Failure to reject any defective work or materials shall not in any way prevent later rejection when such defect is discovered or obligate the Owner to final acceptance.

All materials furnished and work done when not in accordance with the Specifications and Contract will be rejected and shall immediately be removed and other work done, and materials furnished in accordance therewith. If the Contractor fails to remove the work and materials as above ordered, within forty-eight (48) hours, then the Engineer shall have the right and authority to stop the Contractor and his work at once and to supply men and material at the cost and expense of the Contractor to remove said work and materials.

37. DEFECTIVE WORK AND MATERIALS:

The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill his Contract and defective work shall be made good, notwithstanding that such work and materials have been previously inspected by the Engineer and accepted or estimated for payment. The failure of the Engineer to condemn improper materials or workmanship shall not be considered as a waiver of any defect which may be discovered later, or as preventing the Owner at any time subsequently from recovering damages for work actually defective. All work shall be guaranteed against defects in workmanship or materials for a period of one year after final acceptance.

38. CORRECTIONS:

Should any portions of the Drawings and Specifications be obscure or in dispute, they shall be referred to the Engineer and he shall decide as to the true meaning and intent. He shall also have the right to correct any errors or omissions at any time when such corrections are necessary for the proper fulfillment of said Drawings and Specification.

39. DISAGREEMENT:

Should any disagreement or difference arise as to the estimated quantities or classifications or as to the meaning of the Drawings or Specifications, on any point concerning the character, acceptability and nature of the several kinds of work, any materials and construction thereof, the decisions of the Engineer shall be final and conclusive and binding upon all parties to the Contract.

40. WEATHER:

During unseasonable weather, all work must stop when the Engineer so directs, and all work must be suitably protected.

41. RIGHT OF WAY:

The necessary land for the construction of the work will be furnished by the Owner. The Contractor is directed to the Owner for right-of-way actually acquired. The Owner will provide no right-of-way over other property. The contractor shall take every possible precaution to inconvenience as little as possible the owners and tenants of adjacent property. Public highways shall not be obstructed in such a way as to cut off traffic. The Contractor shall, at his own expense, repair any damage or injury to either public or private property during the progress of the work. Wholesale cutting of trees on the right-of-way will not be permitted except as necessary for construction.

42. CONSTRUCTION SCHEDULE:

A construction schedule showing the work in the order proposed by the Contractor and the time required to complete each phase will be required and shall be submitted to the Engineer for approval. Approval of the construction schedule is required prior to receipt of the notice to proceed. This schedule shall include the dates for beginning and completion of all phases of the work. If, in the opinion of the Engineer, the Contractor falls behind in his schedule or will not be able to complete the project in the time limits, he may require the Contractor to revise his schedule and put additional equipment on the job as so ordered.

43. ORDER OF WORK:

The order or sequence of the work shall be as provided herein or as approved by the Engineer, which approval shall in no way affect the responsibility of the Contractor.

44. COMPETENT LABOR:

The Contractor shall employ only competent and skilled personnel on the work. The Contractor shall at all times have a Superintendent satisfactory to the Engineer, capable of acting as the Contractor's agent on the work and who shall receive instructions from the Engineer or his authorized representative. The Superintendent shall have full authority to execute the orders and directions of the Engineer without delay, and to promptly supply the materials, tools, plant equipment, and labor as may be required. The Contractor shall upon demand by the Engineer, immediately remove that Superintendent, Foreman, and Workman whom the Engineer may consider to be incompetent or undesirable, or both.

45. LAWS AND REGULATIONS:

The Contractor shall keep himself fully informed of all laws, ordinances, and regulations of State and County in any manner affecting those engaged or employed in the work, or the materials used in the work, or in any way affecting the conduct of the work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over same. If any discrepancy or inconsistency should be discovered in this Contract, or in the Drawings or Specifications herein referred to, in relation to any such law, ordinance, regulation, order or decree, he shall forthwith report the same in writing to the Owner. He shall at all times himself observe and comply with all such existing and future laws, ordinances and regulations, and shall protect and indemnify the Owner and its agents against any claims or liability arising from or based on the violation of any such law, ordinance, regulation, order of decree, whether by himself or by his employees.

46. PROTECTIVE WORKS:

The Contractor shall furnish and install all necessary temporary works for the protection of the work, including barricades, warning signs, and lights at night.

47. SAFETY AND OSHA REGULATIONS:

The performance of work under this Contract shall comply with safety regulations prescribed by the Owner, those of the National Occupational Safety and Health Act of 1970. (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-054), and the requirements of the State where project is located. Each offeror shall satisfy himself as to the character and extent of such regulations.

48. SANITARY REGULATIONS:

Necessary sanitary conveniences for the use of the laborers on the work shall be erected and maintained by the Contractor in such a manner and at such points as shall be approved by the Engineer. Their use shall be strictly enforced.

49. STORAGE FACILITIES:

Should the Contractor so desire, he may build storage facilities or other structures for housing men, tools, machinery and supplies, but they will be permitted only at approved places, and their surroundings shall be maintained at all times in a sanitary and satisfactory manner. On or before the completion of the work, all such structures shall be removed, together with all rubbish and trash, at the expense of the Contractor.

50. WATER SUPPLY:

The water for the Contractor's use shall be supplied by the Contractor. The Contractor shall make his own arrangements for obtaining a water supply for his construction operations.

51. ACCESS ROADS:

Streets, roads and drives used by the Contractor for access to and from the site of his work shall be protected from damage in connection with construction work. Any such damage done shall be repaired immediately and left in good condition at the end of the construction period.

52. ALLOWABLE TIME FOR COMPLETION:

The time allowed for completion on all work to be done under this contract shall begin after notification by the Engineer to proceed with the work. Such notification will be issued upon completion of the contract arrangements, and in accordance with approved construction schedule, arranged to be within the contract time for completion. The time allowed for completion of the work shall be established in the proposal.

53. LIQUIDATED DAMAGES:

The Contractor shall pay to the Owner as liquidated damages the sum of **FOUR HUNDRED ($400.00)** dollars for each calendar day that he shall be in default of completing the work in his Contract within the time limit named therein.

54. SALES TAX AND/OR USE TAX:

Offerors shall include in proposal amounts an allowance for payment of state Sales Tax and/or Use Tax on taxable materials specified to be furnished by the Contractor and incorporated into the work under this Contract.

55. MUTUAL RESPONSIBILITY OF CONTRACTORS:

If, through acts of neglect of the part of the Contractor, any other Contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other Contractor or subcontractor by agreement of arbitration if such other Contractor or subcontractor shall assert any claims against the Owner, on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor who shall indemnify and save harmless the Owner against such claim.

56. EMERGENCY WORK:

The Contractor shall at all times (nights, weekends or holidays) have a responsible man available to act in case of emergency repairs who the Owner may contact. Upon notification of emergency work necessary, the Contractor's representative shall immediately take steps to make such repairs.

57. FLOOD HAZARD INSURANCE:

The Contractor will be required to acquire and maintain during the life of the contract any flood insurance made available under the National Flood Insurance Act of 1968, as amended. The insurance shall be in an amount at least equal to the contract amount costs, excluding cost of uninsurable improvements, or to the maximum limit of coverage made available under the National Flood Insurance Act of 1968, as amended, whichever is less.

58. BUILDING PERMITS AND BUSINESS LICENSE:

The Contractor shall be required to obtain applicable Building Permits and Business Licenses as required by Liberty County, Georgia**.**

59. WATER AND SEWER IMPACT FEES: Water and sewer impact fees will not be waived for this project. Such fees should be paid by the contractor to Liberty County.

60. POWER CONNECTION: The contractor shall establish the electrical service and pay monthly invoices for power usage. Once the project is accepted by the County the power service will be transferred to the County.

61. WATER SYSTEM CONNECTION: After the permit fees have been paid the County will make the connection to the water main and install the water meter. The contractor is responsible for providing labor and equipment necessary to excavate the area around the water main connection and meter. The contractor will be responsible for meterbox, backfill, compaction, grading and clean-up. The contractor shall install and certify the backflow device and all other requirements for water service to the building.

County Board of Commissioners
112 N. Main Street
Hinesville, Georgia 31313
Tele: (912) 876-2164

PROPOSAL FORM
Miller Park Pavilion

MANDATORY PROPOSAL FORM: This form must be submitted and returned to the County at its offices located at 112 North Main Street, Courthouse Annex, Room 201, Hinesville, Liberty County, Georgia 31313, prior to the Submission Deadline (i.e., **2:00 p.m. on, June 11, 2024**, unless changed by Addenda), and must be accompanied by the following documents:

(a) The Request for Proposals, and any and all other forms, documents, materials, and other information (e.g., State of Qualifications pursuant to Sec. 16, listing of subcontractors pursuant to Sec. 12, etc.) required to be made a part of this Proposal, as indicated herein or in the Proposal Documents.

The above materials must be submitted in a sealed envelope in the manner provided in the Proposal Documents. If this form is not fully and accurately completed and submitted to the County, together with the other documents listed above, as required in the Proposal Documents, the County may (in its sole and absolute discretion) reject the Proposal.

SECTION I – Terms of Proposal

This Proposal is submitted in accordance with the Proposal Documents and made subject to the following:

(a) The undersigned Offeror agrees, if this Proposal is accepted, to enter into with the County such contract(s) and warranties collectively as is necessary or appropriate for the subject Project in the form included in the Proposal Documents (or if not included, in such form as may be reasonably prescribed by the County) and to fully perform and observe the obligations and terms on its part to be performed therein. Said Agreement shall be executed by Offeror in the manner indicated therein and returned to the County within three (3) business days from Offeror's notification of acceptance of the Proposal. Failure to execute the Agreement in the time prescribed may result in disqualification of the Offeror.

(b) Offeror accepts all of the terms and conditions set forth in the Proposal Documents, including without limitation those dealing with the disposition of the Proposal Security. This Proposal will remain subject to acceptance for sixty (60) days following the Submission Deadline, or for such longer period of time that Offeror may agree to in writing upon request of the County.

(c) In submitting this Proposal, Offeror represents, as may be more fully set forth in the Proposal Documents, that:

(1) Offeror has read, examined, and carefully reviewed the Proposal Documents and any and all other materials made available by the County in connection with this Proposal and the Project, and fully understands the same and freely and voluntarily submits this Proposal pursuant to the terms contained in the Proposal Documents.

(2) Offeror further acknowledges receipt of any and all Addenda issued by the County in connection with this Proposal and the Project.

(3) Offeror has visited the Project Site and become familiar with its condition and had an opportunity to conduct any additional or supplementary examinations and investigations deemed necessary or appropriate by Offeror in connection with this Proposal.

(4) This Proposal is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation. Offeror has not, directly or indirectly, (i) induced or solicited any other Offeror

to submit a false or sham Proposal; (ii) solicited or induced any Person to refrain from submitting a Proposal; or (iii) sought by collusion to obtain for itself any advantage over any other Offeror or over the County.

(5) If the Offeror is not a natural person, that it has the full and complete right, power and authority to submit this Proposal and perform the terms of the Agreement (if accepted by the County), and the same has been duly and validly authorized by all necessary action on the part of the Offeror, and no additional authorization, consent or permit is required.

(6) If the Offeror is not a natural person, the individual or individuals signing this Proposal on behalf of the Offeror has or have the right, legal power and actual authority to bind the Offeror to the terms and conditions of this Proposal.

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SCHEDULE OF ITEMS
MILLER PARK PAVILION
FOR LIBERTY COUNTY BOARD OF COMMISSIONERS

Item	Description	Quantity	Units	Unit Price	Item Price
1	Pavilion Complete (including, but not limited to, excavation, subgrade preparation, compaction, fill material, forming, furnishing and installation of the concrete, reinforcements, CMU blocks, insulation, utility connections, electrical conduit, panels, electrical switches, boxes, plumbing, roofing, down spouts, fixtures, appurtenances, finishes, ceiling fans, lighting, fence, gates, bar-b-que grill, concrete sidewalk, grassing, mulching, mobilization, etc. as necessary to provide a complete facility as shown in the plans, clean up and complete surface restoration. This bid item also includes Septic System Complete (Including, but not limited to, utility connection to building, electrical conduit, grading, fill, concrete tanks, piping, fittings, appurtenances, pump, controls, electrical, sod, grassing, cleanup, etc. as necessary to provide a complete system.)	1	SUM		
				GRAND TOTAL	
GRAND TOTAL IN WORDS					

COMMENCEMENT OF WORK

Undersigned agrees to commence actual physical work on the site with an adequate force and equipment within ten days of a date to be specified in a written order of the Owner and to substantially complete work in 150*consecutive calendar days from and including said date. Number of days after substantial completion to 100% completion including deficiency list shall not exceed twenty (20) days.

(*) Contractor fill in proposed number of consecutive calendar days.

OFFEROR:

If an individual(s):

Name(s): _____

Signature(s): _____

If a legal entity not an individual(s):

Name: _____,
a limited liability company/corporation/other

By: _____
(signature)

Name/Title: _____

Offeror's Address: _____

_____

Offeror's Tele/Fax: _____/_____

Offeror's Email: _____

LIBERTY COUNTY, GEORGIA

SURETY REQUIREMENTS

A Proposal Bond for five percent (5%) of the amount of the proposal amountis required to be submitted with each proposal.

A Performance Bond for one hundred percent (100%) of the contract amount will be required of the successful Offeror.

The Offeror certifies that he/she has examined all documents contained in this request for proposals, and is familiar with all aspects of the request for proposal and understands fully all that is required of the successful Offeror. The Offeror further certifies that his/her proposal shall not be withdrawn for ninety (90) days from the date on which the proposal is publicly opened and read.

The Offeror agrees, if awarded this contract, he/she will:

A. Furnish, upon receipt of an authorized Liberty County Board of Commissioners Purchase Order or Notice of Award, all items indicated thereon as specified in this proposal for the proposal amount, or;

B. Enter a contract with Liberty County Board of Commissioners to do and/or furnish everything necessary to provide the service and/or accomplish the work as stated and/or specified in this proposal, and;

C. Furnish, if required, a Performance Bond, and acknowledges the right of the Liberty County Board of Commissioners to require a Performance Bond of a specific kind and origin, and;

D. Forfeit the amount of the Proposal Bond as liquidated damages if he/she fails to enter a contract with the Liberty County Board of Commissioners as stated in (B) above, within ten (10) days of the date on which he/she is awarded the contract, and/or;

E. Forfeit the amount of the Performance Bond as liquidated damages if he/she fails to execute and fulfill the terms of the contract entered. The amount of forfeiture shall be:

1. The difference between his/her proposal and the next lowest, responsible proposal that has not expired or been withdrawn, or;

2. The difference between his/her proposal and the amount of the lowest, responsible proposal received as a result of a subsequent request for proposals, including all costs related to the request for proposals.

COMPANY_____ DATE_____

SIGNATURE_____ TITLE_____

TELEPHONE NUMBER_____

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into as of the (Date) _____, 2024, by and between LIBERTY COUNTY, GEORGIA, (Party of the First Part, Hereinafter called the County) and _____ (Contractor Name) (Party of the Second Part, Hereinafter called the Contractor).

WITNESSETH: That the said Contractor has agreed, and by these presents does agree with the said County, for and in consideration of _____ ($_____) and other good and valuable consideration, and under the penalty expressed in Bonds hereto attached, to furnish all equipment, tools, materials skill, and labor of every description necessary to carry out and complete in good, firm, and substantial, and workmanlike manner, the Work specified, in strict conformity with the Drawings and the Specifications hereinafter set forth, which Drawings and Specifications together with the proposal made by the Contractor, General Conditions, Special Provisions, Detailed Specifications, and this Agreement, shall all form essential parts of this Contract. The Work covered by this Contract includes all Work indicated on Plans and Specifications and listed in the proposal entitled:

MILLER PARK PAVILION
FOR
LIBERTY COUNTY BOARD OF COMMISSIONERS

The Contractor shall commence the Work with adequate force and equipment within (10) ten days from receipt of Notice to Proceed from the Liberty County Board of Commissioners, and shall complete the Work within 150 calendar days.

The Contractor hereby assumes the entire responsibility and liability for any and all injury to or death of any and all persons, including the Contractor's agents, servants, and employees, and in addition thereto, for any and all damages to property caused by or resulting from or arising out of any act or omission in connection with this Contract or the prosecution of Work hereunder, whether caused by the Contractor or the Contractor's agents, servants, or employees, or by any of the Contractor's subcontractors or suppliers.

This Contract, executed in triplicate, constitutes the full agreement between the parties, and the Contractor shall not sublet, assign, transfer, pledge, convey, sell or otherwise dispose of the whole or any part of this Contract or his right, title, or interest therein to any person, firm or corporation without the previous consent of the Liberty County in writing.

CONTRACT AGREEMENT

IN WITNESS WHEREOF, the Parties hereto, acting through their duly authorized agents, have signed and sealed this agreement.

Executed this _____day of _____, 2024.

LIBERTY COUNTY, GEORGIA

ATTEST: _____ BY: _____
(SEAL) Administrator, Liberty County Chairman, Liberty County

CONTRACTOR

ATTEST:_____ BY: _____
(SEAL)

TITLE: _____ TITLE:_____

APPROVED AS TO FORM:

BY: _____
Attorney
Liberty County, Georgia

Executed in Triplicate

CONTRACT PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, THAT WE_____
(hereinafter called the Principal) and _____
(hereinafter called the Surety) are held and firmly bound unto LIBERTY COUNTY, GEORGIA (hereinafter known as the Owner), for the use of said oblige and all persons doing work or furnishing skill, tools, machinery, supplies, or material under or for the purpose of the Contract hereinafter referred to, in the full and just sum of _____ _____($_____) lawful money of the United States of America, to be paid to said Owner, its successors, and assigns to which payment well and truly to made we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severely, firmly by these presents.

WHEREAS, the above bound Principal has entered into a contract or contracts with the said OWNER, bearing date of_____, 2024, for furnishing material, labor and equipment for:

MILLER PARK PAVILION
FOR
LIBERTY COUNTY BOARD OF COMMISSIONERS

WHEREAS, it was one of the conditions of the award by said Owner pursuant to which said Contract was entered into, that these presents shall be executed.

NOW THEREFORE, the conditions of this obligation are such that if the above bound Principal shall in all respects fully comply with the terms and conditions of said Contract and his obligation thereunder, including the Specifications and Proposal, therein referred to and made a part thereof, and such alterations as may be made in said Specifications as therein provided for, and including one-year guarantee period from date of final acceptance, and shall indemnify and save harmless the Owner against and from all costs, expenses, damages, injury or loss, to which the said Owner may be subjected by reason of any wrongdoing, misconduct, want of care or skill, negligence, or default, including patent infringement, on part of said Principal, his agents, or employees, in the execution or performance of said Contract, and shall promptly pay all just claims for damages or injury to property and for all work done, or skills, tools, and machinery, supplies, labor, and materials furnished and debts incurred by said Principal in our about the construction or improvement contracted for this obligation to be void; otherwise, in full force and effect.

And the said Surety to this Bond, for value received, hereby stipulates and agrees that no change, extensions of time, alterations, or additions to the terms of the Contract or to the Work to be performed thereunder or the Specifications accompanying same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alterations, or additions to the terms of the Contract or to the Work or the Specifications.

CONTRACT PERFORMANCE BOND

This Bond shall be for the use of all persons doing Work or furnishing skill, tools, machinery, or materials under or for the purpose of this Contract, in accordance with the provisions of the Official Code of the State of Georgia, as amended, and is intended to be and shall be construed to be a bond in compliance with the requirements thereof.

The life of this Bond extends through the life of the Contract including the sixty-day maintenance period, and until one year after the final acceptance of the Work by the Owner.

IN TESTIMONY THEREOF, the Principal and Surety have caused these presents to be duly signed and sealed in triplicate, this _____day of _____, 2024.

CONTRACTOR

_____
(Company Name)

Attest: _____ By: _____
(Seal)

Title: _____ Title: _____

SURETY

_____
(Company Name)

Attest: _____ By: _____
(Seal)

Title: _____ Title: _____

BY: _____
(Local Agent's Signature)

_____
(Name - Printed or Typed)

_____
(Company Name)

_____
(Address)

Executed in Triplicate

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, THAT WE _____
(hereinafter called the Principal) and _____
(hereinafter called the Surety) are held and firmly bound unto LIBERTY COUNTY, GEORGIA (hereinafter known as the Owner), in the full sum of _____ ($ _____) for the use and protection of said Owner and all subcontractors and all persons supplying labor, materials, and machinery, and equipment for the performance of the Work provided for in the contract hereinafter referred to, for the payment of which well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally by these presents.

WHEREAS, the above bound Principal has entered into a Contract or Contracts with the said OWNER, bearing date of _____, 2024, for furnishing material, labor and equipment for:

MILLER PARK PAVILION
FOR
LIBERTY COUNTY BOARD OF COMMISSIONERS

WHEREAS, it was one of the conditions of the award by the Liberty County Board of Commissioners pursuant to which said Contract was entered into, that these presents shall be executed.

NOW, THEREFORE, the conditions of this obligation are such that if the above bound Principal shall promptly pay all subcontractors and all other persons supplying labor, materials, machinery, and equipment furnished for the performance of the Work provided for by said Contract, and such alterations or additions as may be made therein or in the Plans and Specifications, then this bond to be void; otherwise, in full force and effect, and

The surety to this bond, for value received, agrees that no change, extensions of time, alterations or additions to the terms of the Contract or the Work to be performed thereunder of the Specifications accompanying the same shall in any way affect its obligation on this bond, and alterations or additions to the terms of the Contract or the Work or to the Specifications. It is agreed that this bond is executed pursuant to and in accordance with the provisions of the Official Code of the State of Georgia, as amended, and is intended to be and shall be construed to be a bond in compliance with the requirements thereof.

PAYMENT BOND

IN WITNESS WHEREOF, the Principal and Surety have caused these presents to be duly signed and sealed in triplicate, this _____day of_____, 2024.

CONTRACTOR

_____
(Company Name)

Attest: _____ By: _____
(Seal)

Title: _____ Title: _____

SURETY

_____
(Company Name)

Attest: _____ By: _____ (Seal)

Title: _____ Title: _____

BY: _____
(Local Agent's Signature)

_____
(Name - Printed or Typed)

_____
(Company Name)

_____
(Address)

Executed in Triplicate

Exhibit A

Project: Miller Park Pavilion

AUTHORIZATION TO INVESTIGATE

The undersigned Offeror consents to and authorizes the full investigation by the Liberty County Board of Commissioners, Liberty County, Georgia, or its related departments and agencies, of the information given in connection with the proposal submitted by the undersigned in connection with the above referenced pr oject, and consents to representatives and agents of said Liberty County Board of Commissioners contacti ng the named references, named financial institutions, and such other persons and entities as may be ne eded to confirm such information or evaluate the merits of the subject proposal, and waives any right the undersigned may have for such information to remain confidential. The furnishing of false or misleading information or the intentional withholding of material facts (as determined by the Liberty County Board of Commissioners in their sole discretion), shall be a reason for rejection of any proposal submitted by the undersigned in connection with the Project and may further subject the undersigned to forfeiture of any proposal security and additional civil liability and/or criminal prosecution.

Date: _____

Offeror: _____
(Print Name)

Authorized Signature: _____

Exhibit B

Project: Miller Park Pavilion

STATEMENT PURSUANT TO O.C.G.A. § 36-91-21(d)

The undersigned Offeror affirms that it has not prevented or endeavored to prevent any other person or entity from submitting a competing sealed proposal by any means whatsoever, or otherwise caused or induced another to withdraw a proposal from consideration. The below Offeror further affirms and covenants that it will make an oath confirming the foregoing (as required by O.C.G.A. § 36-91-21(e)) prior to commencing any work, should it be awarded the contract which is the subject of the above referenced proposal.

Date: _____

Offeror: _____
(Print Name)

Authorized Signature:_____

Exhibit C

E-VERIFY CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm, or corporation which is contracting with Liberty County has registered with and is participating in a federal work authorization program [Employment Eligibility Verification (EEV) / Basic Pilot Program, operated by the U.S. Citizens and Immigration Services Bureau of the U. S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA)] in accordance with the applicability provisions and deadlines established in O.C.G.A. § 13-10-91.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to its contract with Liberty County, contractor will secure from such subcontractor(s) similar verification of compliance with O.C.G.A. § 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form provided by Liberty County. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to Liberty County at the time the subcontractor(s) is retained to perform such service.

RE: Contract: _____

Contractor: _____

Contractor E-Verify Number: _____

_____
Contractor Name

_____ _____
BY: Authorized Officer or Agent Date

_____
Title of Authorized Officer or Agent of Contractor

_____
Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME
ON THIS THE ____ DAY OF_____,20_____

_____
Notary Public
My Commission Expires: _____

Exhibit D

AFFIDAVIT OF CERTIFICATION

*This form must be signed and notarized for **each** local vendor of which local status is claimed*

_____ (full name printed), swear or affirm under penalty of law that I am _____ (title) of applicant firm _____ (firm name) and that **I have read and understood all of the requirements** set forth in the requirements for local preference contracting and hereby certify that **I/we are eligible** to receive local preference points as set forth in said requirements. I further understand that should this declaration be determined to be false, that I/we shall be deemed to be "non-responsive" and shall not be considered for award of the applicable contract.

Executed on _____ (date)

Signature _____
Owner

Notary Public

_____my commission expires on _____

******Please note: Execution of this certificate if not fully qualified to do so shall be grounds for automatic rejection of the proposal.** (see Appendix A – Local Vendor Preference Policy)*********

Exhibit E

Scoring Analysis Sheet
Liberty County Board of Commissioners

Miller Park Pavilion

I.	Description and resources of firm	(10 points) _____
II.	Experience & qualifications	(15 points) _____
III.	Statement of suitability	(10 points) _____
IV.	Guaranteed construction cost	(50 points) _____
V.	Project completion time	(15 points) _____
	Score	_____
VI.	Local vendor preference (if applicable)	(10 points) _____

Total Score _____

Appendix A
Local Vendor Preference Policy

Local preference in contracting.

(a) Local Preference. Except as otherwise required by applicable state or federal law, in the contracting for goods and services of all kinds and description, when such goods and/or services are to be obtained, whether through an invitation for bids or a request for competitive sealed proposals, local preference shall be given to:

(1) Businesses having a business location within the geographic boundaries of Liberty County; and

(2) Businesses where at least 51 percent of the owners of the business are residents of Liberty County but the business is located outside of Liberty County; and

(3) Businesses where at least 51 percent of the employees of the business are residents of Liberty County but the business is located outside of Liberty County.

(b) Definitions. For purposes of this section:

(1) The term "business location" means that the business has a staffed, fixed, physical, place of business located within Liberty County and has had the same for at least one year prior to the date of the business' submission of its proposal or bid, as applicable and has had held a valid business license from Liberty County for the business at a fixed, physical, place of business, for at least one year prior to the date of the business' submission of its proposal or bid, as applicable.

(2) The term “local business” shall mean a business described in subsection (1), (2), or (3) of section (a) above.

(2) The term "residents of Liberty County" means persons whose residence is within the geographic boundaries of Liberty County; and

(3) The residence of any person shall be such person’s present, permanent home where that individual intends to stay indefinitely and to which that individual returns following periods of temporary absence.

(c) Proposal Method. Whenever goods or services of any kind or description are to be obtained through the solicitation of competitive sealed proposals, local preference shall be included as an evaluation criterion to be considered by the vendor selection committee. In this regard, ten (10%) percent of the total points available to each offeror shall be awarded on the basis of whether the offeror is a local business. Offerors who are a local business shall be entitled to and shall receive the local preference points provided for in this section. The foregoing shall only apply to proposals which are expressly and specifically governed by the Georgia Local Government Public Works Construction Law, O.C.G.A. §§ 36-91-1 et seq., or other applicable state or federal law, and shall not apply to Exempt Procurement Opportunities (as defined below).

(d) Exempt Procurement Opportunities. With respect to the procurement of goods or services which are not specifically and expressly governed by O.C.G.A. §§ 32-4-42 et seq. or the Georgia Local Government Public Works Construction Law, O.C.G.A. §§ 36-91-1 et seq., or other applicable state or federal law (collectively, “Exempt Procurement Opportunities”), Liberty County shall be free to contract with such contractors and vendors as it determines appropriate in accordance with applicable local ordinances, policies, and practices.

(e) Subject to State and Federal Law. Nothing herein shall be interpreted to mean that Liberty County is relieved from observing and complying with applicable state and federal laws, including, without limitation, O.C.G.A. §§ 32-4-42 et seq. and the Georgia Local Government Public Works Construction Law, O.C.G.A. §§ 36-91-1 et seq. In the event of a direct conflict between any such applicable state and/or federal laws and the provisions of this policy, said state and/or federal laws shall in all instances govern. Additionally, this policy shall not restrict or limit the right of Liberty County to award contracts for goods and services in accordance its local ordinances, policies, and practices (as Liberty County determines appropriate) to the extent that the same are not subject to the provisions of said state and federal laws.

(f) Partnership; Joint Venture. Whenever a proposal or bid is submitted by a partnership, or joint venture, the local preference provided for in this section shall be awarded if a local business is a signatory to the partnership or joint venture agreement and has at least a fifty-one (51%) percent ownership interest (or its equivalent), as determined by the vendor selection committee, in the offeror or bidder. No local preference shall be given on the basis of the business location, the percentage of owners of the business who are residents of Liberty County, or the percentage of employees of the business who are residents of Liberty County of any affiliated business, subcontractor, or consultant.

(g) Certification. Each business seeking local preference points hereunder shall certify under oath that it is eligible to receive the local preference points as set forth above as a part of the submission of its proposal or bid to Liberty County and, in the event the affidavit or other declaration under oath is determined to be false, such business shall be deemed "non-responsive" and shall not be considered for award of the applicable contract.

Appendix B
Minority/Woman Business Enterprise Policy

I. POLICY STATEMENT

It is the policy of the Board of Commissioners of Liberty County (BOARD) to provide minority and women owned and operated business enterprises (M/WBE or MWBE) with equal opportunity in connection with the BOARD's procurement and contracting activities, consistent with federal, state, and local laws. In furtherance of such policy, this Minority/Woman Business Enterprise Policy (Policy) is adopted.

II. OBJECTIVES

The objectives of this Policy are as follows:

A. To the extent resources will permit, to advocate for the successful development of M/WBE firms by providing information, education, and continuous training.
B. To provide initiatives, processes, and programs that will maximize the inclusion of M/WBE firms in the procurement and contracting activities of BOARD.
C. To ensure that this Policy and resulting programs and initiatives are narrowly tailored in accordance with applicable law.
D. To ensure that all participating M/WBE firms have been certified by a BOARD recognized certifying agency.
E. To make every reasonable effort to remove barriers to the participation of M/WBEs in BOARD contracts and projects.
F. To assist the development of M/WE firms that can compete successfully in the marketplace; and
G. To make every reasonable effort to maximize the level of contracting between the BOARD and M/WBE firms as prime contractors, subcontractors, or suppliers.

III. DEFINITIONS

In addition to any terms that may be defined elsewhere in this Policy, the following terms shall have the meaning set forth below:

Best Value Contracting – A procurement method that provides the BOARD the opportunity to consider factors in addition to price in awarding a contract.

Bid - A written quotation, proposal or offer by a bidder to perform or provide labor, materials, equipment, supplies or services to the BOARD, submitted in response to a competitive bidding solicitation issued by the BOARD. Without limiting the foregoing, the term "bid" shall include any bid or proposal contemplated under the Georgia Local Government Public Works Construction Law, O.C.G.A. § 36-91-1.

Bidder – A business enterprise that submits a bid as defined herein.

Business Enterprise – A natural person or legal entity, including but not limited to a corporation, partnerships, limited liability companies, sole proprietorships, joint stock companies, joint ventures or any other private, legally recognized entity; provided, however, that this Policy shall not apply to contracts entered into with governmental entities (as identified by the BOARD).

Certification – The process by which M/WBEs verify their status to the BOARD in order to be considered an M/WBE. Certification is a requirement of all M/WBEs that are registered with the BOARD and is a prerequisite to participation by M/WBEs under this Policy.

County and County Limits – Liberty County, Georgia, and the incorporated and unincorporated areas thereof.

Compliance – The condition or status of a contractor whose bid demonstrates that it complies with this Policy and the goals and requirements promulgated and establish pursuant hereto.

Construction – The process of building, altering, repairing, improving or demolishing any public structure or building, or other public improvements of any kind to any public real property. It does not include the routine operation, routine repair or routine maintenance of existing structures, buildings or real property.

Contract – Any and all agreements, regardless of what they may be titled, for the procurement of supplies, services, or construction.

Contract Compliance Officer- The BOARD employee, agent, or designee responsible for insuring compliance with and adherence to M/WBE goals in a given contract.

Contractor – Any business enterprise that has entered into a contract with the BOARD.

Control or Controlled – As used in this Policy, this term refers to an individual's relationship with a M/WBE and shall mean to actually possess and exercise the legal authority and power to manage business assets and/or daily operations of the business and to actively and continuously exercise such managerial authority and power in determining the policies and directing the operations of the business, as opposed to a nominal relationship existing only to create the appearance of minority or woman ownership.

Exclusive Prime/Subcontractor Relations – Agreements made between a Contractor and an M/WBE in which the M/WBE promises not to provide subcontracting quotations to other bidders or potential bidders in exchange for preferential treatment from the Contractor. Such practice is prohibited by the BOARD. Contractors engaging in such practice risk suspension or debarment from performing or bidding on future BOARD contracts.

Goal – The percentage of M/WBE participation on a given project. Goals are established on a per contract basis based, among other factors, on trade types involved and the historical participation of M/WBEs relative to their market share.

Joint Venture – An association of an M/WBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the venture will be recognized as partially M/WBE (based on the proportion of M/WBE ownership and participation in the joint venture).

Minority – A citizen of the United States or a lawfully admitted resident alien, who is a member of any of the following groups:

A. African American – All persons having origins in any of the Black racial groups of African descent as well as those identified as Jamaican, Trinidadian, and West Indian.
B. Asian or Pacific Islander – All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands. This area includes, for example, China, Japan, Korea, the Philippine Islands and Samoa.
C. Asian-Indian – All persons whose origins are from India, Pakistan and Bangladesh.
D. Hispanic – All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
E. American Indian and Alaskan Native – All persons having origins in any of the original peoples of north America, and who maintain cultural identification through tribal affiliation or community; to include Aleuts and Eskimo; and
F. Other – All persons belonging to an ethnic or minority group identified by the Georgia or

U.S. Supreme Court as a “discrete and insular” minority, or “suspect class” afforded special protection under the Equal Protection Clause of the U.S. Constitution because of inherent personal characteristics.

Minority Business Enterprise or MBE – An entity or institution that is certified as at least 51% owned and controlled by one or more minority individuals, or, in the case of a publicly owned business, at least 51% of the stock is owned by one or more minority individuals. The ownership interest must be real and continuous, and not created solely to meet the requirements of this Policy. This definition shall include educational and other non-profit entities designated as such under section 501(c) of the U.S. Tax Code, that have a recognized historical association with a minority.

MWBE Contractor - The contractor responsible for the management and administration of this Policy. The MWBE Contractor is responsible for implementing all aspects of this Policy to the extent set forth herein and in the contract between the BOARD and said contractor. In the event that the BOARD elects not to contract out such services, reference to MWBE Contractor herein shall mean the person employed by the BOARD to perform the functions of the MWBE Contractor hereunder.

Duties and responsibilities of the MWBE include, but are not necessarily limited to, the following:

A. Gathers and reports statistical data and other information as required.
B. Reviews third party contracts and purchase requisitions for compliance with this Policy.
C. Works with the BOARD to set overall goals.
D. Ensures that bid notices and requests for proposals are available to M/WBEs in a timely manner.
E. Identifies ways to better achieve and improve the objectives of this Policy.
F. Analyzes the BOARD’s progress toward goal attainment.
G. Participates in pre-bid meetings in connection with all contract opportunities subject to this Policy.
H. Advises the BOARD on M/WBE matters and achievements.
I. Chairs the M/WBE advisory committee, which may now exist or hereafter be established by the BOARD.
J. Participates with legal counsel, the Contract Compliance Officer, and any responsible committee(s) to determine contractor compliance with good faith efforts.
K. Provides M/WBEs with information and assistance in preparing bids, obtaining bonding insurance, and compliance with this Policy.
L. Plans and participates in M/WBE training seminars; and
M. Provides outreach to M/WBEs and community organizations to advise them of opportunities.

Non-Compliance – The status of a bid or bidder who fails to comply with the M/WBE contract goals upon submission of a bid or proposal.

Non-Discrimination Statement – The statement made by a bidder relating to its conduct prior to submission of a bid, as well as after the award of a contract, that the bidder agrees to: (a) follow the policies of BOARD relating to the participation of M/WBEs; (b) undertake measures to ensure the maximum practicable participation by M/WBEs; and (c) not engage in discriminatory conduct against M/WBEs inconsistent with this Policy; as said statement may be amended or restated by the BOARD or its legal counsel from time to time. The discrimination statement shall also be consistent with any additional requirements imposed by federal or state funding programs in which the BOARD may participate, all as approved by legal counsel for the BOARD.

Non-Responsive Bidder – A bidder who has submitted a bid, which does not conform in all material respects to the requirements set forth in the invitation for bids to which such bidder is responding.

Procurement – The process of buying, renting, leasing or otherwise obtaining or acquiring any real or personal property, supplies, materials, equipment or services.

Professional Services – Services which require licensure as a prerequisite to participation for a profit and which involve predominantly mental or intellectual labor and skills, including but not limited to, architects, engineers, surveyors, doctors, attorneys, and accountants.

Proposed Schedule of Minority Participation – A formal bid document that expresses how a contractor will meet the M/WBE goals of a contract by listing the proposed M/WBE subcontractors and/or suppliers it will use on a BOARD project on which it is bidding.

Purchasing – The buying, renting, leasing or otherwise obtaining or acquiring any real or personal property, supplies, materials, equipment or services.

Responsible Bidder – A bidder who has the capacity, in all respects, to fully perform the contract and all of its requirements and the demonstrated experience, reliability, facilities, equipment and credit to reasonably assure performance.

Responsive Bidder – A bidder that has submitted a bid, which conforms in all material, respects to the requirements set forth in the invitation for bids.

Subcontract – An agreement between the contractor (prime) and another business enterprise (subcontractor) for the performance of work that is part of the prime contractor's contract with the BOARD.

Vender Services – Services furnished by a business enterprise not qualifying as either professional services or construction.

Verification – The process by which business enterprises are determined to be a MBE or WBE pursuant to this Policy. For the purposes of bidding on BOARD contracts, the bidder must verify the subcontractor's claimed status as a MBE or WBE.

Women-Owned Business Enterprise or WBE – A business enterprise that is certified as at least 51% owned and controlled by one or more women who are not members of a Minority group, or in the case of a publicly owned business, at least 51% of the stock is owned by one or more women who are not members of a minority group and certified as such. The ownership interest must be real, and continuous, and not created solely to meet the woman-owned business or contractor provisions of this Policy. This definition shall include educational and other non-profit entities, designated as such under section 501(c) of the U.S. Tax Code, that have a recognized historical association with women.

IV. BOARD NONDISCRIMINATION POLICY

The BOARD will not exclude any business enterprise from participation in, deny any business enterprise of the benefits of, or otherwise illegally discriminate against anyone in connection with the award and performance of any contract.

In administering this Policy, the BOARD will not, directly or through contractual or other arrangement, use criteria or methods of administration that are intended to negatively impact the effectiveness of this Policy.

V. BOARD RECOGNIZED M/WBE CERTIFICATION AGENCICES

The BOARD, in coordination with the M/WBE Contractor, will establish a procedure for the review and certification of business enterprises desiring to qualify as an MBE or WBE for purposes of this Policy. Additionally, the BOARD reserves the right to review M/WBE certifications issued by other public bodies

or agencies, and to accept the same (with or without conditions) for purposes of certification under this Policy; provided, however, that the BOARD shall be under no obligation to accept any such third-party certifications. Without limiting the foregoing, and as of the date of this Policy, the BOARD will favorably consider certifications from the following public bodies and agencies for purposes of this Policy (it being noted that the BOARD may deny or condition acceptance of any such third-party certification for any reason it deems appropriate, and that acceptance of the same as of the date of this Policy does not guarantee continued acceptance of said certifications for any period of time under this Policy):

- Liberty County Industrial Authority
- City of Savannah
- Chatham County
- City of Atlanta
- DeKalb County
- Fulton County
- Georgia Dept. of Transportation
- Georgia Minority Supplier Development Council (GMSDC)
- Savannah-Hilton Head International Airport
- U.S. Small Business Administration 8(a) Program
- Veteran Owned Small Business (VOSB)
- Woman Owned Small Business (WOSB)

A listing of third-party certifications that may be accepted by the BOARD for purposes of this Policy will be maintained by the M/WBE Contractor and the contract compliance officer. The BOARD requires that all M/WBE firms identified for participation in any bid be certified in accordance with this Policy by the date and time of the bid closing.

VI. SERVICES PROVIDED PURSUANT TO THIS POLICY

The BOARD, through the M/WBE Contractor or its employees, will endeavor to provide the following services and assistance to better ensure the recognition and utilization of MBEs and WBEs located in the County and the coastal Georgia area:

A. Review the M/WBE certification of firms seeking to be approved as M/WBE firms under this Policy.
B. Maintain a current and publicly available database of certified M/WBEs and the services they offer.
C. Provide support and assistance in connection with the identification of certified M/WBE firms.
D. Participate in outreach programs to encourage the participation of M/BEs in the BOARD's procurement activities, including, the placement of appropriate public service notices with M/WBE trade associations, as well as minority and women focused media outlets;
E. When it is in the interest of the BOARD, provide support and assistance in the creation of "prime contract" opportunities for M/WBEs;
F. Encourage M/WBE firms to participate in training programs offered by the BOARD and/or third-party education and training providers;
G. Refer M/WBEs to third-party technical assistance providers when appropriate for bonding, financial, and technical assistance;
H. Develop and publish reports of M/WBE participation by contract/project; and identify opportunities and strategies consistent with the objectives of this Policy; and
I. Conduct debriefing sessions for M/WBEs on the quality of M/WBE participation in the BOARD's procurement procedures.

Notwithstanding the enumeration of services and assistance proposed to be offered by the BOARD pursuant to this Policy, the BOARD shall be under no legal obligation to furnish any such services and assistance, and the same shall be offered (if at all) at such times, in such manner, and to such extent as determined appropriate by the BOARD.

VII. M/WBE POLICY COMPONENTS

The administration of this Policy shall generally involve the following discrete components or requirements:

A. Procurement Procedures Relative to M/WBEs
B. Bidder's Requirements
C. Joint Ventures/Subcontracting Participation
D. Participation and Compliance Reports
E. Compliance
F. Dispute Resolutions
G. Competitive Bids
H. Annual Assessment

A. Procurement Procedures Relative to M/WBEs

The following procedures and requirements will be used to ensure that M/WBE firms are encouraged to participate in construction, professional, and vendor contracts with the BOARD; provided, however, that this Policy and the requirements of this Section shall only apply to construction contracts having a value of $100,000.00 or more, and to professional and vendor services contracts having an annual or per contract value of $75,000.00 or more:

1. For all construction, professional, and vendor contracts subject to this Policy, the Contract Compliance Officer will furnish the M/WBE Contractor with a copy of the invitation to bid, including the related scope of work. The M/WBE Contractor will endeavor to identify M/WBEs which may be eligible to submit bids. Based on information provided by the M/WBE Contractor, the BOARD will send invitations to bid directly to the identified M/WBEs.

2. The BOARD will provide plans and specifications to the M/WBE Contractor for use by potential bidders. The M/WBE Contractor shall identify contract opportunities and provide trade specific lists of certified M/WBEs to potential prime contractors and to the BOARD.

3. For all contract opportunities subject to this policy, the BOARD will establish project specific goals for the participation of M/WBEs consistent with Section VIII of this Policy.

4. In order to permit a full and appropriate consideration of the requirements of this Policy, the BOARD shall employ best value contracting in soliciting contracts subject to this Policy to the fullest extent authorized by law.

5. Contractors shall be required to fulfill any M/WBE utilization commitments made in the bid or otherwise required by the BOARD.

B. Bidder's Requirements

1. With respect to any contract that is subject to this Policy, bidders shall be required to submit with their bid a separate sealed envelope containing the following (all in form and having such content as may be required by the BOARD from time to time):

(a) Non-Discrimination Statement.
(b) Proposed Schedule of M/WBE participation and/or documentation of good faith efforts if project goal is not met;
(c) Such other documentation and information as may be specified in this Policy and/or the invitation to bid or related bid materials. Such documentation and information shall include, but may not necessarily be limited to, the following:

(i) The names and addresses of M/WBE firms that have agreed to perform in connection with the contract;
(ii) A description of the work that each M/WBE will perform;
(iii) The dollar amount of the participation of each M/WBE firm with respect to the contract;
(iv) Written and signed documentation of commitment to use M/WBE subcontractors identified in the bid;
(v) Written and signed confirmation from the M/WBE that it is participating in the contract, as provided in the bidder's stated commitment; and
(vi) If the contract goal is not met, evidence of good faith efforts must be submitted approved by the M/WBE Contractor in accordance with subsection B below.

A bidder's failure to submit the non-discrimination statement required above or otherwise make reasonable efforts to comply with the pre-bid requirements of this Policy may result in the bid being considered non-responsive and thereby disregarded; provided, however, and assuming a reasonable effort is made to meet the requirements of this Policy, the failure of a bidder to meet the applicable M/WBE participation goals or, alternatively, to confirm its good faith efforts, will not result in the bidder being deemed unresponsive for purposes of the invitation to bid. Rather, in the event the bidder fails to satisfy the applicable M/WBE participation goals or, alternatively, to confirm its good faith efforts, the bidder will be ineligible to receive any points under the MWBE component of the bid evaluation criteria.

2. All contractors shall ensure that that any contractual arrangement with M/WBEs involved in the performance of the contract shall require said M/WBEs to observe all applicable requirements of this Policy, including, without limitation, the record retention, inspection, and reporting requirements set forth in Section X hereof.

C. Joint Ventures/ Subcontracting Participation

1. Joint ventures may be utilized to create and increase opportunities for participation of M/WBE firms and to improve managerial and technical expertise. In the event bidders engage in joint ventures to satisfy the M/WBE requirements set forth in this Policy, the bidder shall demonstrate to the satisfaction of the BOARD that the M/WBE joint venturer's participation is meaningful and legitimate. The BOARD shall review all contractual agreements and other supporting documentation evidencing the joint venture to determine the percentage of M/WBE participation represented by or to be allocated to any such joint venture.

2. A prime contractor may use subcontractors to satisfy the M/WBE project participation goals provided the subcontractor performs a commercially useful function. In determining whether a commercially useful function is performed, the following may be considered:

(a) The nature and amount of work subcontracted.
(b) Whether M/WBE has the skill and expertise to perform the work;

(c) Whether the M/WBE actually performs, manages and supervises the work; and
(d) Such other factors as the BOARD may deem appropriate.

D. Participation and Compliance Reports

The M/WBE Contractor is responsible for compiling data on M/WBE participation, and preparing reports related to all contracting, purchasing and procurement activities of the BOARD which are subject to this Policy. The reported information may include, but will not be limited to, the following data:

1. **Consolidated M/WBE Program Report (BOARD M/WBE Report):** This report will consist of the combined Construction Services M/WBE Report, the Professional Services Report, and the Vendor Services Report generally described below. This report and other requested data should be submitted to the BOARD semi-annually to coincide with the BOARD's fiscal year.

2. **Construction M/WBE Program Report**: This report shall include, but is not limited to, the following data:

   (a) Total list of contracts during the period.
   (b) Total Contracts Cost.
   (c) MBE Goal ($) & % of Contracts Cost.
   (d) MBE Actual ($) & % of Contracts Cost.
   (e) WBE Goal ($) & % of Contracts Cost.
   (f) WBE Actual ($) & % of Contracts Cost.

3. **Professional Services M/WBE Program Report**: This report shall include, but is not limited to, the following:

   (a) Total list of contracts during the period.
   (b) Total Contracts Cost.
   (c) MBE Goal ($) & % of Contracts Cost.
   (d) MBE Actual ($) & % of Contracts Cost.
   (e) WBE Goal ($) & % of Contracts Cost.
   (f) WBE Actual ($) & % of Contracts Cost.

4. **Vendor Services M/WBE Program Report:** This report shall include, but is not limited to, the following:

   (a) Total list of vendor services "under contract" during the period;
   (b) Total Transaction Cost.
   (c) MBE Goal ($) & % of Transaction Cost.
   (d) MBE Actual ($) & % of Transaction Cost.
   (e) WBE Goal ($) & % of Transaction Cost.
   (f) WBE Actual ($) & % of Transaction Cost.

E. Compliance

1. It will be the responsibility of the M/WBE Contractor to ensure that invitations to bid and related bid proposals issued by the BOARD adhere to the provisions of this Policy.
2. The BOARD shall assume ultimate responsibility for evaluating compliance with this Policy to ensure that objectives contained herein are being appropriately addressed and realized.

The decision of the BOARD with respect to any aspect of this Policy or any requirements imposed or promulgated hereunder shall be final and conclusive for all purposes.

3. Each BOARD contract that is subject to this Policy will contain a provision requiring compliance with its provisions and maintenance and delivery of all records and information necessary to document compliance.
4. The M/WBE Contractor shall require documentation of all M/WBE pay requests and payments made to M/WBEs.
5. The M/WBE Contractor will monitor and evaluate bidder and contractor performance and compliance under this Policy, including, without limitation, the initial evaluation of satisfaction of M/WBE participation goals and/or good efforts stipulated herein. Failure to comply with such requirements may result in a recommendation for suspension or debarment of the firms and/or individuals involved.

F. Dispute Resolution

1. Any bidder or contractor with concerns or grievances related to the performance of BOARD personnel, the M/WBE Contractor, or any BOARD committee in regard to this Policy (to also include any decision or recommendation made by such person(s) or committee) shall submit a written complaint addressed to the County Administrator detailing the same. Following a review of the complaint, the County Administrator will endeavor to respond in writing the complaining party in a timely manner. To the extent determined appropriate by the County Administrator, the written complaint shall be forwarded to the BOARD for review at a future meeting. Any written complaint authorized hereinabove shall be submitted by the contractor or bidder as soon as practical, it being noted that no complaint submitted by a bidder will be considered by the BOARD unless physically received and acknowledged by designated BOARD personnel at least two business days prior to any meeting of the BOARD at which the subject bid is to be considered. Notwithstanding the opportunity to submit a written complaint pursuant to this subsection, the BOARD shall be under no obligation to consider or act upon the same, and any decision or determination made by the BOARD in connection with any such complaint shall be final and conclusive for all purposes.

2. In the event that there is a complaint by a subcontractor or supplier concerning the prime contractor, the complainant shall submit their written complaint to the M/WBE Contractor. Following a review of the complaint, the M/WBE Contractor will endeavor to respond in writing to the complaining party in a timely manner; provided, however, that it is not the intent of this subsection that either the M/WBE Contractor or the BOARD shall be the arbiter of business disputes between the prime contractor and its subcontractors and suppliers. Any such complaints authorized in this subsection shall be limited to purported violations of this Policy.

G. Competitive Bids

Nothing in this Policy is to be construed to (a) require the BOARD to award a contract to other than the lowest responsible bidder; or to (b) require contractors to contract with or to make significant material purchases from M/WBEs who do not submit the best overall pricing.

Notwithstanding the foregoing, projects utilizing state or federal funds will be awarded in accordance with all state or federal rules and regulations, as applicable.

H. Annual Assessment

On an annual basis or at such earlier time(s) specified by the BOARD, the BOARD (or a committee

thereof) will review the M/WBE Report and such other information as determined appropriate to measure the effectiveness of this Policy in promoting its objectives.

The Program may be extended on an annual basis, if after analysis, the determination is made by the BOARD that the objectives of this Policy are being meaningfully advanced in a manner consistent with the BOARD's public mission. Absent any action by the BOARD to the contrary, this Policy will be deemed automatically extended on an annual basis.

VIII. PARTICIPATION GOALS

The BOARD will establish M/WBE participation goals for each construction, professional services, and vendor services contract opportunity that is subject to this Policy as are reasonable and practical given, among other factors, the availability of M/WBEs capable of participating with respect to any such contract opportunity; provided, however, that the BOARD desires to minimally achieve a participation goal with respect to MBE firms of 10% and a participation goal with respect to WBE firms of 3%, with a combined desired minimum participation goal for M/WBEs of 13%. Contract goals will be expressed as a percentage of the total amount of a contract.

IX. REQUIRED CONTRACT CLAUSES

Each contract subject to the provisions of this Policy shall contain such provisions as may be necessary or desirable to ensure that the contractor timely and fully complies with the requirements of this Policy. Without limiting the foregoing, all such contracts shall contain the following: provided, however, that the precise wording of such provisions may be altered to the extent determined appropriate by legal counsel for the BOARD or to meet the requirements of any state or federal funding program in which the LDCA is participating:

A. **The contractor (and any involved subcontractor) shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall fully perform and observe all applicable requirements imposed by this Policy in connection with this contract and the award and administration of related subcontracts and procurement of materials and supplies. Failure by the contractor to fully perform and observe such requirements shall constitute a material breach under this contract for which the BOARD shall be entitled to pursue any and all remedies authorized by this contract or otherwise available at law or in equity, including, without limitation, the termination of this contract.**

B. **The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract not later than 10 days from the receipt of each payment the prime contractor receives from the BOARD. Any delay or postponement of payments from the above referenced time frame may occur only for good cause following written approval of the BOARD. This clause applies for both M/WBE and non-M/WBE subcontractors.**

X. MONITORING AND ENFORCEMENT MECHANISMS

Activities under this Policy shall be monitored and enforced in accordance with such procedures as may be established from time to time by the BOARD, provided that the following procedures are initially approved as desirable for the effective administration of this Policy:

A. The M/WBE Contractor shall compile and maintain data on M/WBE participation, including data concerning prime and sub-contracts awarded to M/WBEs. Information concerning

contracts subject to this Policy shall be maintained by the BOARD in accordance with its customary records retention practices. M/WBE statistics shall be maintained in the following manner:

1. Contracts shall be classified into three categories: construction, professional services, and vendor services; and

2. Statistics shall measure overall awards to M/WBEs by category of service: construction, professional services, and vendor services.

B. In addition to any other reports provided for in this Policy, semi-annual reports shall be submitted by the Contract Compliance Officer to the BOARD consistent with its fiscal year and compiled from data furnished by the M/WBE Contractor. The data to be submitted shall include the following:

1. Regarding contracts for professional services or vendor services, the data shall include the total contract value and the total contract value with M/WBEs; and

2. Regarding construction purchases, the data shall include the total value of construction contract awards, the total value of prime construction contracts awarded to MBEs and WBEs, the total value of construction subcontracts awarded to MBEs and WBEs; and

3. Regarding achievement of M/WBE participation goals (construction projects only), the data shall additionally include a comparison of proposed M/WBE participation versus actual participation.

C. The M/WBE Contractor will be responsible for evaluating compliance with this Policy and its efficacy on a continuing basis. The BOARD may amend the reporting requirements recited above from time to time at their discretion as deems appropriate and give prior notice.

D. Contractors will be required to submit periodic reports of subcontracting on BOARD projects and the participation of M/WBEs in such form and manner and at such time as BOARD may prescribe in the subject contract and shall report all suspected instances of business enterprises fraudulently claiming M/WBE status in order to unjustly benefit from this Policy.

E. The M/WBE Contractor will monitor and track actual M/WBE participation through performance of the contract, and including, but not necessarily limited to, the following:

1. **Post-Contract Award**. After the contract award, the M/WBE Contractor will review the award documents for the scope of work each M/WBE and first –tier subcontractor is scheduled to perform, and the dollar value of that work.

2. **Pre-Construction Conference**. The M/WBE Contractor and the contractor, or their representatives will schedule a Pre-Construction Conference, to review the work each M/WBE subcontractor is scheduled to perform.

3. **Construction Contract Monitoring**. The Contract Compliance Officer and/or the M/WBE (or such inspector as may be engaged by the BOARD for such purpose) shall be entitled to monitor and inspect any activities performed under the contract, and the contractor and all subcontractors shall cooperate with the Contract

Compliance Officer, the M/WBE Contractor, and/or any other inspector engaged by the BOARD in all such inspections.

In the event that it is determined that an M/WBE firm scheduled and contracted to perform a designated scope of work that has been subcontracted to an unapproved firm, the M/WBE Contractor will notify the contractor of the apparent discrepancy and potential loss of payment. The M/WBE Contractor will investigate and make a recommendation regarding such discrepancy to the contractor, involved subcontractor(s) and the County Administrator.

4. **Record Keeping and Final Report Utilization of M/WBE.** With respect to each contract that is subject to this Policy, the contractor shall be primarily responsible for the creation and maintenance of the following, which shall be furnished to the Contract Compliance Officer and the M/WBE Contractor upon request: (a) the name and business address, regardless of tier, of every M/WBE involved in the performance of the contract or applicable project; (b) the date of payment and the total dollar figure paid to each of the firm; and the date(s) work was performed (or materials or supplies were delivered) by the M/WBE firm, along with the corresponding dollar value of the work claimed toward M/WBE goals. Prime contractors shall be required to maintain records and documents of payments to M/WBE firms for at least three years following performance of the contract and will make the same available for inspection and copying, upon without charge or other cost to the BOARD, upon request by the M/WBE Contractor and/or any employee or authorized representative of the BOARD. This reporting and records retention requirement shall also extend to any M/WBE involved in the performance of the contract or applicable project.

Payments to the M/WBE subcontractors will be reviewed by the M/WBE Contractor and the Contract Compliance Officer to ensure that the actual amount paid to the M/WBE subcontractors equals or exceeds the dollar amounts stated in the schedule of M/WBE participation.

5. **Final Report-M/WBE Utilization**. Upon the successful completion of any contract that is subject to this Policy, the contractor shall submit to the M/WBE Contractor for the approval a summary of the utilization and participation of any and all relevant M/WBE firms. This information shall be submitted on the “Project Closeout M/WBE Utilization Report” as provided by the BOARD. This report must be submitted to the M/WBE Contractor and approved prior to the official “closeout” of the contract. All discrepancies, exceptions, and reconciliations must be satisfied prior to the official closing of the contract.

XI. EVIDENCE OF PARTICIPTION COMMITMENT; GOOD FAITH EFFORTS

A. Demonstration of Good Faith Efforts

The principal obligation of the bidder is to make good faith efforts to fully satisfy the M/WBE participation goals established pursuant to this Policy. The bidder can demonstrate that it has done so either by exceeding (or meeting) the contract participation goals or documenting good faith efforts confirming (to the satisfaction of the BOARD) why said goals were not met. Examples of good faith efforts which the BOARD determine appropriate may be found in 49 CFR Appendix A to Part 26; it being noted that said Appendix shall serve as a guide only and that the MWBE Contractor, in consultation with the County Administrator, may establish such requirements and measures applicable to good faith efforts as determined appropriate. The M/WBE Contractor is responsible for initially determining whether a bidder who has not met the designated M/WBE

contract participation goals, has documented sufficient good faith efforts to be regarded as responsive. The M/WBE Contractor will review all good faith effort documents for relevance, legitimacy, and accuracy. The M/WBE Contractor, based on submitted documentation, will initially determine whether such documentation satisfies the good faith requirements established under this Policy. Notwithstanding the foregoing, the determination of the Board regarding good faith efforts under this Policy shall be binding and conclusive for all purposes.

B. Review of Adverse Determination

In the event any adverse determination is made by the M/WBE Contractor or the BOARD with respect to the sufficiency of the M/WBE participation and/or "good faith efforts" under this Policy, the affected bidder may submit a written grievance requesting reconsideration by the BOARD as provided in Section VII.F. hereof. Absent willful refusal by a bidder to attempt to comply with the requirements of this Policy, the failure of a bidder to meet the applicable M/WBE participation goals or, alternatively, to confirm its good faith efforts with respect to any bid, will not result in the bidder being deemed unresponsive for purposes of the invitation to bid. Rather, in the event the bidder fails to satisfy the applicable M/WBE participation goals or, alternatively, to confirm its good faith efforts, the bidder will be ineligible to receive any points under the MWBE component of the bid evaluation criteria.

C. Good Faith Efforts when a M/WBE is Replaced on a Contract

When a contractor determines that a designated M/WBE is unable or has failed to satisfactorily complete its work in connection with a contract (and prior to any termination or modification of the subcontract with the M/WBE), the contractor shall be required to contract with another M/WBE or document to the satisfaction of the County Administrator the contractor's good faith efforts why such substitution is not practicable. Any request for substitution of a designated M/WBE must be promptly delivered in writing to the M/WBE Contractor and signed by the contractor and shall include documentation and other evidence satisfactory demonstrating the inability or failure of the designated M/WBE (as well as the contractor's good faith efforts is substitution with another M/WBE firm is not practicable). The M/WBE Contractor shall timely review, investigate, and make a recommendation to the County Administrator for approval or denial. No such substitution or other change of M/WBE firms shall be permitted unless and until approved by the County Administrator.

If the contractor fails or refuses to comply in the time specified, the BOARD Contract Compliance Officer shall be authorized to issue an order stopping all or part of payment or work under the contract until satisfactory action has been taken (with any resulting costs and damages to be assumed by the contractor). If the contractor still fails to comply, the BOARD, through the County Administrator, shall be authorized to terminate the contract for cause and take such other or additional action as may be authorized under the contract or otherwise available at law or in equity.

XII. PUBLIC RECORDS.

Bidders and other business enterprises are advised that the contents of any bid and all documents, materials, and information submitted in connection therewith or pursuant to this Policy may be subject to disclosure as required by The Georgia Open Records Act and any and all other applicable laws, and bidders and all contractors, subcontractors and other business enterprises submitting such information to the BOARD shall be deemed to release and forever discharge the BOARD, and its commissioners, officers, officials, employees, representatives, and agents (as well as the M/WBE Contractor) from any damage, losses, suit, costs, or other liabilities of whatever kind arising from such disclosure (whether or not permitted by applicable law). Without limiting the foregoing, bidders, contractors, subcontractors, and all other business enterprises are specifically advised that labeling information provided pursuant to this Policy as

"proprietary" or "confidential", or any other designation of restricted use, will not protect the information from public inspection and copying.

XIII. SUBJECT TO STATE AND FEDERAL LAW

Nothing herein shall be interpreted to mean that the BOARD is relieved from observing and complying with applicable state and federal laws, including, without limitation, the Georgia Local Government Public Works Construction Law, O.C.G.A. §§ 36-91-1 et seq. In the event of a direct conflict between any such applicable state and/or federal laws and the provisions of this Policy, said state and/or federal laws shall in all instances govern.

XIV. NO RIGHTS CREATED OR VESTED

Nothing in this Policy or any program, assistance, or other action undertaken by the BOARD or the M/WBE Contractor in connection herewith, or any submission made or action taken by any bidder, M/WBE, or other business enterprise in reliance upon this Policy, shall invest any bidder, MWBE, or business enterprise with any interest, right, privilege, or claim of any kind with respect to the bidding process, the proposed contract, or otherwise; it being further noted that no bidder, M/WBE, or business enterprise is intended to be a direct or indirect beneficiary of this Policy, and no such bidder, M/WBE, or other business enterprise shall have any right to enforce or compel the performance of this Policy for any reason whatsoever.

XV. BOARD NOT LIABLE FOR COSTS.

All costs, fees (including, without limitation, legal fees), charges, and expenses incurred by any bidder, M/WBE, or other business enterprise in connection with this Policy, of whatever amount and nature, direct or indirect, shall be borne exclusively and completely by said bidder, M/WBE, or other business enterprise, as the case may be. Neither the BOARD nor the M/WBE Contactor shall have any liability or obligation of any kind for any such costs, fees, charges, and expenses. In no event will any claim whatsoever be made against BOARD, or its employees, agents, or consultants, for reimbursement of any costs, fees, charges, or expenses incurred in connection with this Policy.

XVI. WAIVER OF TECHNICALITIES AND DEFICIENCIES.

The BOARD, in its absolute judgment, reserves the right to waive any technicality, noncompliance, or informality in determining compliance with this Policy or otherwise in administering or enforcing the same. BOARD shall be the sole judge of all matters relating to this Policy, and its decision in such matters shall be absolute and final.

MINORITY AND WOMEN BUSINESS ENTERPRISE GOOD FAITH FORM

Name of Offeror: _____

Proposal No: _____

If you have failed to secure M/WBE participation or if your M/WBE participation is less that the County's project goal, you MUST complete this form.

If the offeror's method of compliance with the M/WBE goal is based upon demonstration is of a "good faith effort," the offeror will have the burden of correctly and accurately preparing and submitting the documentation required by the County. Compliance with each item, 1 through 4 below, shall satisfy the Good Faith Effort requirement absent proof of fraud, intentional and/or knowing misrepresentation of the facts or intentional discrimination by the offeror.

This form is t be made part of the sealed proposal and submitted in its entirety with supporting documentation. Failure to comply will result in the proposal being considered non-responsive and the proposal will not be read or considered.

Please list each and every subcontracting and/or supplier opportunity (DO NOT LIST NAMES OF FIRMS) which will be used in completion of this project, regardless of whether it is to be provided by a M/MWBE or non M/WBE.

(Use additional sheets, if necessary)

List of:	List of:
Subcontracting Opportunities	Supplier Opportunities
_____	_____
_____	_____
_____	_____
_____	_____

Did you obtain a current list of M/WBE firms?

_____Yes, Date of Listing _____/_____/_____

_____No Source: _____

Please indicate subcontract or supplier list categories for which potential M/WBE offeror's list were provided? Provide detail of how these M/WBE's were solicited.

_____

_____

_____

Please attach the following:

Evidence of solicitation to prospective MBE or WBE firms, such as advertisements, phone logs and copies of solicitations letters.

List by trade of certified MBE or WBE subcontractors solicited but not selected, including name, address, telephone number, contact person, date of contact, and outcome of contact, including dollar amount of MBE or WBE quote and selected subcontractor quote.

List of any job-specific criteria that disqualified a certified MBE or WBE firm that submitted a low proposal for a subcontract.

PROPOSED SCHEDULE OF M/WBE PARTICIPATION FORM

Name of Offeror:

_____

Proposal No:

_____

Total Proposal Amount:

_____

Name of M/WBE Participant	Address	Type of Work Sub-Contracted	Subcontract Value	MBE/WBE Status

A separate listing of M/WBE Participants may be provided if space will not allow for full identification.

MBE Participation Value: _____% $_____

WBE Participation Value: _____% $_____

The undersigned will enter into a formal agreement with the M/WBE Subcontractors/Offerors identified herein for work listed in this schedule conditioned upon the execution of a contract with the County.

Joint Venture Disclosure

If the prime offeror is a joint venture, please describe below the nature of the joint venture and level of work and financial participation to be provided by the Minority/Female joint venture firm.

Joint Venture Firms	Level of Work	Financial Participation

Signature: _____

Title: _____

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By

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ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

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STANDARD GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

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c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.

23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

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b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

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40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or

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chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

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3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.

G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

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3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.

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B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the

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Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

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2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and

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interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

   1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

   2. Abnormal weather conditions;

   3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and

   4. Acts of war or terrorism.

D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

   1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

   2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

   3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

   1. The circumstances that form the basis for the requested adjustment;

   2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

   3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

   4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

   5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

   Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

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G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

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C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. *Reliance by Contractor on Technical Data*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

D. *Limitations of Other Data and Documents*: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

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3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

   b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

   c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

   a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;

   b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract

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Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

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During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

    a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

    b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

    c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

3. Technical Data contained in such reports and drawings.

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B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

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H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety.

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The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

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F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

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2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

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D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.

2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

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D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

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B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that the proposed item:

1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) has a proven record of performance and availability of responsive service; and

4) is not objectionable to Owner.

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b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

a. will certify that the proposed substitute item will:

1) perform adequately the functions and achieve the results called for by the general design;

2) be similar in substance to the item specified; and

3) be suited to the same use as the item specified.

b. will state:

1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

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2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

c. will identify:

1) all variations of the proposed substitute item from the item specified; and

2) available engineering, sales, maintenance, repair, and replacement services.

d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

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C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.

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B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within

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30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

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H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the

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Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

a. Contractor shall submit the number of Samples required in the Specifications.

b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

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8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only

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by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
2. normal wear and tear under normal usage.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;
2. Recommendation by Engineer or payment by Owner of any progress or final payment;
3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. Use or occupancy of the Work or any part thereof by Owner;
5. Any review and approval of a Shop Drawing or Sample submittal;
6. The issuance of a notice of acceptability by Engineer;
7. The end of the correction period established in Paragraph 15.08;
8. Any inspection, test, or approval by others; or
9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

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B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange

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to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract

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Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

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9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and

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observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract,

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tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

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4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

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11.06 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:

1. A mutually acceptable fixed fee; or

2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;

b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;

c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the

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costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.

   a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

   b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

   The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change

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Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

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D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be

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apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.

5. Other costs consisting of the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

        1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

    c. *Construction Equipment Rental*

        1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

        2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.

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3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

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D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

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B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such

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inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

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14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

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B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the

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Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

    a. the Work has progressed to the point indicated;

    b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

    c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

    a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

    b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

    a. to supervise, direct, or control the Work;

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

    d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or

    e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, requiring correction or replacement;

    b. the Contract Price has been reduced by Change Orders;

    c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

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d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. The Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. The Contract Price has been reduced by Change Orders;

i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or

l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

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3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents,

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or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

   d. a list of all duly pending Change Proposals and Claims; and

   e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

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3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Final Application and Recommendation of Payment*: If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect

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Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;
2. correct such defective Work;
3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

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16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

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16.03 *Owner May Terminate for Convenience*

A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;

2. agree with the other party to submit the dispute to another dispute resolution process; or

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3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the

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written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SUPPLEMENTARY CONDITIONS

01. GENERAL CONDITIONS

The "Standard General Conditions of the Construction Contract", Engineers Joint Contract Documents Committee, 2018 Edition, Articles 1 through 18 inclusive, included herein preceding these supplements, is a part of this Contract.

ARTICLE 6 – BONDS AND INSURANCE

Contractor's protective liability insurance, with limits as follows:

Personal injury including death - limits of $100,000. for each person and $1,000,000. for each occurrence.

Property damage - $100,000. for each and $1,000,000. for the aggregate for operations.

Contractor's public and automobile liability insurance (including contractual liability insurance as applicable to the Contractor's obligations under paragraph 4.18) with limits as follows:

Personal injury including death - limits of $100,000. for each person and $1,000,000. for each occurrence.

Property damage - limits of $100,000. for each occurrence and $1,000,000. for the aggregate of operations.

a. Any exclusion of so-called underground damage to pipes, collapse of structures or damage resulting from explosion or blasting, shall be deleted.

b. The policy shall provide completed operations coverage, and such coverage shall be maintained by the Contractor for a period of one year from the date of payment of the final amounts owed the Contractor by the Owner, whichever occurs first.

Owner's protective liability insurance, in the name of the Owner, his professional consultants and their agents as additional insureds under the contractor's general liability insurance policy with respect to the services performed by the Contractor for the Owner, with the following limits:

Personal injury including death - limits of $100,000. for each person and $1,000,000. for each occurrence.

Property damage - limits of $100,000. for each occurrence and $1,000,000. for the aggregate of operations.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

Add the following sentence as paragraph 5 of Section 15.01 B:

“Each payment request shall be accompanied with record drawings showing as-built conditions of all work requested during the pay period.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 B Any dispute arising under this agreement shall first be resolved by utilizing non-binding mediation, however should the dispute not be resolved by this method it shall be heard in the Superior Court of the County in which the owner resides, and the parties consent to jurisdiction and venue in that Court. The parties waive any defense they may have to lack of jurisdiction or improper venue and agree to have all disputes resolved in the Superior Court of the County in which the owner resides.

SECTION 01150
MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 QUANTITIES

A. Quantities: Quantities listed in the Proposal are approximate only and are intended to serve as a guide in comparing proposals, and may be increased or decreased without invalidating the unit price proposals.

B. Payment: Contractor shall be paid for actual in place quantities as determined by the Engineer field measurements.

C. Discrepancies: In case of discrepancies between the figures shown in the unit prices and totals, the unit prices shall apply and the totals shall be corrected to agree with the unit price.

PART 2 - MEASUREMENT AND PAYMENT

2.01 PAVILION COMPLETE

A. Measurement: Measurement will be made on the basis of a percentage of the completed item.

B. Payment: Payment will be made on the basis of the item of work as shown in the proposal. The work shall include all labor, equipment and materials necessary to complete the task. This item includes, but not be limited to, all permits, excavation, subgrade preparation, compaction, fill material, forming, furnishing and installation of the concrete, reinforcements, CMU blocks, insulation, utility connections, electrical conduit, panels, electrical switches, boxes, plumbing, roofing, down spouts, fixtures, appurtenances, finishes, ceiling fans, lighting, fence, gates, bar-b-que grill, concrete sidewalk, grassing, mulching, mobilization, etc. as necessary to provide a complete facility as shown in the plans, clean up and complete surface restoration.

2.02 SEPTIC SYSTEM COMPLETE

A. Measurement: Measurement will be made on the basis of a percentage of the completed item.

B. Payment: Payment will be made on the basis of the item of work as shown in the Bid. The work shall include all labor, equipment and materials necessary to complete the task. This item includes, but not be limited to, trenching, excavation, proper fill material, hauling, connection to the building, concrete tanks, pump, controls, fittings, supplying and installing piping, valves, accessories, electrical conduit, electrical, wiring, electrical panels, backfill, pressure testing, complete start up and testing of the system, clean up and complete surface restoration.

SECTION 02100
CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Clearing shall consist of the falling, trimming, cutting and disposal of trees and other vegetation designated for removal, including down timber, snags, brush and rubbish occurring within the area to be cleared. Grubbing shall consist of the removal and disposal of stumps, roots larger than 1.5 inches in diameter and matted roots.

PART 2 - EXECUTION

2.01 Trees, down timber, stumps, roots, brush and other vegetation in areas to be cleared shall be removed completely, except such trees and vegetation as may be indicated or directed to be left standing. Trees to be left standing within the cleared areas shall be trimmed of dead branches 1.5 inches or more in diameter.

2.02 Limbs and branches to be trimmed shall be neatly cut close to the bore of the tree or main branches.

2.03 All organic materials, masonry, concrete or metallic debris in the clearing and grubbing areas shall be excavated and removed to a depth of not less than 12 inches below grade where original grade is to remain level and two feet below finish grade, bottom of pavement base and bottom of footings.

2.04 Depressions made by grubbing shall be backfilled and compacted with fill material to meet the requirement for trenching and structural backfilling.

2.05 Machine grubbing shall not be done under trees left standing in the area covered by the branches, nor in any manner which might damage the trees or any new work.

2.06 Trees and vegetation to be left standing shall be protected from damage during clearing, grubbing and construction operations, by the erection of barriers.

2.07 Objects above or below grade interfering with construction shall be removed as directed by the Architect/Engineer.

2.08 DISPOSAL OF MATERIALS

A. Cleared and grubbed materials to be disposed of to an approved off-site disposal area. The disposal area shall be a state-approved landfill.

B. On site burning will not be allowed, without written permission of local authorities. The Forestry Department should be contacted for the permit.

C. The use of an air curtain destructor for on-site burning shall be part of the permit.

SECTION 02210
SITE GRADING

PART I-GENERAL

1.01 QUALITY ASSURANCE

A. Reference Standards:

1. Standards of American Society for Testing and Materials: ASTM-D-698 Moisture-Density Relations of Soils Using 5.5 lb. (2.5 KG) Hammer and 12-inch (304.8 mm) Drop.

2. Methods of Sampling and Testing of American Association of State Highway and Transportation Officials (AASHTO), latest edition.

1.02 TESTING

A. All soil testing shall be performed by an Independent Testing Laboratory selected by the Engineer and paid for by the Contractor.

1.03 EXCESS EXCAVATED MATERIALS

A. Excess excavated materials shall be wasted off site by the Contractor at no expense to Owner, or as directed by the Engineer.

1.04 BORROW MATERIAL

A. Any borrow material required to accomplish all levels, lines and grades indicated shall be furnished by the Contractor at no expense to the Owner.

B. Borrow material shall be obtained from borrow pits off site.

C. The Contractor shall pay for all soil analysis for borrow material.

1.05 EXCAVATED MATERIAL

A. All material to be excavated shall be classified as earth.

1.06 UNSUITABLE BEARING MATERIALS

A. Should unsuitable bearing materials be encountered at levels indicated and found to have insufficient bearing values the Engineer may order the excavation carried to lower depths.

B. Compensation for the removal and/or replacement of unsuitable materials shall be in accordance with the General Conditions.

C. Excavation of unsuitable bearing materials shall not proceed until the conditions have been observed by the Engineer and written approval has been given by the Owner.

PART 2 - EXECUTION

TOPSOIL

A. Areas to be stripped shall first be scraped clean of all brush, weeds, grass, roots and other material.

B. Remove topsoil from areas to be graded and stockpile in locations where it will not interfere with structures, roads or utility operations.

C. Topsoil shall be free from subsoil, debris and stones larger than 2 inches in diameter. The stored topsoil shall be left in piles to be used for finished grading.

D. Stockpiles shall be protected from contamination by undesirable foreign matter and shall be graded to shed water.

EXCAVATION

A. Excavations shall be accomplished to bring surface to the levels, lines and grades as indicated.

B. Excavated material to be used for fill or backfill material shall be stockpiled on the site as directed by the Engineer. Stockpiles shall be graded to shed water.

FILLING

A. All fill material required to bring areas to the levels, lines and grades indicated shall be selected and approved materials from approved borrow areas.

B. Sub-grades on which fill material is to be placed shall be scarified to a depth of not less than 4 inches by plowing or disking. A layer of suitable fill material, approximately 3 inches in depth, shall be spread over the scarified surface and compacted.

C. Fill material shall be spread and compacted in successive uniform layers not exceeding 8 inches in depth (loose measure) until the total thickness of fill is completed.

2.04 COMPACTION

A. Compaction required for material fill shall be 95% of Standard Proctor, maximum dry density as determined by the procedures of ASTM D-698. Fill

areas shall be crowned and sloped to drainage ditches or as required to prevent ponding of surface water.

B. Compaction by flooding of any material is not acceptable. In the event that any flooding takes place, the material and all adjacent softened material shall be removed and replaced with compacted fill at no cost to the Owner.

SECTION 02540H
EROSION CONTROL

PART 1 - GENERAL

1.01 SCOPE

A. The work specified in this Section consists of furnishing, installing, and maintaining temporary erosion controls and temporary sedimentation controls.

B. All erosion and sediment control measures shall be in accordance with the existing Erosion and Sedimentation Control Ordinance of the City of Hinesville.

1.02 DEFINITIONS

A. Temporary erosion controls shall include grassing, mulching, watering and reseeding on-site sloped surfaces, providing berms at the top of the slopes and providing interceptor ditches at the ends of berms and at those locations which will ensure that erosion during construction will be either eliminated or mini- mized.

B. Temporary sedimentation controls shall include silt dams, traps, barriers and appurtenances at the toe slopes and in drainage ways.

PART 2 - MATERIALS

2.01 Hay bales shall be clean, seed free cereal hay type, securely bound with wire or mylar cord.

2.02 Netting shall be 1/2 inch, galvanized steel chicken wire mesh.

2.03 Filter stone shall be crushed stone conforming to the Department of Transportation State of Georgia-Standard Specifications-Construction of Roads and Bridges-1983 or latest edition - Table 800.01 H, Size Number 3.

PART 3 - EXECUTION

3.01 SEDIMENTATION CONTROL

A. Silt dams, traps, barriers, and appurtenances shall be installed and shall be maintained in-place for the duration of construction.

B. Hay bales shall be staked with two (2) 1X4 wood stakes per bale driven eighteen (18) inches into the ground and finishing flush with the top of the bale.

1. Install two (2) stakes per bale with the long dimension of the stakes parallel to the long dimension of the bale.

2. Where bales are installed in multiple layers the bales shall be installed with vertical joints staggered and two (2) 1 x 4 wood stakes per bale driven through all layers, full from top of bale to eighteen inches into the ground.

3. Hay bales that have deteriorated shall be replaced with new materials.

C. Silt Fence

1. Silt fence shall be installed in accordance with manufacture instructions. The bottom 2" should be installed beneath the ground surface.

2. A small trench should be dug before installation. The silt fence should then be installed, and the trench back filled.

D. Erosion and sedimentation controls shall be maintained in a condition that will retain unfiltered water.

E. The Contractor shall construct the sedimentation ponds and control devices prior to clearing and grubbing the site to insure complete silt control. When the silt or the debris level is greater than 1 foot above the bottom of the pond, the Contractor shall remove the silt or debris to restore the proper elevation for the bottom of the pond.

F. The Contractor shall have all erosion and sedimentation control devices in service and operating properly prior to completion and final acceptance of the contract.

3.02 RESPONSIBILITY

A. The Contractor shall be solely responsible for insuring that no silt or debris leaves the immediate construction site. Any silt or debris that does leave the immediate site shall be cleaned up and the area disturbed shall be returned to its natural state as directed by the City Inspector at the Contractor's expense.

B. The Contractor has the option to submit additional control measures in the form of shop drawings.

SECTION 02821
GRASSING

PART 1 - GENERAL

1.01 APPLICABLE STANDARDS

A. Conform to Section 700 and other applicable articles of the "Standard Specifications Construction of Roads and Bridges", of the Department of Transportation, State of Georgia, dated September 15, 1977. Omit all references to measurement and payment.

1.02 SOIL SAMPLES

A. The Contractor shall take soil samples from several areas of the site to be grassed and have them analyzed by the Georgia Extension Service. The results of the analysis shall determine the best fertilizer mixture to use on the site.

PART 2 - MATERIALS

2.01 FERTILIZER

A. Commercial Fertilizer: Fertilizer for lawns shall be a complete fertilizer, the nitrogen content of which shall be derived from either organic or inorganic sources and meeting the following minimum requirements of plant food by weight, unless the soil analysis and report indicates a need for a different fertilizer mixture in which case the recommended mixture shall be furnished and applied. All State and Federal laws relative to fertilizer must be complied with.

10% Nitrogen - 12% Phosphoric Acid - 12% Potash

B. Ground Limestone: Lime shall be ground dolomitic limestone containing not less than 85% of total carbonates and shall be ground to such fineness that 50% will pass through a 20-mesh sieve. Coarser material will be acceptable, provided the specified rates of application are increased proportionately on the basis of quantities passing the 100-mesh sieve.

C. Sodium Nitrate shall be a commercial product in dry powder form and shall be delivered in the original, unopened containers each bearing the manufacturer's guaranteed statement of analysis. It shall contain not less than 16% Nitrogen.

2.02 LAWN MATERIALS

A. Kentucky 31 Fescue (Fescue elatior: var. arundinacea): Seed shall be 98% min. purity and 85% germination.

B. Bermuda Grass (Cyanodon Dactylon): Seed shall be 98% min. purity and 85% germination.

3.01 PREPARATION

A. Prepare the seed bed by thoroughly cultivating discing and hand raking as necessary to produce a smooth even grade free from hollows or other inequalities. Before any seeding is attempted the soil must be in a well pulverized, smooth, friable condition of uniformly fine texture.

3.02 FERTILIZING AND LIMING

A. Approximately two (2) days prior to the start of seeding operations, apply ground limestone at the rate of 20 pounds per 1000 sq. ft. of lawn area. Either in conjunction with the above operation or immediately afterwards apply the specified Commercial Fertilizer over all lawn areas at the rate of 30 pounds per 1000 sq. ft. of lawn area. Work limestone into the top 6 inches of ground and the fertilizer into the top 2 inches of ground.

3.03 When the grass has started to cover well (approximately 4 weeks after sowing seed) apply 1-1/2 pounds of Ammonium Nitrate to all lawn areas and immediately water using a fine spray. At the end of the maintenance period and prior to the final inspection apply 10 pounds of the specified Commercial Fertilizer per 1000 sq. ft. of lawn area and immediately water.

3.04 SEEDING

A. Before any seeding is attempted the soil must be in a well pulverized, smooth, friable condition of uniformly fine texture. Lawn areas shall be seeded evenly with a mechanical spreader at the rate of 2 lbs. of seed per 1000 sq. ft., 50% in one direction and the remainder sown at right angles to first sowing. The seeded areas shall be lightly raked, rolled with a suitable weight roller and watered with a fine spray.

3.05 WATERING

A. Soak soil to a minimum depth of 6 inches immediately after seeding. Do not wash away soil or seed. Keep all surfaces continuously moist thereafter until 30 days after the lawn has been seeded. Use fine spray nozzles only.

3.06 Fescue planting season shall be as approved by Engineer.

3.07 Bermuda Grass seeding shall be planted only between May 1 to September 1.

3.08 Maintenance of grass areas shall consist of watering, weeding, cutting, repair of any erosion and reseeding or resodding as necessary to establish a uniform stand of the specified grasses and shall continue until final acceptance.

3.09 All grassed areas that do not show satisfactory growth within 15 days after sowing shall be re-sown and re- fertilized as directed until a satisfactory blanket is established. Approximately 3 weeks after sowing the last seed, but not before the seed has taken hold and the grass is growing well, apply sulfate of ammonia or sodium nitrate at the rate of 300 pounds to the acre and water immediately. The lawns shall be considered established when they are reasonably free from weed, green in appearance and the specified grass is vigorous and growing well on each square foot of lawn area. Full coverage is required in 60 days.

3.10 All grassed areas shall be protected until accepted. All eroded and damaged areas, regardless of cause, shall be immediately repaired and reseeded. Protect lawn areas against traffic.

3.11 Grassed areas shall be covered evenly with a loose layer of clean wheat, rye, oats, Serecia Lespedeza or Coastal Bermuda Hay. Two tons of dry mulch shall be applied to each acre seeded. Hay shall be placed during calm weather with no wind.

3.12 As soon as the grass becomes established, a final inspection of the work will be made, provided a written request for such inspection is given to the Engineer. Satisfactory coverage is defined as coverage of the areas seeded with grass that is alive and growing, leaving no bare spots larger than one (1) square foot with 98% coverage.

3.13 When grassing is required between curbs and sidewalks, behind sidewalks in areas adjacent to private property, the Engineer may change the type of seeding to that required to match any type of grass which may be planted and growing on the adjacent lawn. No increase in the Contract Sum will be made for this substitution.

3.14 All temporary valves, cutoffs and piping shall be removed by the Contractor at final acceptance of the grassing.

SECTION 03300
CONCRETE GENERAL

PART 1 - GENERAL

1.01 QUALITY STANDARDS

A. Any procedure and material operation specified by reference to the following publications shall comply with the requirements of the current specification or standard:

1. American Society for Testing Materials (ASTM):

A185 Welded Steel Wire Fabric for Concrete Reinforcement. A615

Deformed Billet-Steel Bars for Concrete Reinforcement.

C31 Method of Making and Curing Concrete Compression and Flexure Test Specimens in the Field.

C33 Specification for Concrete Aggregate.

C39 Compressive Strength of Molded Concrete Cylinders.

C94 Specification for Ready-Mixed Concrete. C143

Slump of Portland Cement Concrete.

C150 Portland Cement

C172 Sampling Fresh Concrete

C192 Making and Curing Concrete Test Specimens in the Laboratory.

D1751Preformed Expansion Joint Fillers for Concrete Paving.

2. American Concrete Institute:

ACI 301 Specification for Structural Concrete for Buildings.

ACI 305 Recommended Practice for Hot Weather Concreting.

ACI 318 Building Code Requirements for Reinforced Concrete.

ACI 350 Sanitary and Water Holding Structure.

1.02 QUALITY CONTROL

A. The Contractor shall submit to the Engineer, for review a design mix for each class of concrete listed under CLASSES OF CONCRETE, prior to placing any concrete.

B. Verification tests of design mixes and aggregates are required by the Engineer. Verification test specimens shall be made in accordance with ASTM C39 by an Independent Test Laboratory. Compressive strength shown by verification tests shall be at least fifteen percent in excess of the strengths listed under CLASSES OF CONCRETE. The Independent Testing Laboratory shall report the test results to the Engineer in writing and shall note any failure to meet the specification.

C. Verification tests of design mixes made not more than one year prior to the date of submittal will be acceptable provided they were made from materials identical to those to be used in the project.

D. Mill Test: Conducted in accordance with ASTM A615 recommendations on each 15 tons, or less reinforcing shipped to the job. Two (2) copies of test to be sent to the Engineer.

E. Inspection and Testing of Concrete:

1. The cost of slump tests and sampling, molding, storing, materials, transporting concrete test specimens shall be paid by the Contractor. The laboratory or inspection agency shall be selected by the Owner. Costs of all laboratory testing services required because of failure to meet the requirements of these specifications shall be paid by the Contractor.

2. One set of four (4) acceptance cylinders shall be prepared for each day's placing of each strength of concrete and if more than 50 cubic yards of concrete is placed in any day, there shall be an additional set of cylinders prepared for each 50 cubic yards placed or for any fraction thereof. One cylinder shall be broken at seven days and two at twenty-eight days, with one cylinder held in reserve.

3. Responsibilities in Inspection:

a. Laboratory's Duties

(1. The reception and marking of specimens in the laboratory, laboratory curing, preparation for breaking and testing of cylinders shall be the responsibility of the laboratory and shall be performed by qualified laboratory personnel, observing all requirements of applicable ASTM Standards. Compression test specimens shall be tested in accordance with ASTM C39.

(2. Prior to the commencement of concrete work, the laboratory shall provide initial instruction in the performance of sampling and testing duties for an employee designated by the Contractor and shall provide him with copies of all ASTM Standards pertinent to his duties.

b. Contractor's Duties:

(1. The Contractor shall deliver to the laboratory all materials to be used in required testing. He shall supply wheelbarrows, shovels, mixing boards, shaded work space and similar equipment required for molding test cylinders. He shall provide stable, insulated storage boxes, equipped with thermostatically controlled heat, for storage of cylinders in the first 24 hours after molding.

(2. He shall designate an employee, who alone shall perform all operations of sampling concrete, molding test specimens, protecting test specimens for the first 24 hours after molding, and packing and shipping of test specimens. The employee shall make a record of a slump test in connection with each truckload of concrete. The designated em- ployee shall receive initial instruction in the performance of his sampling and testing duties from a representative of the testing laboratory and shall have available copies of all ASTM Standards pertinent to his duties. Sampling shall conform to ASTM C172. Slump tests shall conform to ASTM C143. Compression test specimens shall be made and cured in accordance with ASTM C31.

(3. Each set of test cylinders shipped to the laboratory shall be accompanied by a report giving information as to location in the structure of concrete sampled, time and date of sampling, air temperature, slump, class designated nominal strength, air content if applicable, temperature of concrete, truck number, and time batched. Each report shall be signed by the employee making the test and by the Contractor or his representative, certifying that the test specimens have been made by the one designated, fully instructed employee and have been made in accordance with applicable standard specifications.

(4. Should any concrete fail to meet the specified strength, have a slump in excess of that required by the design mix for each class of concrete listed under CLASSES OF CONCRETE, or result in voids, honeycombs or otherwise fail to meet the requirements, the Engineer may order the concrete removed, further tests made, or

other remedial measures taken, all at the Contractor's expense.

1.03 SHOP DRAWINGS

A. After making his check the Contractor shall submit to the Engineer one (1) blue line copy of each of placing plans, bending details and bar lists covering all reinforcing steel.

B. Full information for checking and for proper installation without reference to other drawings shall be included. At splices the amount of lap shall be shown. Location and arrangement of accessories shall be clearly shown. Elevations shall be drawn for all reinforced masonry and reinforced concrete walls to a scale no smaller than 1/4 inch = 1 foot.

C. Work shall not proceed before the Contractor has received shop drawings approved by the Engineer. The Contractor shall be responsible for the conformation of all typical and special reinforcing steel details.

D. Engineer's review is for conformance to the design concept and contract documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the project plans and specifications, nor departures therefrom. The Contractor remains responsible for details and accuracy, for selecting fabrication processes, for techniques of assembly, and for performing his work in a safe manner.

E. Proposed construction joint shall be clearly indicated on shop drawings and subject to approval of the Engineer.

1.04 INSPECTION

A. The Contractor shall give the Governing Authority and Design Engineer 24 hours advance notice before starting to place concrete in any portion of the structure to permit observation. An authorization of the Engineer shall be secured before concrete is placed. Any concrete placed in violation to this provision shall be replaced by new concrete if required by the Engineer.

B. Prior to notification of the Engineer, the Superintendent shall personally inspect the work and verify that it is ready for observation.

C. At the time of observation, all reinforcing in the area where concrete is to be poured shall be in place, tied and ready for the placement of concrete. All anchors, sleeves, inserts, etc., shall be securely held in position.

1.05 STORAGE

A. Reinforcing steel delivered to the job and not immediately placed in forms shall be placed in racks or other supports at least eighteen (18) inches above ground.

PART 2 - MATERIALS

2.01 CEMENT: Portland cement shall conform to ASTM C150, Type I.

2.02 AGGREGATES

A. Aggregates for standard weight concrete shall conform to ASTM C33, maximum size: 3/4 inch.

2.03 WATER

A. Mixing water shall be potable.

2.04 REINFORCING STEEL

A. Reinforcing bars shall be American manufactured conforming to the requirements of ASTM A615 "Deformed Billet Steel Bars for Concrete Reinforcement", Grade 60.

B. Welded wire-fabric or cold-drawn wire for concrete reinforcement shall be of American manufacture and shall conform to the requirements of the ASTM A185 "Welded Steel Fabric for Concrete Reinforcement."

C. Accessories shall conform to the requirements of C.R.S.I. Manuel.

2.05 READY MIXED STRUCTURAL CONCRETE:

A. Ready mix concrete shall be mixed and delivered in accordance with these specifications and requirements set forth in ASTM C94. In addition, these following conditions must be met:

1. Concrete shall be normal weight with an ultimate compressive strength at 28 days, and slump as follows:

2. Air entrained concrete shall be used for all structural concrete with the air content not less than 3 percent and no more than 5 percent.

B. Classes of Concrete:

Class A f'c = 3000 psi Slump 4 inches ±1 inch Class AA f'c= 4000 psi Slump 3 inches ±1 inch Class B f'c = 5000 psi Slump 5 inches ±1 inch

2.06 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Proportion normal-weight concrete mixture as follows:

a. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
b. Maximum Water-Cementitious Materials Ratio: 0.45.

c. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
d. Air Content: 5-1/2 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch (38-mm) nominal maximum aggregate size.

B. Foundation Walls: Proportion normal-weight concrete mixture as follows:

a. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
b. Maximum Water-Cementitious Materials Ratio: 0.45.
c. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
d. Air Content: 5-1/2 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch (38-mm) nominal maximum aggregate size.

C. Slabs: Proportion normal-weight concrete mixture as follows:

a. Minimum Compressive Strength: 4000 psi (17.6 MPa) at 28 days.
b. Minimum Cementitious Materials Content: 520 lb/cu. yd. (309 kg/cu. m).
c. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
d. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.
e. Synthetic Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.5 lb/cu. yd. (0.90 kg/cu. m).

2.06 EXPANSION JOINT MATERIAL

A. Expansion joint material at slabs on grade shall be premolded asphalt saturated cellulose fiber or mineral strips conforming to ASTM D1751.

2.07 WALL TIES

A. Ties shall be made with break-back ends or other means of removing the tie end to a depth of at least 1 inch from the concrete surface after the forms are removed.

2.08 LIQUID FORM SEALER

A. Form sealer shall be a standard product compatible with the finish required for exposed concrete and shall contain no paraffin oil or mineral oil.

2.09 VAPOR RETARDERS

A. Plastic Vapor Retarder: ASTM E 17425, Class C, or polyethylene sheet, ASTM D, 4397, not less than 10 mils (0.25 mm) thick. Include manufacturer’s recommended adhesive or pressure sensitive joint tape.
a. Products:
i. Fortifiber Corporation; Moistop Plus.
ii. Raven Industries, Inc.; Dura Skrim 6.

iii. Reef Industries, Inc.; Griffolyn Type-65.
iv. Stego Industries, LLC; Stego Wrap, 10 mils.

B. Fine-Graded Granular Material: Below all slabs on grade provide 4" minimum thick layer of clean misture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a 3/8-inch (9.5-mm) sieve, 10 to 30 percent passing a No. 100 (0.15 mm) sieve, and at least 5 percent passing a No. 200 (0.075-mm) sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

PART 3 - FORMWORK

A. Forms shall conform to the shapes, lines and dimensions of the members as indicated, and shall be substantial and sufficiently tight to prevent leakage of mortar. They shall be braced or tied together so as to maintain position and shape.

B. Formwork shall be observed by the Governing Authority and Design Engineer before pouring concrete. Before placing the reinforcement, surfaces of wood forms in contact with the concrete, unless lined, shall receive a thorough coating of form sealer. The Engineer shall have the right to reject any forms that do not appear to him to be sufficient as to alignment and of producing the required finished surface. Should misalignment of forms or screed, excessive deflection of forms or displacement of reinforcing occur during concrete placing, corrective measures shall be immediately made to the extent, if necessary, that placing operations shall be stopped and concrete removed from within forms. The surfaces to required dimensions and cross section. Exposed lines and surfaces shall not vary from dimensions shown on plans by more than 1/4 inch in twenty feet.

C. Forms may be constructed of wood or metal. Earth forms for footings may be permitted if local conditions are favorable and approved by the Engineer. Form work for exposed concrete shall be form grade plywood.

D. Studs, waler, and ties shall be so spaced that the load of wet concrete will not stress ties beyond the printed working load recommended by the manufacturer not cause spans of form material to deflect from a true surface.

E. The Contractor shall maintain a continuous check upon formwork during the placing of concrete. An instrument check shall be periodically made or "Tattle Tail" rods or other devices shall be used to detect any settlement in forms.

F. Conduits in Concrete: Conduits shall not displace reinforcing steel from its intended position, nor impair the strength of the structure and should be isolated.

G. The Contractor shall assume all responsibility for removal of formwork. Elevated concrete slabs shall attain 70% of the specified ultimate strength

before removing the forms. After removing forms, slabs shall be reshored at mid-span and at all points under shores supporting forms for the work above. No floor shall be loaded in excess of the live load for which designed unless adequate shores are place beneath members supporting the concrete of load.

3.02 PLACING REINFORCING STEEL

A. Reinforcement shall be shop fabricated, accurately positioned and secured with not less than 16-gauge annealed wire or suitable clips.

B. No bars, partially embedded in concrete shall be field bent, unless noted otherwise.

C. Reinforcing bars shall be accurately placed and secured in position by approved chairs, spacers or ties to maintain the position of the reinforcing steel prior to and during placing of concrete.

D. Reinforcing steel support chairs and bolsters for use in concrete to be exposed shall have galvanized steel leg.

E. No splices shall be made, except as shown on approved Shop Drawings or approved in writing by the Engineer.

F. The placement of reinforcement shall be observed by the Governing Authority and Design Engineer before pouring of concrete. Should there by any delay in the work, reinforcement previously placed shall be reinspected and cleaned if necessary before concrete placement is resumed.

G. Metal reinforcement shall be protected by concrete cover. Where not otherwise shown, the thickness of concrete over the reinforcement shall be as follows:

Footings	3" clear sides and bottom
Slabs	3/4" clear, top and bottom
Beams	2" clear, all around
Walls	2" clear, both faces
Columns & Piers	2" clear

H. All splicing or reinforcement not shown shall be approved by the Engineer. Splices shall not be made a point of maximum stress and shall provide sufficient lap to transfer the stress between bars by bond. Hook and bending details, column tie arrangements, etc., shall be as shown by the S.R.A.I. Manual or the ACI Detail Engineering Manual.

I. Wire mesh reinforcing shall be placed one inch from top of concrete slabs on ground. Lap all joints 12 inches and extend mesh to within 1 inch of sides and ends of slabs.

J. Wire brush all steel prior to placing concrete.

3.03 CONCRETE MIXING AND PLACING

A. Ready-mix concrete shall conform to ASTM C94. Not more than one hour shall elapse between the time mixing water is added to the batch and the concrete is poured. No water shall be added on the job.

B. No concrete shall be placed until all embedded items and reinforcing have been placed in the forms and observed by the Engineer. At least 24-hour notice shall be given the Engineer of an impending pour, so that he may observe the work, prior to placing.

C. Concrete shall be conveyed from the mixer to the place of final deposit by methods that will prevent segregation or loss of materials.

D. Concrete shall be deposited in its final position to avoid segregations and separation do to rehandling or flowing. The placing shall be carried on at such a rate that concrete is at all times plastic and flows readily into the spaces between bars. When placing is once started, it shall be carried on as a continuous operation, until placement of that section is completed.

E. Concrete shall be worked into and around bars and embedded items with spades, rods, trowels and vibrators, so as to produce a solid homogeneous mass, free of voids, pockets or honeycombs.

F. Construction joints shall be installed and located as indicated. Where a joint occurs, the surface of the concrete shall be thoroughly cleaned and all laitance removed and shall be left rough or mechanically roughened, thoroughly wetted and slushed with a coat of neat cement grout immediately before placement of new concrete.

G. All embedded items, including anchor bolts and dowels, shall be in place, preset and held in position, before any concrete is placed.

H. No concreting shall be performed when ambient temperatures are below 40° F or if the temperature is predicted by the local U.S. Weather Bureau will fall below 40°F within 24 hours after the time of installation.

I. No concrete shall be installed against frozen ground. All foundation cavities and slab areas that have frozen, shall be thoroughly clean of all loose earth prior to pouring concrete.

J. All newly poured concrete shall be protected from freezing or near freezing weather during the cure period.

K. Hot weather precautions shall be taken whenever the maximum air temperature exceeds 80°F during the day. Hot weather concreting shall be performed in accordance with ACI 305.

3.04 ANCHORAGE

A. Slots, inserts, and connections elements for anchoring items to concrete shall be built into forms before placing concrete.

3.05 SLABS ON GRADE

A. Concrete shall be compacted, screeded to grade, and prepared for the specified finish. Slabs shall be placed in panels in alternate checkerboard pattern or in alternate lanes divided into panels. Each panel shall be approximately square terminated by slab joints.

B. Contraction joints shall be true to line 1/8 inch wide, and of depth equal to approximately 1/4 of the slab thickness. Joints shall be sawed or formed.

3.06 CURING

A. Provisions shall be made for maintaining concrete in a moist condition for at least 10 days after the placement of the concrete, or by one of the following methods:

1. Spraying with water or ponding

2. Using moisture retaining covers

3. Concrete curing compound, W.R. Meadows CS-309 or Guardian Chemical Co., Master Builders or Triple-Cure by Cobra Chemicals.

B. The spraying water shall be applied on unformed surfaces within one hour after the forms are stripped and the spraying shall be continuous. The moisture retaining cover shall be applied on unformed surfaces immediately after the concrete is finished. If there is any delay, the concrete shall be kept moist until the application is made. If the surfaces are formed, the forms shall be removed and the concrete sprayed lightly with water before the cover is applied.

C. When concrete surfaces are to receive applied finishes of materials, all curing compounds shall be checked for compatibility with other material to be applied to the concrete surfaces before application.

3.07 CONCRETE FINISHES

A. All poured joints, voids, honeycombs and other imperfections shall be patched within the same working day that forms are removed.

B. Troweled Finish:

1. Troweled finish shall be applied to the surface of all floors unless ceramic tile, quarry tile or pavers are called for on finish schedule.

2. Floor slabs shall be screeded to an even surface by the use of straight-edge and screeding strips accurately set to the proper grade. The concrete shall be floated with a wood float in a manner which will compact it and produce a surface free from depressions

or inequalities of any kind. Floors shall be level with a tolerance of 1/8 inch in 10 feet except where drains are indicated. After the concrete has hardened sufficiently to prevent fine materials from working to the top and has been allowed to stand until all water sheen has disappeared, it shall.

be steel troweled. Final troweling shall be done after the concrete is hard enough that no mortar accumulates on the trowel and a ringing sound is produced as the trowel is drawn over the surface. The drying of the surface moisture before troweling shall proceed naturally and shall not be hastened by the dusting on of dry sand or cement.

C. Non-slip Finish: All exterior platforms and step treads shall be made non-slippery by application at not less than 1/4 lb. per sq. ft. of aluminum oxide or emery aggregate graded from particles retained on a #50 mesh screen to particles passing an 1/8-inch screen placed during the finishing process. Abrasive aggregate shall be sprinkled by hand as soon as the freshly placed cement will support the weight of workmen and floated into the surface.

D. Unfinished Slabs: Depressed slab areas to receive ceramic quarry tile or pavers shall be finished to remove all laitance and to leave a slightly roughened surface to insure bond. The surface of the slab shall not vary in any direction more than 1/8 inch when tested with a ten-foot straight edge. The straight edge shall be lapped one half its length as the test is being made.

3.08 CONCRETE FLOOR HARDENER

A. All concrete floor slabs shall be cured with concrete floor hardener, "Clear Bond", as manufactured by Guardian Chemical, "Triple-Cure: by Cobra Chemicals, or "Seal tight Cs-309 by W.R. Meadows. The floor hardener shall be applied in strict accordance with the manufacturer's recommendations.

B. Walks shall be tooled, full 1 inch deep into separate slabs as indicated. Surface edges of each slab shall be rounded to approximately 1/4-inch radius.

C. Final finish shall be a medium or light broom finish and all tool marks completely removed.

D. Expansion joints shall be placed a maximum 20 ft. intervals and at all intersections with steps, curbs other walks or abutting structures. Joints shall extend from the surface to the subgrade at right angles to the sidewalk.

E. Expansion joint filler shall be 1/2 inch thick and as wide as the full width and depth of the sidewalk.

SECTION 03360
CONCRETE FINISHES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Decorative concrete floor finish system as specified or scheduled.

1. Concrete floor stain.
2. Clear topcoats for concrete finishes as specified or scheduled.
3. Cleaners and strippers for surface preparation as required.

1.2 RELATED SECTIONS

A. Section 03300 - Cast-in-Place Concrete.

1.3 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Surface preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

B. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

C. Installer's Project References: Submit list of successfully completed projects, including project name and location, name of architect, and type and quantity of decorative concrete floor finish systems applied.

D. Maintenance Instructions: Submit manufacturer's maintenance and cleaning instructions.

1.4 QUALITY ASSURANCE

A. Installer Qualifications:

1. Successful experience in application of similar decorative concrete floor finish systems.
2. Employ persons trained for application of decorative concrete floor finish systems.

B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Finish areas designated by Architect.
2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

C. Single Source Responsibility: Concrete floor finish materials shall be products of a single manufacturer.

D. Installation Meeting: Convene a meeting before the start of the application of concrete floor finish system. Require attendance of parties directly affecting work of this section, including Contractor, Architect, and applicator. Review surface preparation, application, protection, and coordination with other work.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solventbased materials, in accordance with requirements of local authorities having jurisdiction.

C. Concrete Floor Wax and Concrete Floor Sealer: Keep away from ignition sources. Do not allow to freeze.

D. Handling: Protect materials during handling and application to prevent damage or contamination.

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Exterior Surfaces: Do not apply materials in wet weather.

C. Concrete Floor Stain: Do not apply when air or surface temperature is below 40 degrees F (4 degrees C).

D. Concrete Floor Sealer: Do not apply when air or surface temperature is below 55 degrees F (13 degrees C).

1.7 SEQUENCING

A. Prepare surface and apply concrete floor stain after other interior finish work is completed and before baseboards and trim are installed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: EPMAR Corporation, which is located at: 13240 Barton Circle; Whittier, CA 90605-3254; Tel: 562-236-1175; Email: request info (villaw@quakerchem.com); Web: www.epmar.com

B. Substitutions: Not permitted.

2.2 CONCRETE FLOOR STAIN

A. Product: Kemiko Stone Tone Stain as manufactured by Epmar Corporation.

1. Type: Combination of acid solution, wetting agents, and metallic ions. When mixed with water, chemically combines with Portland cement to form permanent colors.

2. Color: As selected by Architect from manufacturer's full range.

2.3 CONCRETE FLOOR FINISH

A. Clear Topcoat: High Gloss Clear Epoxy.

1. Product: Kemiko SS3700 WB.
2. Type: High-gloss, quick-dry, amine-cured, water-extended, epoxy coating.
3. Color: Clear.

2.4 CLEANER/ STRIPPER

A. Water Base Cleaner (alkaline concentrate in water): Kemiko Neutra Clean as manufactured by Epmar Corporation.

1. Type: Industrial strength, low VOC, high performance water base sodium metasilicate cleaner for the preparation of bare concrete and coated substrates.
2. Biodegradable with low odor.

PART 3 EXECUTION

3.1 EXAMINATION

A Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Protection:

1. Protect walls and surrounding surfaces not to receive decorative concrete floor finish.
2. Do not allow products to come in contact with wood or metal surfaces.

D. Concrete shall be as specified in Section 033000. Verify concrete is a minimum of 28 days old.

E. Confirm that concrete surface is clean, dry, structurally sound, and free from dirt, dust, oil, grease, solvents, paint, wax, asphalt, concrete curing compounds, sealing compounds, surface hardeners, bond breakers, adhesive residue, and other surface contaminants.

F. Do not acid wash or use heavy alkali cleaners.

3.3 STRIPPING

A. Bare Concrete: Apply water base stripper to substrate and let stand for 2 to 3 minutes. Work into surface with brooms, brushes or floor scrubbing machines. Do not allow stripper to dry on floor. Rinse with clean water and repeat stripping operation until surface is free of wax contaminants. Substrate shall be allowed to dry thoroughly prior to re-coating application.

B. Existing Coatings/Sealers: Apply water base stripper to substrate and let stand for 2 to 3 minutes. Do not allow cleaner to dry on floor. Rinse with clean water and repeat cleaning operation until substrate is free of contaminants. Substrate shall be allowed to dry thoroughly prior to coating application. Stripping of acrylic sealers may result from stripping operation. Test compatibility with existing sealers if scheduled to remain.

C. Reduction:

1. Light Duty: 1-part Kemiko East Strip to 2-part water.
2. Medium Duty: 1-part Kemiko East Strip to 1- part water.
3. Heavy Duty: Applied without dilution.

3.4 CLEANING

A. Bare Concrete: Apply water base cleaner to substrate and let stand for 2 to 3 minutes. Work into surface with brooms, brushes or floor scrubbing machines. Do not allow cleaner to dry on floor. Rinse with clean water and repeat cleaning operation until substrate is free of contaminants. Substrate shall be allowed to dry thoroughly prior to coating application.

B. Existing Coatings/Sealers: Apply water base cleaner to substrate and let stand for 5 to 10 minutes. Do not allow cleaner to dry on floor. Rinse with clean water and repeat cleaning operation until substrate is free of contaminants. Substrate shall be allowed to dry thoroughly prior to coating application. Stripping of acrylic sealers may result from cleaning operation. Test compatibility with existing sealers if scheduled to remain.

C. Reduction:

1. Light Duty: 1-part Kemiko Neutra Clean to 10-part water.
2. Medium Duty: 1-part Kemiko Neutra Clean to 5-part water.
3. Heavy Duty: 1-part Kemiko Neutra Clean to 2-part water.

3.5 STAIN APPLICATION

A. Apply concrete floor stain in accordance with manufacturer's instructions at locations indicated on the drawings.

B. Control depth of color by adjusting volume of stain applied to floor.

C. Apply 2 applications of concrete floor stain. Allow floor to completely dry after each application. Do not scrub clean between applications.

D. After floor has completely dried, scrub off stain residue in accordance with manufacturer's instructions. Allow floor to completely dry.

E. Keep material containers closed when not in use to avoid contamination.

3.6 FLOOR SEALER APPLICATION

A. Apply sealer in accordance with manufacturer's instructions at locations indicated on the drawings.

B. Do not dilute sealer.

C. Apply sealer in a thin uniform film.

D. Apply second coat of sealer if required by manufacturer's instructions. Apply second coat after first coat is dry.

E. Keep sealer film build-up to a minimum.

F. Keep material containers closed when not in use to avoid contamination.

3.7 PROTECTION

A. Protect decorative concrete floor finishes from damage during construction.

B. Protect concrete surfaces from foot traffic for a minimum of 24 hours.

C. Avoid washing concrete surfaces for a minimum of 48 hours.

D. Touch-up, repair or replace damaged products before Substantial Completion.

SECTION 07510
STANDING SEAM METAL ROOF

PART 1. GENERAL

1.1 DESCRIPTION

A. The work covered by this section includes construction of Standing Seam Metal Roof on the concrete masonry block Well House as shown on the drawings.

B. The Contractor shall remove the existing roofing and replaced with a new metal roof and all other materials; labor required for a complete installation.

1.2 QUALITY ASSURANCE

A. Builders and erectors shall not have less than 5 years' experience in erecting a metal roofs similar to those required for the project.

1.3 DELIVERY, STORAGE AND HANDLING

A. Deliver and store prefabricated components, sheets, panels, and other manufactured items so that they will not be damaged or deformed.

B. Stack materials on platforms or pallets, covered with tarpaulins or other approved weather-tight ventilated covering.

C. Store metal sheets and panels so water accumulation will drain freely. Do not store sheets and panels in contact with other materials, which might cause staining.

D. Store material to be readily accessible, with factory markings visible.

1.4 WARRANTIES

A. All Components: Manufacturer's standard 1-year workmanship warranty.

B. Roof Panels: Manufacturer's standard 20-year no-perforation warranty.

1.5 SUBMITTALS

A. Product Data: Six (6) copies of manufacturer's specifications, and descriptive literature.

B. Materials and Color Samples:

1. For each specific material sample requested by Engineer, submit in size, form, and number directed.

2. Submit duplicate color sample sets showing full color range available, for selection purposes.

C. Installation and Maintenance Instructions: Submit complete installation and maintenance instructions of all components.

PART 2. PRODUCTS

2.1 ROOF DESIGN

A. Loads – The basic Design load shall include live and wind (120 MPH) loads in addition to dead load. All loads and combinations of loads for purposes of designing shall be as prescribed in the Standard Building Code.

B. Roof Material – Panel material as specified shall be 24-gauge aluminum coated steel, Aluminized Type II as manufactured by Armco Steel Corporation, or Galvalume as manufactured by Bethlehem Steel Corporation or equal, with a minimum yield stress of 50,000 psi.

C. Purlins and Girts – Purlins and Girts shall be cold-formed “Z” sections with stiffeners flanges. They shall be pre-punched at the factory to provide for field bolting to the rigid frames. They shall be simple or continuous span as required by design.

D. Roof Covering – Roof panels shall be pre-painted G90 (1.25-oz) galvanized steel and embossed (textured).

1. Roof Panel Description – Shall have a configuration consisting of 2-inch high (3-inch including seam) by 4-3/4-inch-wide rib, spaced on 24-inch centers. Panels shall be joined at the side laps with an interlocking seam standing 1-inch above the major rib. Each panel shall provide 24-inch net coverage in width.

E. Miscellaneous Materials

1. Fasteners for Roof Panel Side Lap – All long span panel side shall be stitched by:

a. Self-tapping screws shall be carbon steel, cadmium plated with molded nylon head, No.14 x 3/4-inch Type"AB", assembled with 9/16-inch O.D. aluminum and bonded EPDM washer. These fasteners shall be Fabco "Colorfixx" as manufactured by the Townsend Company or equal.

2. Fasteners for the Standing Seam Roof Panel Slips – shall be attached to the framing member by:

a. Self-drilling screws shall be carbon steel No.12-14 x 1-1/2-inch Hexhead, cadmium or zinc plated, with a 1/2-inch diameter washer head. The fasteners are applicable for use with fiberglass blanket insulation from 0-inch to 6-inch thick, if required.

F. Sealants

1. Closure Strips – The corrugation of the roof shall be filled with solid or closed-cell, preformed ruler, neoprene or polyethylene closures along the eaves, ridge and rake with required for weather tightness.

2. Metal Closures – The corrugation of the Standing Seam II Roof Panels shall be filled with a formed metal closure at the Pump House eave. The closure shall be formed from 20-gauge aluminum coated material to the shape of the panel rib.

3. Sealer – Roof panels side laps shall be have factory-applied mastic, Chemesco Sealant SM-532 or equal. Its composition shall be 90% solids by weight. Service temperature range shall be –60BF to +225BF.

4. Caulk – All rake flashing laps and ridge flashing laps shall be sealed with white or burnished slate pigmented caulk, Chemesco SM-911 and SM-912 or equal. It shall meet or exceed the requirements of Federal Specification TT-S-00230C, Type 2, Class A.

G. Painting – Shall be in accordance to Section 09900 – Painting and to the following specifications as it related to the "Roof".

1. Painted Steel Panels – Shall be factory pretreated. The exterior finish shall have a baked-on primer finish (of 0.15 to 0.20-mil), with a polyester finish coat (of 0.7 to 0.8-mil), totaling a nominal 1-mil dry film thickness. The underside of the panel shall consist of an off-white polyester backer (0.35-mil), over a coat of corrosion resistant epoxy based 0.15 to 0.20-mil primer.

2. Color – Shall be selected from standard color chart. Color shall not change more than 5E (Hunter) units (per ASTM D-224), for a period of 20 years. Color shall not chalk more than a 7-rating (per ASTM D-659), for a period of 20-years. Coating shall not peel, check, crack, or chip for a period of 20-years.

H. Insulation – The interior of the Well House roof shall be insulated with fiberglass blanket insulation. The insulation shall be a minimum of 3-inch thick and faced with white 3.2-mil vinyl.

PART 3. EXECUTION

3.1 ERECTION

A. General

1. Install metal roofing components following manufacturer's instructions and complying with requirements shown on approved shop Drawings.

2. Erection of the roof, insulation and accessories shall be performed by one of the following:

a. Dealer or roofer authorized by manufacturer.

b. Roof manufacturer's crews.

c. Other erectors authorized by manufacturer as trained and qualified to erect the manufacturer's product. In this case, the metal roof manufacturer shall inspect work and certify its correctness in writing to the Engineer and Owner.

B. Roofing Panels

1. General

a. Install roof panels with long edges running parallel to gable ends of Well House, with panel ends parallel to ridge. Install canopy roof panels with long edges running parallel with building walls.

b. Apply panels and associated items for neat and weathertight enclosure.

c. Avoid "panel creep" or application not true to line.

d. Protect factory finishes from damage.

e. Install approved-type closure to exclude weather.

Provide mastic under ridge cap. Flash and seal roof panels at eave and rake perimeter of all openings through roof as required or shown on drawings.

Flash and seal panels of all openings, under eaves, gable times, and elsewhere as required or shown on drawings.

2. Standing Seam Roof Panels

a. Install panes with positive interlock between installation clips and standing seams in a manner that will allow panels to support erection loads prior to closing of seams with seamer.

b. Install concealed anchor clips (of sliding design to allow for expansion and contraction movement of panels) over top of roofing insulation along each standing seam at location and spacing recommended by metal roof manufacturer.

c. Where panel end splices occur, nest panels with 3-inch end lap and install interlocking clamping plates with factory-punched holes and sealant. Make splice independent of structure to allow for free expansion and contraction movement of panels without stress on splice.

d. Close standing seams with approved type motorized seamer tool, to assure complete sealant engagement and to assure structural integrity of panel-to-panel and panel-to-clip connections.

e. Use roof-panel-penetrating type fasteners only at eaves and end splices (when required). At these conditions, use fasteners in conjunction with clamping plates (with factory-punched holes to assure correct fastener placement), and approved butyl sealant to assure positive watertight seals.

f. Install ridge vent unit of approved expansion joint design to accommodate expansion and contraction movement of roof panels.

g. Coordinate installation of accessories and items to be mounted on metal roof.

3. Accessories – Install flashing trim, ridge vent, closure strips, and other accessories and sheet metal items in accordance with manufacturer's recommendations for positive anchorage to Pump House and weathertight mounting.

4. Thermal Insulation – Install in accordance with manufacturer's directions, performed concurrently with installation of roof panels.

    a. Roof Insulation – Install insulation straight and true, in one-piece lengths. Seal both edges to provide complete vapor barrier. Place insulation with facing exposed to view from interior of Pump House unless recommended otherwise by metal roof manufacturer or shown on drawings.

5. Touch up abrasions, marks, skips or other defects in shop-primed or factory-finished painted surfaces with same type material as used for shop primer or factory painting.

6. For finish painting in field, refer to Section 09900 – Painting.

3.2 CLEANING

A. Remove from the site, all scraps and debris left or caused by the work of this section.

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Related Documents:
   1. Drawings and general provisions of the Subcontract apply to this Section.
   2. Review these documents for coordination with additional requirements and information that apply to work under this Section.

B. Section Includes:
   1. Cast-in-place concrete.

C. Related Sections:
   1. Section 01XXX - General Requirements
   2. Section 01XXX - Special Procedures
   3. Section 031000 - Formwork
   4. Section 031500 - Concrete Accessories
   5. Section 032000 - Concrete Reinforcement

1.2 REFERENCES

A. General:
   1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
   2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
   3. Refer to Division 01 Section "General Requirements" for the list of applicable regulatory requirements.

B. American Concrete Institute (ACI):
   1. ACI 211.1 Proportioning Concrete Mixtures
   2. ACI 301 Specifications for Structural Concrete
   3. ACI 303.1 Specification for Cast-in-Place Architectural Concrete
   4. ACI 305 Hot Weather Concreting
   5. ACI 306 Specifications for Cold Weather Concreting
   6. ACI 308 Specifications for Curing Concrete
   7. ACI 309 Consolidation of Concrete
   8. ACI 318 Building Code Requirements for Structural Concrete

C. American Society for Testing and Material (ASTM)
   1. ASTM C31 Practice for Making and Curing Concrete Test Specimens in the Field
   2. ASTM C33 Specification for Concrete Aggregates
   3. ASTM C94 Specification for Ready Mix Concrete
   4. ASTM C143 Test Method for Slump of Hydraulic Concrete
   5. ASTM C150 Specification for Portland Cement
   6. ASTM C156 Standard Test Method for Water Retention by Liquid Membrane Forming Curing Compounds for Concrete
   7. ASTM C171 Specification for Sheet Materials for Curing Concrete
   8. ASTM C172 Practice for Sampling Freshly Mixed Concrete
   9. ASTM C260 Specifications for Air Entraining Admixtures for Concrete
   10. ASTM C309 Specification for Liquid Membrane - Forming Compounds for Curing Concrete
   11. ASTM C330 Specification for Lightweight Aggregates for Structural Concrete
   12. ASTM C494 Specification for Chemical Admixtures for Concrete
   13. ASTM C567 Test Method for Determining Density of Structural Lightweight Concrete
   14. ASTM C618 Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
   15. ASTM C881 Specification for Epoxy - Resin - Base Bonding Systems for Concrete
   16. ASTM E1745Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs

D. American Association of State Highway and Transportation Officials (AASHTO):
   1. M182-60 - Burlap Cloth Made for Jute or Kelat

E. State of California - California Department of Transportation (CALTRANS):
   1. CMM Materials Manual.
   2. Standard Specifications.

F. American Institute of Steel Construction (AISC):
   1. Code of Standard Practice for Steel Buildings and Bridges

1.3 SUBMITTALS

A. Submit under provisions of Division 01 Section "General Requirements."

B. Product Data: Provide data form proprietary materials, including admixtures curing materials, and finish materials.

C. Submit Placement Shop Drawings, showing location of construction joints, clearly indicate the construction joints in different locations that those shown in the Drawings.

D. Samples: As requested by Testing Laboratory.

E. Mix design for each concrete mix sealed by an engineer registered in California.
   1. Include compression test data used to establish mix proportions.

F. Submit certification that the facilities of the ready-mix plant comply with the requirements of ASTM C94.

G. Material Certificates.
   1. Cementitious materials, including supplemental cementitous material.
   2. Aggregates, including gradation and combined gradation.
   3. Admixtures. Where more than one admixture is proposed, include statement from admixture manufacturer indicating that admixtures proposed for use are compatible, such that desirable effects of each admixture will be realized.

H. Submit ticket to Testing Laboratory for each batch of concrete delivered, bearing the following information. Refer to "Field Quality Control" Article of this Section.
   1. Mix identification.
   2. Weights of cementitious materials, aggregates, water and admixtures, and aggregate size.

I. Submit test reports from the independent testing agency for review by the University.

J. LEED Submittals:
   1. Product Data for Credit MR 4.1[and Credit MR 4.2]: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
      a. Include statement indicating costs for each product having recycled content.
   2. Design Mixtures for Credit ID 1.1: For each concrete mixture containing fly ash as a replacement for portland cement or other portland cement replacements and for equivalent concrete mixtures that do not contain portland cement replacements.

1.4 QUALITY ASSURANCE

A. Quality assurance and inspection shall be in accordance with Division 01 Section "Special Provisions".

B. Standards: Comply with provisions of ACI 301, except where more stringent requirements are indicated. Evaluation and acceptance of concrete structures will be in accordance with ACI 301.

C. Concrete Mix Design: Testing Laboratory shall, under direction of its California registered Civil Engineer, design concrete mixes. Each mix shall bear the signature, seal and registration expiration date of the engineer directing the design work. For mixes containing greater than twenty five percent fly ash, the Testing Laboratory shall produce calculations and test batches in accordance with the recommendations of ACI 211.1 to determine the minimum water content and to confirm workability, curing time and compressive strength.

D. Certificates of Compliance: Acceptability of the following materials will be based upon documentation furnished by the manufacturer identifying each batch of material and certifying compliance with the requirements specified:
   1. Portland cement.
   2. Fly ash.
   3. Chemical admixtures.

E. Certified Laboratory Test Reports: Before delivery of materials submit certified copies of the reports of the tests required in referenced standards or otherwise specified here. The testing shall have been performed by an independent laboratory approved by the University within one year of submittal of test reports for approval. Test reports on a previously tested material shall be accompanied by notarized certificates from the manufacturer certifying that the previously tested material is of the same type, quality, manufacture and make as that proposed for use in the Project. Certified test reports are required for the following:
   1. Portland Cement.
   2. Aggregates.
   3. Admixtures.

F. Survey anchor bolts for placement and alignment prior to casting concrete.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

A. Cementitious materials and aggregates for exposed concrete shall be from same source throughout the work.

B. Cementitious Material: An intimate blend of Portland cement and supplemental cementitious material. Cementitious material shall include [15 percent minimum to a maximum of 25 percent] [50% percent minimum to a maximum of 60 percent] fly ash or ground blast furnace slag by weight unless the strength is specified to be achieved in 7 or 14 days. Cementitious material shall comply with ACI 318 Chapter 4 requirements for exposure class S1.

C. Retain first option in first paragraph below if required for LEED-NC Credit ID 1.1. This credit can be achieved by replacing at least 40 percent of the portland cement, which would otherwise be used in concrete, with other cementitious materials. Retain second option if limiting percentage of cementitious materials that can replace portland cement. Neither ACI 301 nor ACI 318 (ACI 318M) limit amount of cementitious materials that can replace portland cement unless concrete is exposed to deicing chemicals. Identify parts of building or structure affected by these limits unless extending them to all concrete.

Otherwise delete option 1 and retain option 2

D. **(Option 1)** [Supplemental Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.]

E. [**(Option2)** [Supplemental Cementitious Materials:
   1. Fly Ash: ASTM C618, Class F with the following Modified ASTM requirements:
      a. Loss of Ignition (L.O.I.): maximum 1 percent.
      b. Sulfur Trioxide (SO_3) shall not exceed 3 percent by weight.
      c. Water requirement maximum: 100 percent control.
         1) R= (CaO-5 percent)/(Fe_2O_3), where R (sulfate resistance) is 0.75 maximum and CaO/Fe2O3 is the percentage from fly ash oxide analysis.
   2. Ground Blast Furnace Slag: ASTM C989.]

F. Aggregate for Standard Weight Concrete: ASTM C33, except as modified herein.
   1. Coarse Aggregates: Cleanness Value of not less than 75 when tested as per CMM-Test Method No. California 227.
   2. Coarse Aggregate for Shrinkage Controlled Concrete: Lonestar or Hanson Clayton, or Sechelt, B.C. (as supplied by Hanson).
   3. Fine Aggregates: Sand Equivalent of not less than 75 when tested per CMM-Test Method No. California 217.

G. Aggregate for Lightweight Concrete: ASTM C330. Lightweight aggregate shall be vacuum saturated expanded shale or clay produced by rotary kiln.

H. Water: Mixing water shall be clean, potable and free from deleterious material.

I. Admixtures
   1. General:
      a. Admixtures containing more than 0.05 percent chloride ions are not permitted.
      b. Where mix contains more than one admixture, all admixtures shall be supplied by one manufacturer. Manufacturer shall certify that admixtures are compatible such that desirable effects of each admixture will be realized.
      c. Liquid admixtures shall be considered part of the total water.

J. Lightweight Concrete shall contain an air entrainment admixture conforming to ASTM C260, to produce an air content of 3 to 5 percent at point of placement.

K. Water Reducing Admixture: ASTM C494, Type A. Provide in all concrete at necessary dosage to facilitate placement.

L. Mid to High Range Water Reducing Admixture: ASTM C494, Type F; polycarboxylate formulation. Provide in mid-range or high-range dosage as necessary for placement at the maximum water to cement ratio specified.

M. Set Accelerating Admixture: ASTM C494, Type E, non-chloride. Subject to approval of University's Representative, provide in necessary dosage to accelerate set.

N. Set Retarding Admixture: ASTM C494, Type D. Subject to approval of University's Representative, provide in necessary dosage to retard set.

O. Color Admixtures: ASTM C579; products of Davis Colors, L. M. Scofield Co, QC Construction Products, or equal. Provide color as approved by the University's Representative from job site samples. Exposed exterior concrete shall contain 2 pounds of lampblack per cubic yard.

2.2 ACCESSORIES

A. Curing Compounds: ASTM C309, [Type I, clear or translucent without dye,] [Type 1-D, clear or translucent with fugitive dye] or Type 2, white pigmented] and which will not discolor concrete or affect bonding of other finishes applied there over, and which restricts loss of water to not more than 0.500 grams per square centimeter of surface when tested per ASTM C156, “Test Method for Water Retention by Concrete Curing Materials.”

B. Slab Curing Membrane: Membrane conforming to ASTM C171, non-staining.

C. Burlap Sheet: AASHTO M182, class 3 or 4.

D. Surface Hardener: Lapidolith, Hornolith, Kemi-Kal Liquid or equal.

E. Rock Base: Clean, hard and durable gravel or crushed rock conforming to the requirements of CalTrans Standard Specifications Section 68 for Class 1, Type A permeable material.

F. Vapor Barrier: ASTM D2103, “Polyethylene Film and Sheeting.”

G. Sand Cover: Uniformly graded, clean sand free from excessive fines, organic materials or other deleterious substances.

H. Form Tie Cone Hole Plugs: Burke Co., Grey, Recessed, Jumbo Cone, “Snaplug”, or equal (no known equal) with waterproof adhesive.

I. Filter drains such as behind concrete walls: Type A drain rock conforming to Division 31 Section "Backfilling" or prefabricated drain manufactured with polyethylene stranded or molded core and a geotextile fabric bonded to one side. Filter drains shall be manufactured by Mirafi, Exxon or equal approved by the Architect-Engineer.

J. Embedded Reglets and Dovetail Anchor Slots: 18-gauge galvanized steel.

K. [Bonding Agent: Burke Acrylic Bondcrete, Thorobond or equal.]

2.3 CONCRETE MIXES

A. Schedule of Concrete Classes:

Mix ID/Use	Aggregate Size	Slump	Min. Strength	Other Req'ts
Mix A Drilled Piers, Foundations	Size 57 (1 inch) (25 mm)	4 to 6 inches (100 to 150 mm)	4000 psi (27.6 MPa)	
Mix B Walls, Columns, Suspended Slabs & Beams	Size 57 (1 inch) (25 mm)	4 to 6 inches (100 to 150 mm)	4000 psi (27.6 MPa)	Req't E.1, Req't E.2
Mix C Floor Slabs on Grade, Miscellaneous Concrete	Size 57 (1 inch) (25 mm)	3 to 5 inches (75 to 125 mm)	4000 psi (27.6 MPa)	Req't E.1, Req't E.2
Mix D Lightweight Concrete Fill on Metal Decking	1/2 inch (13 mm) by #4 lightweight	3 to 5 inches (75 to 125 mm)	4000 psi (27.6 MPa)	Req'ts E.2 and E.3
Mix E Miscellaneous concrete for curbs, pads, etc.	Size 57 (1 inch) (25 mm)	3 to 5 inches (75 to 125 mm)	3500 psi (24.1 MPa)	
Lean Concrete	Size 57 (1 inch) (25 mm)	3 to 5 inches (75 to 125 mm)	1500 psi (10.3 MPa)	

B. Aggregate: Coarse aggregate size number in accordance with ASTM C33 for normal-weight aggregate. Coarse aggregate size in accordance with ASTM C330 for lightweight aggregates.

C. Slump: Minimum-maximum slump at point of placement in inches when tested in accordance with ASTM C143.

D. Strength: Minimum compressive strength in psi after [7] [14] [28] days, tested in accordance with ASTM C39.

E. Other Requirements (apply only where indicated in Schedule of Concrete Mixes)
   1. Shrinkage Controlled Concrete: Use special coarse aggregates specified. Select materials and proportion mix to achieve shrinkage less than 0.040 percent (ASTM C157 modified).
   2. Water to Cementitious Material Ratio: Mixes "B","C" and "D" shall have a water-to-cementitious-material ratio not exceeding 0.45 by weight. Weight of water shall include all free moisture, including liquid admixtures. Mixes shall contain specified high range water reducing admixture at mid-range dosage as required to achieve specified slump.
   3. Lightweight Concrete: Equilibrium weight (at 100 days air dry) of 113 pcf plus or minus 3 pcf, ASTM C567. Mix shall contain 4 percent, plus or minus 1 percent, entrained air by volume at point of placement.

F. Proposed mixes shall produce concrete to strengths specified with adequate workability and proper consistency to permit concrete to be worked into forms and around reinforcement without excessive segregation or bleeding.

G. Mix design shall be subject to review by the University's Representative and the Testing Laboratory. Submit mixes in a timely manner to allow for review and adjustment, if necessary.

H. Add air entraining agent to normal weight concrete mix for work exposed to exterior.

I. Concrete mixes used for liquid nitrogen tank foundations shall comply with ACI 318 Chapter 4 requirements for exposure class F1.

J. For any concrete mix that uses greater than 45% total cementitious material the maximum water-cement ratio shall not exceed 0.38.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify site conditions under provisions of Division 01 Section "General Provisions".

B. Verify requirements for concrete cover over reinforcement.

C. Verify that anchor bolts, embedded plates, reinforcement, sleeves and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

3.2 FORMWORK ERECTION

A. Verify lines, levels, and measurement before proceeding with formwork.

B. Hand trim sides and bottom of earth forms; remove loose dirt.

C. Align form joints.

D. Do not apply form release agent to concrete surfaces which receive [special finishes] [or] [applied coatings] that may be affected by agent.

1. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

3.3 REINFORCEMENT AND EMBEDDED ITEMS

A. Place, support, and secure reinforcement and embedded items against displacement.

B. Installation tolerances for anchor bolts for structural steel columns shall comply with the AISC Code of Standard Practice for Steel Buildings and Bridges requirements for tolerances.

C. Only items that are dimensionally located on the drawings may be embedded in concrete regardless of the trade responsible for placing them.

3.4 PLACING CONCRETE

A. Notify the University at least 48 hours prior to commencement of concreting operations. No concrete shall be placed until all subgrade, formwork, reinforcing steel, embedded items and surfaces against which concrete is to be placed have been accepted by the University. The rate of delivery, haul time, missing time and hopper capacity shall be such that all mixed concrete delivered shall

be placed in forms within 90 minutes from the time of the introduction of cement and water into the mixer. No water shall be added after transit mixer leaves the batching plant without the approval of the University.

B. Prepare previously placed concrete by cleaning with [steel brush] or [sandblasting] [waterblasting] [wet sandblasting] and applying bonding agent in accordance with manufacturer's instruction.

C. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with [non-shrink grout] or [epoxy grout].

D. Foundation surface against which concrete is to be placed must be free from standing water, mud and debris. Surfaces shall be clean and free from oil, objectionable coatings, and loose or unsound material.

E. All surfaces of forms and embedded items shall be free of grout before placing concrete.

F. Install [joint fillers] and [waterstops] in accordance with manufacturer's instructions. Install [1/2-inch (13 mm)] thick joint filler to separate slabs on grade from vertical surfaces. Extend joint filler from bottom of slab to within ¼- inch (6 mm) of finished slab surface.

G. Locate construction joints where indicated on the Structural Drawings.

H. When ambient temperature is expected to exceed 80 degrees F during placing or finishing operations, steps shall be taken in accordance with ACI 305, "Recommended Practices for Hot Weather Concreting", to reduce concrete temperature and water evaporation by proper attention to the ingredients, production methods, handling, placing, protection and curing. The Subcontractor shall submit a detailed hot weather concreting procedure to the A/E for approval at least two business days before concrete placement is planned. The Subcontractor's testing agency will produce trial batches in accordance with ACI 305. Slabs will be fog sprayed from the completion of skreeding until curing is begun; the fog spray may be discontinued on sections during troweling.

3.5 FLOOR SLABS

A. Place floor slabs [in long strip patterns] [as indicated on Drawings]. Saw cut control joints at an optimum time after finishing. Cut slabs with a 3/16-inch (8 mm) thick blade to 1 inch (25 mm) depth.

B. Separate slabs on grade from vertical surfaces with joint filler. Extend joint filler from bottom of slab to within ¼ inch of finished slab surface.

C. [Scratch] [Float] [Trowel] [Broom or belt] [Nonslip] finish surfaces [as scheduled].

D. Install joint devices and joint device anchors in accordance with manufacturer's instructions. Maintain correct position to allow joint cover flush with floor finish.

E. Construct slab on grade and shored elevated floor slabs with overall specified F_F30/F_L20 and with minimum F_F15/F_L10 for individual floor sections in accordance with ACI 302.1. Determination of F_F/F_L numbers will be in accordance with ASTM E 1155. The Subcontractor will take remedial measures when floor slabs do not meet specified requirements The Subcontractor's plan for remedial measures shall be submitted to the University for review and approval. [Slope slabs to drains [1/4 inch (6mm)] <Insert dimension> per foot nominal.]

3.6 [SCHEDULE OF FORMED SURFACES

A. Smooth surface finish at < Insert locations >.

B. Rough form finish at < Insert locations >.

C. Smooth form finish at < Insert locations >.

D. Smooth rubbed finish at < Insert locations >.

E. Cement slurry finish at < Insert locations >.]

3.7 [SCHEDULE OF FLOOR SLAB FINISHES

A. Scratch finish at < Insert locations >.

B. Float finish at < Insert locations >.

C. Trowel finish at < Insert locations >.

D. Broom or belt finish at < Insert locations >.

E. Nonslip finish at < Insert locations >.]

3.8 CURING AND PROTECTION

A. The requirements of this section may be modified only by the Structural Engineer of Record (SER) for the design. In those cases where the Structural Engineer of record is under subcontract to the Laboratory, approval by a Laboratory Structural Engineer is required prior to modification of the requirements of this section.

B. Wheeling, working and walking on concrete shall be avoided for at least 24 hours after casting. Protect concrete from sun and rain. Do not permit concrete to become dry during curing period. Concrete shall not be subjected to any loads until concrete is completely cured, and until concrete has attained its 28 day strength and [14 days minimum] [28 days minimum].

C. Protect concrete during and after curing from damage during subsequent building construction operations.

D. Cover traffic areas with plywood or other suitable means for as long as necessary to protect concrete from damage.

E. Specific curing requirements for slabs shall include the following: Immediately upon completion of finishing operation, the surface of slabs shall be sealed against moisture loss by the application of a curing blanket made of polyetheylene bonded to burlap in accordance with the manufacturer's instructions. Alternatively, waterproof curing paper may be used with edges lapped and sealed with tape. The curing membrane shall be weighted down. Tears and rips in curing membrane shall be repaired immediately during curing period. Curing shall be maintained for [7] [14] [21] days.

F. Specific curing requirements for walls, beams and columns shall include the following: Concrete in forms shall be kept moist until removal. Immediately upon removal of forms, an approved sprayed-on curing compound shall be applied to the concrete surfaces in strict compliance with the manufacturer's recommendations. Curing shall be maintained for [7] [14] days.

G. For above grade concrete sections over three feet thick in all three orthogonal directions except lean concrete:

1. Ten days before placing concrete, the results of thermal test performed by the Subcontractor will be submitted to the University for approval. Thermal tests shall consist of a three-foot test cube of the design mix for the thick section instrumented with thermocouples by the Subcontractor's testing agency and monitored to determine whether the heat of hydration exceeds 150 deg F (66 deg C). If the temperature exceeds 150 deg F (66 deg C), the mix design will be revised or standard aggregate cooling utilized and a second test cube cast and tested at no additional cost to the University.

2. The temperature gradient between the center and the surface of the section must not exceed 20 deg F (6.6 deg C) during the first ten days of the controlled curing period. Thermocouples shall be installed by the Subcontractor's testing agency in the center and six inches from the surface at twenty-foot intervals and at the corners. The thermocouples are to be monitored continuously by the Subcontractor's testing agency and, if

the temperature gradient exceeds 20 deg (6.6 deg C), insulating blankets shall be placed over the surface. On surfaces with protruding reinforcing, such as the top of a wall, loose insulation will be used.

3.9 FIELD QUALITY CONTROL

A. Inspection and Testing will be performed under provisions of Division 01.

B. Testing Laboratory will:
   1. Collect and review tickets for each batch of concrete delivered. Annotate water or admixtures added subsequent to batching.
   2. Special Inspect concrete placement, as required by CBC Section [1701.5, Item 1], for conformance with the Contract Documents.
   3. Slump: ASTM C143; one test at point of placement at start of each day's pour; additional tests when concrete consistency appears to have changed.
   4. Compressive Strength: Test concrete for compressive strength in accordance with CBC Section [[1905.6]]and ASTM C39. Conform to testing frequency of CBC [1905.6.1]. Take 4 specimens per sample, test one at seven days, two at 28 days, and retain one specimen.
   5. Temperature: ASTM C1064; one test hourly. Take additional tests where warranted by weather conditions or delays in delivery.
   6. Air Content: ASTM C173; for mixes with more than 3 percent air, take one test hourly at point of placement.

C. The Subcontractor will be responsible for all Testing Laboratory costs for investigating low-strength compressive test results in accordance with CBC Section 1905.6.5.

SECTION 042000
UNIT MASONRY

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Concrete masonry units.
2. Face brick.
3. Mortar and grout.
4. Masonry joint reinforcement.
5. Ties and anchors.
6. Embedded Flashing.
7. Miscellaneous masonry accessories.

1.3 DEFINITIONS

A. CMU(s): Concrete masonry unites).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection:

1. Concrete facing brick, in the form of small-scale units.
2. Colored mortar.

1.5 QUALITY ASSURANCE

A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B. Source Limitations tor Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

C. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.

D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Build mockups for each type of exposed unit masonry construction in sizes approximately 72 inches (1800 mm) long by 72 inches (1800 mm) high by full thickness, including face and backup wythes and accessories.

a. Include a sealant-filled joint at least 16 inches (400 mm) long in exterior wall mockup.
b. Include lower comer of window opening at upper comer of exterior wall mockup. Make opening approximately 12 inches (300 mm) wide by 16 inches (400 mm) high.
c. Include through-wall flashing installed for a 24-inch (600-mm) length in comer of exterior wall mockup approximately 16 inches (400 mm) down from top of mockup, with a 12-inch (300-mm) length of flashing left exposed to view (omit masonry above half of flashing).
d. Include wood studs, sheathing, building wrap, veneer anchors, flashing, cavity drainage material, and weep holes in exterior masonry-veneer wall mockup.

2. Where masonry is to match existing, erect mockups adjacent and parallel to existing surface.

3. Protect accepted mockups from the elements with weather-resistant membrane.

4. Approval of mockups is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; and aesthetic qualities of workmanship.

a. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless such deviations are specifically approved by Architect in writing.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Deliver pre-blended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store pre-blended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.7 PROJECT CONDITIONS

A. Protection of Masonry: During construction, 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 of24 inches (600 mm) down both sides of walls and hold cover securely in place.

B. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

C. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI530.IIASCE 6/TMS 602.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI530.1/ASCE 6/TMS 602.

PART 2 – PRODUCTS

2.1 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

2.2 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, comers, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide bull-nose units for outside comers unless otherwise indicated.

B. CMUs: ASTM C 90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2150 psi (14.8 MPa).
2. Density Classification: Lightweight.
3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
4. Nominal Dimensions: 16" long by 8" tall by 8" deep.

2.3 BRICK

A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:

1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.

3. Provide special shapes for applications where stretcher units cannot accommodate special conditions, including those at comers, movement joints, bond beams, sashes, and lintels.

4. Provide special shapes for applications requiring brick of size, form, color, and texture on exposed surfaces that cannot be produced by sawing.

5. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

B. Face Brick: Facing brick complying with ASTM C 216 or hollow brick complying with ASTM C 652, Class l-I40V (void areas between 25 and 40 percent of gross cross-sectional area).

1. Grade: SW.
2. Type: FBX.
3. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 3350 psi (23.1MPa).
4. Initial Rate of Absorption: Less than 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested per ASTM C 67.
5. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated “not effloresced.”

6. Surface Coating: Brick with colors or textures produced by application of coatings shall withstand 50 cycles of freezing and thawing per ASTM C 67 with no observable difference in the applied finish when viewed from 10 feet (3 m).
7. Size (Actual Dimensions): 3-5/8 inches (92 mm) wide by 2-1/4 inches (57 mm) high by 7-5/8 inches (194 mm) long.
8. Application: Use where brick is exposed unless otherwise indicated.

9. Where shown to "match existing," provide face brick matching color range, texture, and size of existing adjacent brickwork.
10. Color and Texture: Match color and texture of brick used on the front of the existing Coastal Manor Nursing Home located on the adjacent site.

2.4 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979. Use only pigments with a record of satisfactory performance in masonry mortar.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Davis Colors; True Tone Mortar Colors.
b. Lanxess Corporation; Bayferrox Iron Oxide Pigments.
c. Solomon Colors, Inc.; SGS Mortar Colors.

E. Aggregate for Mortar: ASTM C 144.

I. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
2. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.13-mm) sieve.
3. White-Mortar Aggregates: Natural white sand or crushed white stone.
4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

F. Aggregate for Grout: ASTM C 404.

G. Cold-Weather Admixture: Non-chloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

1. Products: Subject to compliance with requirements, provide one of the following:

    a. Euelid Chemical Company (The); Accelguard 30.
    b. Grace Construction Products, W.R. Grace & Co. – Conn.; Morset.
    c. Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA.

H. Water: Potable.
I. Color: Match color of mortar used on the front if the existing Coastal Manor Nursing Home located on the adjacent site.

2.5 REINFORCEMENT

A. Masonry Joint Reinforcement, General: ASTM A 9511A 951M.

    1. Exterior Walls: Hot-dip galvanized, carbon steel.
    2. Wire Size for Side Rods: 0.148-ineh (3.77-mm) diameter.
    3. Wire Size for Cross Rods: 0.148-inch (3.77-mm) diameter.
    4. Wire Size for Veneer Ties: 0.148-inch (3.77-mm) diameter.
    5. Spacing of cross rods, tabs, and cross ties: Not more than 16 inches (407 mm) o.c.
    6. Provide in lengths of not less than 10 feet (3 m).

B. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

C. Masonry Joint Reinforcement for Multi-Wythe Masonry:

    1. Ladder type with 1 side rod at each face shell of hollow masonry units more than 4 inches (100 mm) wide, plus 1 side rod at each wythe of masonry 4 inches (100 mm) wide or less.
    2. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections having a maximum adjustment of *1-1/4* inches (32 mm). Size ties to extend at least halfway through facing wythe but with at least 5/8-inch (16-mm) cover on outside face. Ties have hooks or clips to engage a continuous horizontal wire in the facing wythe.

2.6 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.

    1. Mill-Galvanized, Carbon-Steel Wire: ASTM A *82/A* 82M; with ASTM A 6411A 641M, Class 1 coating.
    2. Galvanized Steel Sheet: ASTM A *6531*A 653M, Commercial Steel, G60 (2180) zinc coating.

B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch (16-mm) cover on outside lace. Outer ends of wires are bent 90 degrees and extend 2 inches (50 mm) parallel to face of veneer.

C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches (100mm) wide.

1. Where wythes are of different materials, use adjustable ties with pintle-and-eye connections having a maximum adjustment of *1-1/4* inches (32 111m).
2. Wire: Fabricate from 3/16-inch- (4.76-ml11-) diameter, hot-dip galvanized steel wire.

2.7 EMBEDDED FLASHING MATERIALS

A. Metal Flashing: Provide metal flashing complying with Section 076200 "Sheet Metal Flashing and Trim".

B. MISCELLANEOUS MASONRY ACCESSORIES

C. Weep/Vent Products: Use the following unless otherwise indicated:

1. Round Plastic Weep/Vent Tubing: Medium-density polyethylene, 3/8-inch (9-mm) OD by 4 inches (100 mm) long. 2.8

D. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Advanced Building Products, Inc. Mortar Break II.
b. Archovations, Inc.; Masonry Mat.
c. Dayton Superior Corporation. Dur-O-Wal Division; Polytite MortarStop.
d. Mortar Net USA, Ltd.; Mortar Net.

2. Provide one of the following configurations:

a. Strips, full depth of cavity and 10 inches (250 mm) high, with dovetail shaped notches 7 inches (175 mm) deep that prevent clogging with mortar droppings.

2.8 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Diedrich Technologies, Inc.
b. EaCo Chem, Inc
c. ProSoCo, Inc.

2.9 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use portland cement-lime mortar unless otherwise indicated.
3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

1. For masonry below grade or in contact with earth, use Type M.
2. For reinforced masonry, use Type S.
3. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.

C. Pigmented Mortar: Select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.

1. Pigments shall not exceed 10 percent of portland cement by weight.
2. Mix to match color of mortar used on existing hospital and to match Architect's sample for mortar to be used with cast stone.
3. Application: Use pigmented mortar for exposed mortar joints with the following units:

    a. Face brick.

D. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.I/ASCE 6/TMS 602 for dimensions of grout space and pour height.
2. Proportion grout in accordance with ASTM C 476, Table 1.
3. Provide grout with a slump of 8 to 11 inches (203 to 279 mm) as measured according to ASTM C *143/C* 143M.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
2. Verify that foundations are within tolerances specified.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this and other Sections.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.

D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

1. Mix units from several pallets or cubes as they are placed.

F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

G. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls do not vary from level by more than1/4 inch in 10 feet (6 mm in 3 m), or 1/2 inch (12 mm) maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2 inch (12 mm) maximum.

4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 fee (6 mm in 6 m), or 1/2 inch (12 mm) maximum.

5. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2 inch (12 mm) maximum.

6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2 inch (12 mm) maximum.

7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm) except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).

2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch (3 mm).

3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus l/4 inch (6 mm).

4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).

5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch (1.5 mm) from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

A. Layout walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

C. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

D. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

E. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

1. Structure above to comply with Section 078446 "Fire-Resistive Joint Systems."

3.5 MORTAR BEDDING AND JOINTING

A. Lay hollow brick and CMUs as follows:

1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.6 COMPOSITE MASONRY

A. Bond wythes of composite masonry together using one of the following methods:

1. Masonry Joint Reinforcement: Installed in horizontal mortar joints.

a. Where bed joints of wythes do not align, use adjustable (two-piece) type reinforcement with continuous horizontal wire in facing wythe attached to ties.

3.7 MASONRY JOINT REINFORCEMENT

A. General: 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).

1. Space reinforcement not more than 16 inches (406 mm) D.C.

B. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.8 ANCHORING MASONRY VENEERS

A. Anchor masonry veneers to wall framing with masonry-veneer anchors to comply with the following requirements:

1. Fasten screw-attached anchors through sheathing to wall framing with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
2. Embed tie sections in masonry joints. Provide not less than 2 inches (50 mm) of air space between back of masonry veneer and face of sheathing.
3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
4. Space anchors as indicated, but not more than 16 inches (406 mm) o.c. vertically and 24 inches (610 mm) o.c. horizontally with not less than 1 anchor for each 2.67 sq. ft. (0.25sq. m) of wall area. Install additional anchors within 12 inches (305 mm) of openings and at intervals, not exceeding 36 inches (914 mm), around perimeter.

3.9 CONTROL AND EXPANSION JOINTS

A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

B. Form expansion joints in brick as follows:

1. Form open joint full depth of brick wythe and of width indicated, but not less than 3/8 inch (10 mm) for installation of sealant and backer rod specified in Section 079200 "Joint Sealants."

3.10 LINTELS

A. Install steel lintels where indicated.

B. Provide minimum bearing of 8 inches (200 mm) at each jamb unless otherwise indicated.

3.11 FLASHING, WEEP HOLES, CAVITY DRAINAGE, 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.

B. Install flashing as follows unless otherwise indicated:

1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

2. At masonry-veneer walls, extend flashing through veneer, across air space behind veneer, and up face of sheathing at least 8 inches (200 mm); with upper edge tucked under building paper or building wrap, lapping at least 4 inches (100 mm).

3. At lintels and shelf angles, extend flashing a minimum of 6 inches (ISO mm) into masonry at each end. At heads and sills, extend t1ashing 6 inches (150 mm) at ends and turn up not less than 2 inches (50 mm) to form end dams.

C. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:

1. Use specified weep/vent products and open head joints to form weep holes.
2. Space open head joints at wall base at weep holes 24 inches (600 mm) o.c. unless otherwise indicated. Install wicking material.
3. Space weep holes formed from plastic tubing 16 inches (400 mm) O.C. above and under openings in masonry walls. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.

D. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.

3.12 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 60 inches (1520 mm).

3.13 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean brick by bucket-and-brush hand-cleaning method described in AIA Technical Notes 20.
6. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
7. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.
8. Clean limestone units to comply with recommendations in ILI's "Indiana Limestone Handbook."

3.14 MASONRY WASTE DISPOSAL

A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by legally dispose of off Owner's property.

SECTION 061000
ROUGH CARPENTRY

PART I -GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Framing with dimension lumber.
2. Wood blocking and nailers.
3. Wood furring.
4. Wood sleepers.
5. Utility shelving.
6. Plywood backing panels.

1.2 DEFINITIONS

A. Exposed Framing: Framing not concealed by other construction.

B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.

C. Timber: Lumber of 5 inches nominal (114 mm actual) or greater in least dimension.

D. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. RIS: Redwood Inspection Service.
4. SPIB: The Southern Pine Inspection Bureau.
5. WCLIB: West Coast Lumber Inspection Bureau.
6. WWPA: Western Wood Products Association.

1.3 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
2. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Fastener Patterns: Full-size templates for fasteners in exposed framing.

C. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

D. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Power-driven fasteners.
5. Powder-actuated fasteners.
6. Expansion anchors.
7. Metal framing anchors.

1.4 QUALITY ASSURANCE

A. Source Limitations for Engineered Wood Products: Obtain each type of engineered wood product through one source from a single manufacturer.

B. Forest Certification: For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship":

1. Dimension lumber framing.
2. Laminated-veneer lumber.
3. Parallel-strand lumber.
4. Miscellaneous lumber.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2- PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

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.

1. Factory mark each piece of lumber with grade stamp of grading agency.

B. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. 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.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: A WP A C2.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction.
2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

2.3 DIMENSION LUMBER FRAMING

A. Maximum Moisture Content: 19 percent.

B. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade and any of the following species:

1. Hem-fir (north); NLGA.
2. Mixed southern pine; SPIB.
3. Spruce-pine-fir; NLGA.
4. Hem-fir; WCLIB, or WWPA.
5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
6. Northern species; NLGA.
7. Eastern softwoods; NeLMA.
8. Western woods; WCLIB or WWPA.

C. Exterior and Load-Bearing Walls: No.2 grade and any of the following species:

1. Hem-fir (north); NLGA.
2. Southern pine; SPIB.
3. Douglas fir-larch; WCLIB or WWPA.
4. Mixed southern pine; SPIB.
5. Spruce-pine-fir; NLGA.
6. Douglas fir-south; WWP A.
7. Hem-fir; WCLIB or WWPA.
8. Douglas fir-larch (north); NLGA.
9. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

D. Ceiling Joists (Non-Load-Bearing): Construction or No.2 grade of any species.

E. Joists, Rafters, and Other Framing Not Listed Above: Construction or No. 2grade and any of the following species:

1. Hem-fir (north); NLGA.
2. Southern pine; SPIB.
3. Douglas fir-larch; WCLIB or WWPA.

4. Mixed southern pine; SPIB.
5. Spruce-pine-fir; NLGA.
6. Douglas fir-south; WWP A.
7. Hem-fir; WCLIB or WWPA.
8. Douglas fir-larch (north); NLGA.
9. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

2.4 ENGINEERED WOOD PRODUCTS

A. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Boise Cascade Corporation.
    b. Finnforest USA.
    c. Georgia-Pacific.
    d. Louisiana-Pacific Corporation.
    e. Pacific Woodtech Corporation.
    f. Roseburg Forest Products Co.
    g. Weldwood of Canada Limited; Subsidiary of lnternational Paper Corporation.
    h. Weyerhaeuser Company.

2. Extreme Fiber Stress in Bending, Edgewise: 2600 psi (I 7.9 MPa) for 12-inch nominal (286-mm actual-) depth members.
3. Modulus of Elasticity, Edgewise: 1,800,000 psi (12 400 MPa).

B. Parallel-Strand Lumber: Structural composite lumber made from wood strand elements with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Weyerhaeuser Company.

2. Extreme Fiber Stress in Bending, Edgewise: 2900 psi (20 MPa) for 12-inch nominal (286-mm actual-) depth members.
3. Modulus of Elasticity, Edgewise: 2,200,000 psi (15 100 MPa).

2.5 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.
4. Cants.
5. Furring.
6. Grounds.
7. Utility shelving.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.

C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

D. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.6 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure I, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch (13-mm) nominal thickness.

2.7 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this A11icle for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME 818.6.1.

E. Lag Bolts: ASME Bl8.2.1 (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 (ASTM F 738M and ASTM F 836M, Grade AI or A4).

2.8 METAL FRAMING ANCHORS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Products: Subject to compliance with requirements, provide products indicated on Drawings or comparable products by one of the following:

1. Alpine Engineered Products, Inc.
2. Cleveland Steel Specialty Co.
3. Harlen Metal Products, Inc.
4. KC Metals Products, Inc.
5. Simpson Strong-Tie Co., Inc.
6. Southeastern Metals Manufacturing Co., Inc.
7. USP Structural Connectors.

C. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those of basis-of-design products. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing perfom1ed by a qualified independent testing agency.

D. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (Zl80) coating designation.

1. Use for interior locations where stainless steel is not indicated.

E. Joist Hangers: U-shaped joist hangers with 2-inch- (50-mm-) long seat and l-1/4-inch- (32- mm-) wide nailing flanges at least 85 percent of joist depth.

1. Thickness: [0.050 inch (1.3 mm)] [0.062 inch (1.6 mm)].

F. Post Bases: Adjustable-socket type for bolting in place with standoff plate to raise post 1 inch (25 mm) above base and with 2-inch- (50-mm-) minimum side cover, socket 0.062 inch (1.6 mm) thick, and standoff and adjustment plates 0.108 inch (2.8 mm) thick.

G. Rafter Tic-Downs (Hurricane or Seismic Ties): Bent strap tie for fastening rafters or roof trusses to wall studs below, 2-1/4 inches (57 mm) wide by 0.062 inch (1.6 mm) thick. Tie fits over top of rafter or truss and fastens to both sides of rafter or truss, face of top plates, and side of stud below.

H. Hold-Downs: Brackets for bolting to wall studs and securing to foundation walls with anchor bolts or to other hold-downs with threaded rods and designed with first of two bolts placed seven bolt diameters from reinforced base.

1. Bolt Diameter: 5/8 inch (15.8 mm) or 3/4 inch (19 mm), as indicated.
2. Width: 2-1/2 inches (64 mm).
3. Body Thickness: 0.138 inch (3.5 mm).
4. Base Reinforcement Thickness: 0.239 inch (6.1 mm).

2.9 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; l-inch (25-mm) nominal thickness, compressible to 1/32 inch (0.8 mm); selected from manufacturer's standard widths to suit width of sill members indicated.

PART 3- EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

D. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.

E. Do not splice structural members between supports, unless otherwise indicated.

F. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at comers and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches (406 mm) o.c.

G. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches (2438 mm) o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches (2438 mm) o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal- (38-mm actual-) thickness.
3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. (9.3 sq. m) and to solidly fill space below partitions.
4. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet (6 m) o.c.

H. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

I. Comply with A WPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

J. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table 23-II-B-1, "Nailing Schedule," and Table 23-II-B-2, "Wood Structural Panel Roof Sheathing Nailing Schedule," in ICBO's Uniform Building Code.
4. Table 2305.2, "Fastening Schedule," in BOCA's BOCA National Building Code.
5. Table 2306.1, "Fastening Schedule," in SBCCI's Standard Building Code.
6. Table R602.3 (1), "Fastener Schedule for Structural Members," and Table R602.3 (2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
7. Table 602.3(1), "Fastener Schedule for Structural Members," and Table 602.3(2), "Alternate Attachments," in ICC's lnternational One- and Two-Family Dwelling Code.

K. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WALL AND PARTITION FRAMING INSTALLATION

A. General: Provide single bottom plate and double top plates using members of 2-inch nominal (38-mm actual) thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions and for load-bearing partitions where framing members bearing on partition are located directly over studs. Fasten plates to supporting construction, unless otherwise indicated.

1. For exterior walls, provide 2-by-6-inch nominal- (38-by-140-nun actual-) size wood studs spaced 16 inches (406 mm) o.c., unless otherwise indicated. At sixteen feet tall structural walls, provide 2-by-8 inch nominal size wood studs spaced 16 inches o.c., unless otherwise indicated.
2. For interior partitions and walls, provide 2-by-6-inch nominal- (38-by-140-mm actual-) or 2-by-4-inch nominal- (38-by-89-mm actual-) size wood studs spaced 16 inches (406 mm) o.c., unless otherwise indicated.
3. Provide continuous horizontal blocking at mid-height of load bearing walls more tl1an 96 inches (2438 mm) high, using members of 2-inch nominal (38-mm actual) thickness and of same width as wall or partitions.

B. Construct comers and intersections with three or more studs.

C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.

1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal (89-mm actual) depth for openings 48 inches (1200 mm) and less in width, 6-inch nominal (140-mm actual) depth for openings 48 to 72 inches (1200 to 1800 mm) in width, 8-inch nominal (184-mm actual) depth for openings 72 to 120 inches (1800 to 3000 mm) in width, and not Jess than 10-inch nominal (235-mm actual) depth for openings 10 to 12 feet (3 to 3.6 m) in width.
2. For load-bearing walls, provide double-jamb studs for openings 60 inches (1500 mm) and Jess in width, and triple-jamb studs for wider openings. Provide headers of depth indicated or, if not indicated, according to Table R502.5 (1) or Table R502.5 (2), as applicable, in ICC's International Residential Code for One- and Two-Family Dwellings.

3.4 CEILING JOIST AND RAFTER FRAMING INSTALLATION

A. Ceiling Joists: Install ceiling joists with crown edge up and complying with requirements specified above for floor joists. Face nail to ends of parallel rafters.

1. Where ceiling joists are at right angles to rafters, provide additional short joists parallel to rafters from wall plate to first joist; nail to ends of rafters and to top plate and nail to first joist or anchor with framing anchors or metal straps. Provide I-by-8-inch nominal- (19- by-184-mm actual-) size or 2-by-4-inch nominal- (38-by-89-mm actual-) size stringers spaced 48 inches (1200 mm) o.c. crosswise over main ceiling joists.

B. Rafters: Notch to fit exterior wall plates and toe nail or use metal framing anchors. Double rafters to form headers and tri1mners at openings in roof framing, if any, and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.

1. At valleys, provide double-valley rafters of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches (50 mm) deeper. Bevel ends of jack rafters for full bearing against valley rafters.
2. At hips, provide hip rafter of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches (50 1mn) deeper. Bevel ends of jack rafters for full bearing against hip rafter.

C. Provide collar beams (ties) as indicated or, if not indicated, provide 1-by-6-ineh nominal- (19- by-140-Jmn actual-) size boards between every third pair of rafters, but not more than 48 inches (1219 mm) o.c. Locate below ridge member, at third point of rafter span. Cut ends to fit roof slope and nail to rafters.

D. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions, if any.

3.5 PROTECTION

A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA registered label.

SECTION 061600
SHEATHING

PART 1- GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Wall sheathing.
2. Roof sheathing.
3. Building wrap.

1.2 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. For building wrap, include data on air-/moisture-infiltration protection based on testing according to referenced standards.

B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Building wrap.

1.3 QUALITY ASSURANCE

A. Forest Certification: For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship":

1. Plywood.
2. Oriented strand board.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Stack plywood and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2- PRODUCTS

2.1 WOOD PANEL PRODUCTS, GENERAL

A. Plywood: Either DOC PS I or DOC PS 2, unless otherwise indicated.

B. Oriented Strand Board: DOC PS 2.

C. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.

D. Factory mark panels to indicate compliance with applicable standard.

2.2 WALLSHEATHING

A. Plywood Wall Sheathing: Exterior, Structural I sheathing.

1. Span Rating: Not less than 24/16.
2. Nominal Thickness: Not less than 112 inch (13 mm).

B. Oriented-Strand-Board Wall Sheathing: Exposure **I,** Structural I sheathing.

1. Span Rating: Not less than 24/16.
2. Nominal Thickness: Not less than 112 inch (13 mm).

2.3 ROOF SHEATHING

A. Plywood Roof Sheathing: Exterior, Structural I sheathing.
1. Span Rating: Not less than 24/0.
2. Nominal Thickness: Not less than 5/8 inch 16 mm).

B. Oriented-Strand-Board Roof Sheathing: Exposure **I,** Structural I sheathing.

1. Span Rating: Not less than 24/0.
2. Nominal Thickness: Not less than 5/8 inch (16 mm)].

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME Bl8.6.1.

E. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

1. For wall and roof sheathing panels, provide screws with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.

2.5 WEATHER-RESISTANT SHEATHING PAPER

A. Building Wrap: ASTM E 1677, Type I air retarder; with flame-spread and smoke-developed indexes of Jess than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

    a. Dow Chemical Company (The); Styrofoam Weathermate Plus Brand Housewrap.
    b. DuPont (E. I. du Pont de Nemours and Company); Tyvek CommereialWrap.
    c. Ludlow Coated Products; Barricade Building Wrap.
    d. Pactiv, Inc.; GreenGuard Ultra Wrap.
    e. Raven Industries Inc.; Rufco-Wrap.
    f. Reemay, Inc.; Typar House Wrap.

2. Water-Vapor Permeance: Not Jess than 152 g through I sq. m of surface in 24 hours per ASTM E 96, Desiccant Method (Procedure A).
3. Allowable UV Exposure Time: Not less than three months.

B. Building-Wrap Tape: Pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.

2.6 MISCELLANEOUS MATERIALS

A. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.025 inch (0.6 mm).

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
    a. Carlisle Coatings & Waterproofing; CCW-705-TWF Thru-Wall Flashing.
    b. Grace Construction Products, a unit of W. R. Grace & Co. -Conn.; Vycor V40 Weather Barrier Strips.
    c. MFM Building Products Corp.; Window Wrap.
    d. Polyguard Products, Inc.; Polyguard 300.
    e. Protecto Wrap Company; PS-45.

B. Primer for Flexible Flashing: Product recommended by manufacturer of flexible flashing for substrate.

PART 3- EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
3. Table 23-II-B-1, "Nailing Schedule," and Table 23-II-B-2, "Wood Structural Panel Roof Sheathing Nailing Schedule," in ICBO's "Uniform Building Code."

D. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Coordinate wall and roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30S, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:

1. Wall and Roof Sheathing:

a. Nail or staple to wood framing.
b. Space panels 1 /8 inch (3 mm) apm1 at edges and ends.

3.3 FLEXIBLE FLASHING INSTALLATION

A. Apply flexible flashing where indicated to comply with manufacturers written instructions.

1. Prime substrates as recommended by flashing manufacturer.
2. Lap seams and junctures with other materials at least 4 inches (I 00 mm), except that at flashing flanges of other construction, laps need not exceed flange width.
3. Lap flashing over weather-resistant building paper at bottom and sides of openings.
4. Lap weather-resistant building paper over flashing at heads of openings.
5. After flashing has been applied, roll surfaces with a hard rubber or metal roller to ensure that flashing is completely adhered to substrates.

SECTION 061753
SHOP-FABRICATED WOOD TRUSSES

PART I -GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Wood roof trusses.
2. Metal truss accessories.

1.2 DEFINITIONS

A. Metal-Plate-Connected Wood Trusses: Planar structural units consisting of metal-plate connected members fabricated from dimension lumber and cut and assembled before delivery to Project site.

B. TPI: Truss Plate Institute, Inc.

C. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. SPIB: The Southern Pine Inspection Bureau.
4. WCLIB: West Coast Lumber Inspection Bureau.
5. WWPA: Western Wood Products Association.

1.3 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 TP1-1 unless more stringent requirements arc specified below.

1. Design Loads: As indicated.
2. Maximum Deflection Under Design Loads:
    a. Roof Trusses: Vertical deflection of 11240 of span.
3. Wind Load: 100 mph.

1.4 SUBMITTALS

A. Shop Drawings: Prepared by or under the supervision of a qualified professional engineer. Show fabrication and installation details for trusses.

1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
2. Indicate sizes, stress grades, and species oflumber.
3. Indicate locations of permanent bracing required to prevent buckling of individual truss members due to design loads.

4. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
5. Show splice details and bearing details.
6. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

B. Product Certificates: For metal-plate-connected wood trusses, signed by officer of truss fabricating firm.

C. Qualification Data: For metal-plate manufacturer, professional engineer and fabricator.

D. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

E. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Metal-plate connectors.
2. Metal truss accessories.

1.5 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: 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. Source Limitations for Connector Plates: Obtain metal connector plates from a single manufacturer.

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. TPJ BIB, "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."

F. Forest Certification: Provide metal-plate-connected wood trusses produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

1.6 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.

1.7 COORDINATION

A. Time delivery and erection of trusses to avoid extended on-site storage and to avoid delaying progress of other trades whose work must follow erection of trusses.

PART 2- PRODUCTS

2.1 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.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.
3. Provide dressed lumber, S4S.
4. Provide dry lumber with 19 percent maximum moisture content at time of dressing.

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. Grade and Species: Provide visually graded dimension lumber for truss chord and web members, of not less than the following grade and the following species:

1. Grade for Chord Members: As required by structural design, but not less than No. 2 SYP for areas where structure is covered by ceiling (finishes) and not less than No. I SYP for any material exposed to view.
2. Grade for Web Members: As required by structural design, but not less than grade as indicated for chord members.
3. Species: Southern pine; SPIB.

D. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Division 06 Section Rough Carpentry.

2.2 METAL CONNECTOR PLATES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Alpine Engineered Products, Inc.
2. Cherokee Metal Products, Inc.; Masengill Machinery Company.
3. CompuTrus, Inc.
4. Eagle Metal Products.
5. Jager Building Systems, Inc.
6. MiTek Industries, Inc.; a subsidiary of Berkshire Hathaway Inc.
7. Robbins Engineering, Inc.
8. TEE-LOK Corporation; a subsidiary of Berkshire Hathaway Inc.
9. Truswal Systems Corporation.

C. General: Fabricate connector plates to comply with TPI-1.

D. Hot-Dip Galvanized Steel Sheet: ASTM A 653/A 653M; Structural Steel (SS), high-strength low-alloy steel Type A (I-ISLAS Type A), or high-strength low-alloy steel Type B (I-ISLAS Type B); G60 (ZI80) coating designation; and not less than 0.036 inch (0.9 nun) thick.

1. Use for interior locations where stainless steel is not indicated.

2.3 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 I or 2 (ASTM F 738M and ASTM F 836M, Grade AI or A4).

2.4 METAL TRUSS ACCESSORJES

A. Available Manufach1rcrs: Subject to compliance with requirements, manufach1rers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufach1rcrs: Subject to compliance with requirements, provide products by one of the following:

C. Basis-of-Design Products: Subject to compliance with requirements, provide products indicated on Drawings or comparable products by one of the following:

1. Cleveland Steel Specialty Co.
2. Harlen Metal Products, Inc.
3. KC Metals Products, Inc.
4. Simpson Strong-Tie Co., Inc.
5. Southeastern Metals Manufacturing Co., Inc.
6. USP Structural Connectors.

D. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those of basis-of-design products. 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.

E. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (ZISO) coating designation.

F.. Use for interior locations where stainless steel is not indicated.

G. Truss Tic-Downs (Hurricane or Seismic Ties): Bent strap tie for fastening roof trusses to wall studs below, 2-1/4 inches (57 mm) wide by 0.062 inch (1.6 mm) thick. Tie fits over top of truss and fastens to both sides of truss, top plates, and one side of sh1d below.

H. Roof Truss Clips: Angle clips for bracing bottom chord of roof trusses at non-load-bearing walls, 1-114 inches (32 mm) wide by 0.050 inch (1.3 mm) thick. Clip is fastened to truss through slotted holes to allow for truss deflection.

I. Floor Truss Hangers: U-shaped hangers, full depth of floor truss, with 1-3/4-inch- (44-mm) long seat; formed from metal strap 0.062 inch (1.6 mm) thick with tabs bent to extend over and be fastened to supporting member.

J. Roof Truss Bracing/Spacers: U-shaped channels, 1-112 inches (3 8 mm) wide by 1 inch (25 mm) deep by 0.040 inch (1.0 mm) thick, made to fit between 2 adjacent trusses and accurately space them apart, and with tabs having metal teeth for fastening to trusses.

2.5 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: SSPC-Paint 20, with dry film containing a minimum of 94 percent zinc dust by weight.

2.6 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 TP1 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

3.1 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 inches (61 0 mm) o.c. or as indicated; adjust and align trusses in location before permanently fastening.

G. 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.

H. Securely connect each truss ply required for fanning built-up girder trusses.

1. Anchor trusses to girder trusses as indicated.

I. 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.

1. Install bracing to comply with Division 06 Section Rough Carpentry.
2. Install and fasten strong back bracing vertically against vertical web of parallel-chord floor trusses at centers indicated.

J. Install wood trusses within installation tolerances in TPI-1.

K. Do not cut or remove truss members.

L. Replace wood trusses that arc damaged or do not meet requirements.

1. Do not alter trusses in field.

3.2 REPAIRS AND PROTECTION

A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA registered label.

B. Repair damaged galvanized coatings on exposed surfaces with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

C. Protective Coating: Clean and prepare exposed surfaces of metal connector plates. Brush apply primer, when part of coating system, and one coat of protective coating.

1. Apply materials to provide minimum dry film thickness recommended by coating system manufacturer.

SECTION 064023
INTERIOR ARCHITECTURAL WOODWORK

PART I – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Wood cabinets.
2. Plastic-laminate countertops.
3. Plastic-laminate window sills.
4. Closet and utility shelving.
5. Shop finishing of interior woodwork.

B. Related Sections include the following:

1. Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.

2. Section "Flush Wood Doors" for doors to be purchased by millwork fabricator and installed as indicated with linen cabinets.

1.3 DEFINITIONS

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated, including cabinet hardware and accessories and finishing materials and processes.

B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

1. Show details full size.
2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets and other items installed in architectural woodwork.

C. Samples for Initial Selection:

1. Shop-applied transparent finishes.
2. Plastic laminates.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer/fabricator.

B. Woodwork Quality Standard Compliance Certificates: AWL Quality Certification Program certificates.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

B. Installer Qualifications: Fabricator of products.

C. Quality Standard: Unless otherwise indicated, comply with AWl's "Architectural
Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.

D. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (l6 and 32 deg C) and relative humidity between 43 and 70 percent during the remainder of the construction period.

B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.

2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.9 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

B. Wood Species and Cut for Transparent Finish: White Birch, plain sawn or sliced.

C. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.

1. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:

a. Formica Corporation.
b. Lamin-Art, Inc.
c. Nevamar Company, LLC; Decorative Products Div.
d. Wilsonart International; Div. of Premark International, Inc.

2.2 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 08 Section "Door Hardware (Scheduled by Describing Products)."

B. Frameless Concealed Hinges (European Type): BHMA AI56.9, B01602, 135 degrees of opening.

C. Back-Mounted Pulls: BHMA AI56.9, B02011.

D. Wire Pulls: Back mounted, solid metal, 4 inches (100 mm) long, 5/16 inch (8 mm) in diameter.

E. Shelf Rests: BHMA AI56.9, B04013; metal.

F. Drawer Slides: BI-IMA AI56.9, B05091.

1. Heavy Duty (Grade 1HD-100 and Grade IHD-200): Side mounted; full-extension type; zinc-plated steel ball-bearing slides.

G. Grommets for Cable Passage through Countertops: 2-inch (51-mm) OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.

1. Product: Subject to compliance with requirements, provide "TG series" by Doug Mockett & Company, Inc.

H. Trash Grommet: 6 inches diameter by 2 inches deep brushed stainless steel.

1. Product: Subject to compliance with requirements, provide "Model TMI B" by Doug Mockett & Company, Inc.

I. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BI-IMA A156.18 for BI-IMA finish number indicated.

1. Satin Stainless Steel: BI-IMA 630.

J. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.3 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

C. Adhesives, General: Adhesives shall not contain urea formaldehyde.

2.4 FABRICATION, GENERAL

A. Interior Woodwork Grade: Unless otherwise indicated, provide Premium-grade interior woodwork complying with referenced quality standard.

B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:

1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members 3/4 Inch (19 mm) Thick or Less: 1116 inch (1.5 mm).

D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.

E. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

1. Seal edges of openings in countertops with a coat of varnish.

2.5 WOOD CABINETS FOR TRANSPARENT FINISH

A. Grade: Premium.

B. AWl Type of Cabinet Construction: Reveal overlay on face frame.

C. Reveal Dimension: 1/2 inch (13 mm).

D. Wood Species and Cut for Exposed Surfaces: White birch, plain sawn or sliced.

1. Grain Direction: Vertically for drawer fronts, doors, and fixed panels.
2. Matching of Veneer Leaves: Book match.
3. Veneer Matching within Panel Face: Running match.

E. Semi-exposed Surfaces: Provide surface materials indicated below:

1. Surfaces Other Than Drawer Bodies: Same species and cut indicated for exposed surfaces.
2. Drawer Sides and Backs: Solid-hardwood lumber, stained to match species indicated for exposed surfaces.
3. Drawer Bottoms: Hardwood plywood.

2.6 PLASTIC-LAMINATE COUNTERTOP

A. Grade: Premium

B. High-Pressure Decorative Laminate Grade: HGS.

C. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. As selected by Architect from manufacturer's full range in the following categories:

a. Solid colors, matte finish.
b. Solid colors with core same color as surface, matte finish.
c. Patterns, matte finish.

D. Edge Treatment: Same as laminate cladding on horizontal surfaces.

E. Core Material: Particleboard made with exterior glue.

F. Core Materials at Sinks: Particleboard made with exterior glue.

2.7 CLOSET AND UTILITY SHELVING

A. Grade: Custom.

B. Shelf Material: 3/4-inch (19-mm) veneer-faced panel product with solid-lumber edge.

C. Cleats: 3/4-inch (l9-mm) solid lumber.

D. Wood Species: Match species indicated for other types of transparent-finished architectural woodwork located in same area of building, unless otherwise indicated.

2.8 SHOP FINISHING

A. Grade: Provide finishes of same grades as items to be finished.

B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.

C. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative panels.

D. Transparent Finish:

1. Grade: Premium.
2. AWl Finish System: Catalyzed polyurethane.
3. Staining: Match approved sample for color.
4. Wash Coat for Stained Finish: Apply wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
5. Sheen: Satin, 31-45 gloss units measured on 60-degree gloss meter per ASTM D 523.

PART 3 – EXECUTION

3.1 PREPARATION

A. Before installation, condition woodwork to average prevailing humidity conditions III installation areas.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and back priming.

3.2 INSTALLATION

A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.

B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.

C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).

D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

1. Install cabinets with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
2. Maintain veneer sequence matching of cabinets with transparent finish.
3. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches (400 mm) O.C. with No. 10 wafer-head screws sized for I-inch (25-mm) penetration into wood framing, blocking, or hanging strips.

G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

2. Install countertops with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
3. Secure backsplashes to walls with adhesive.
4. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."

H. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

SECTION 071326
SELF-ADHERING SHEET WATERPROOFING

PART I – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Modified bituminous sheet waterproofing.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.

2. Include manufacturer's written instructions for evaluating, preparing, and treating substrate.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.

1. Do not apply waterproofing in snow, rain, fog, or mist.

B. Maintain adequate ventilation during preparation and application of waterproofing materials.

PART 2 – PRODUCTS

2.1 MATERIALS, GENERAL

A. Source Limitations for Waterproofing System: Obtain waterproofing materials, protection course, from single source from single manufacturer.

2.2 MODIFIED BITUMINOUS SHEET WATERPROOFING

A. Modified Bituminous Sheet: Minimum 60-mil (1.5-mm) nominal thickness, self-adhering sheet consisting of 56 mils (1.4 mm) of rubberized asphalt laminated on one side to a 4-mil- (0.10mm-) thick, polyethylene-film reinforcement, and with release liner on adhesive side.

1. Products: Subject to compliance with requirements, provide the following:
2. Sheet Strips: Self-adhering, rubberized-asphalt strips of same material and thickness as sheet waterproofing.

2.3 AUXILIARY MATERIALS

A. General: Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with sheet waterproofing.

B. Primer: Liquid primer recommended for substrate by sheet-waterproofing material manufacturer.

C. Metal Termination Bars: Aluminum bars, approximately by 1/8 inch (25 by 3 mm) thick, predrilled at 9-inch (229-mm) centers.

D. Protection Course: ASTM 0 6506, semirigid sheets of fiberglass or mineral-rein forced asphaltic core, pressure laminated between two asphalt-saturated fibrous liners and as follows:
1. Thickness: 1/8 inch (3 mm), nominal, for vertical applications; 1/4 inch (6 mm), nominal, elsewhere.
2. Adhesive: Rubber-based solvent type recommended by waterproofing manufacturer for protection course type.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the waterproofing.

1. Verify that concrete has cured and aged for minimum time period recommended m writing by waterproofing manufacturer.
2. Verify that substrate is visibly dry and within the moisture limits recommended in writing by manufacturer. Test for capillary moisture by plastic sheet method according to ASTM D4263.
3. Verify that compacted subgrade is dry, smooth, sound, and ready to receive waterproofing sheet.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.

B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.

C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids.

E. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D 4258.

1. Install sheet strips of width according to manufacturer's written instructions and center over treated construction and contraction joints and cracks exceeding a width of 1/16 inch (1.6 mm).

F. Bridge and cover discontinuous deck-to-wall and deck-to-deck joints with overlapping sheet strips of widths according to manufacturer's written instructions.

1. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.

G. Comers: Prepare, prime, and treat inside and outside corners according to ASTM D 6135.

1. Install membrane strips centered over vertical inside comers. Install 3/4-inch (19-mm) fillets of liquid membrane on horizontal inside corners and as follows:

a. At footing-to-wall intersections, extend liquid membrane in each direction from comer or install membrane strip centered over comer.

H. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through waterproofing and at drains and protrusions according to ASTM 0 613 5.

3.3 MODIFIED BITUMINOUS SHEET-WATERPROOFING APPLICATION

A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions and recommendations in ASTM D 6135.

B. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.

C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 2-1/2-inch- (64-mm-) minimum lap widths and end laps. Overlap and seal seams, and stagger end laps to ensure watertight installation.

    1. When ambient and substrate temperatures range between 25 and 40 deg F (minus 4 and plus 5 deg C), install self-adhering, modified bituminous sheets produced for low temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 deg F (16 deg C).

D. Two-Ply Application: Install sheets to fonn a membrane with lap widths not less than 50 percent of sheet widths, to provide a minimum of two thicknesses of sheet membrane over areas to receive waterproofing.

E. Horizontal Application: Apply sheets from low to high points of decks to ensure that laps shed water.

F. Apply continuous sheets over already-installed sheet strips, bridging substrate cracks, construction, and contraction joints.

G. Seal edges of sheet-waterproofing terminations with mastic.

H. Install sheet-waterproofing and auxiliary materials to tie into adjacent waterproofing.

I. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending 6 inchcs (150 mm) beyond repaired areas in all directions.

J. Immediately install protection course with butted joints over waterproofing membrane.

3.4 FIELD QUALITY CONTROL

A. Engage a site representative qualified by waterproofing membrane manufacturer to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components, and to furnish daily reports to Architect.

3.5 PROTECTION, REPAIR, AND CLEANING

A. Do not permit foot or vehicular traffic on unprotected membrane.

B. Protect waterproofing from damage and wear during remainder of construction period.

C. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.

D. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

SECTION 072100
THERMAL INSULATION

PART 1 –GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Glass-fiber blanket insulation.
2. Spray polyurethane foam insulation.
3. Vapor retarders.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2- PRODUCTS

2.1 GLASS-FIBER BLANKET INSULATION

A. Subject to compliance with requirements, provide products by one of the following:

1. Certain Teed.
2. Guardian Building Products, Inc.
3. Johns Manville.
4. Knauf Insulation.
5. Owens Corning.

B. Reinforced-Foil-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type Ill (reflective faced), Class A (faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.

2.2 SPRAY POLYURETHANE FOAM INSULATION

A. Closed-Cell Polyurethane Foam Insulation: ASTM C 1029, Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. BASF Corporation.
    b. BaySystems NorthAmerica, LLC.
    c. Dow Chemical Company (The).
    d. ERSystems, Inc.
    e. Gaco Western, Inc.
    f. Henry Company.
    g. NCFI: Division of Barnhardt Mfg. Co.
    h. SWD Urethane Company.
    i. Volatile Free. Inc.

2. Minimum Density of 1.5 lb/cu ft. (24 kg/cu. M), thermal resistivity of 6.3 degrees F x h x sq. ft./ Btu x in. at 75 degrees F (43 K x m/W at 24 degrees C).

2.3 VAPOR RETARDERS

A. Polyethylene Vapor Retarders: ASTM D 4397, 10 mils (0.25 mm) thick, with maximum permeance rating of 0. 13 perm (7 .5 ng/Pa x s x sq. m).

B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sea1ingjoints and penetrations in vapor retarder.

C. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.

D. Single-Component Nonsag Urethane Sealant: ASTM C 920, Type I, Grade NS, Class 25. Use NT related to exposure and Use 0 related to vapor-barrier-related substrates.

E. Adhesive for Vapor Retarders: Product recommended by vapor-retarder manufacturer and has demonstrated capability to bond vapor retarders securely to substrates indicated.

2.4 INSULATION FASTENERS

A. Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of holding insulation of specified thickness securely in position indicated with self-locking washer in place.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

    a. AGM Industries, Inc.; Series T TACTOO Insul-Hangers.
    b. Gemco; Spindle Type.

2. Plate: Perforated, galvanized carbon-steel sheet, 0.030 inch (0.762 mm) thick by 2 inches (50 mm) square.

3. Spindle: Copper-coated, low-carbon steel; fully annealed; 0.105 inch (2.67 mm) in diameter; length to suit depth of insulation indicated.

B. Insulation-Retaining Washers: Self-locking washers fanned from 0.016-inch- (0.41-mm-) thick galvanized-steel sheet, with beveled edge for increased stiffness, sized as required to hold insulation securely in place, but not less than 1-1/2 inches (38 mm) square or in diameter.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

    a. AGM Industries, Inc.; RC150.
    b. Gemco; R-150.

2. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in the following locations:

    a. Attic spaces.

C. Anchor Adhesive: Product with demonstrated capability to bond insulation anchors securely to substrates indicated without damaging insulation, fasteners, and substrates.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

    a. AGM Industries, Inc.; TACTOO Adhesive.
    b. Gemco; Tuff Bond Hanger Adhesive.

PART 3- EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that are harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.3 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Glass-Fiber or Mineral-Wool Blanket Insulation: Install in cavities fanned by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.

2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

3. Maintain 3-inch (76-mm) clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.

4. For wood-framed construction, install blankets according to ASTM C1320 and as follows:

a. With faced blankets having stapling flanges, secure insulation by inset, stapling flanges to sides of framing members.
b. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.

C. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.4 INSTALLATION OF INSULATION IN CEILINGS FOR SOUND ATTENUATION

A. Where glass-fiber blankets are indicated for sound attenuation above ceilings, install blanket insulation over entire ceiling area in thicknesses indicated. Extend insulation 48 inches (1219 mm) up either side of partitions.

3.5 INSTALLATION OF VAPOR RETARDERS

A. Place vapor retarders on side of construction indicated on Drawings. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives or other anchorage system as indicated. Extend vapor retarders to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

B. Seal vertical joints in vapor retarders over framing by lapping no fewer than two studs.

   1. Fasten vapor retarders to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches (406 mm) o.c.

C. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.

D. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

3.6 PROTECTION

A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

3.7 INSULATION SCHEDULE

A. Insulation Type for Roof: Reinforced Foil-Faced, R-38, glass-fiber blanket insulation.

B. Insulation Type for Exterior Walls: Reinforced Foil-Faced, R-21, glass-fiber blanket insulation.

C. Insulation Type for Above Ceilings: Reinforced Foil-Faced, R-13, glass-fiber blanket insulation.

D. Insulation Type for miscellaneous voids and exterior penetrations: Polyurethane spray foam insulation.

SECTION 074600
SIDING

PART 1- GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Fiber-cement siding.

2. Fiber-cement soffit.

B. Related Sections:

1. Section 061000 "Rough Carpentry" for wood furring, grounds, nailers, and blocking.
2. Section 061600 "Sheathing" for wall sheathing and weather-resistive barriers.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

1.4 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

A. Labeling: Provide fiber-cement siding that is tested and labeled according to ASTM C 1186 by a qualified testing agency acceptable to authorities having jurisdiction.

B. Source Limitations: Obtain siding and soffit, including related accessories, from single source from single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials in a dry, well-ventilated, weathertight place.

1.7 COORDINATION

A. Coordinate installation with flashings and other adjoining construction to ensure proper sequencing.

1.8 WARRANTY

A. Special Warranty: Standard form in which manufacturer agrees to repair or replace siding and soffit that fail(s) in materials or workmanship within specified warranty period.

I. Failures include, but are not limited to, the following:

a. Structural failures including cracking, defom1ing.

2. Warranty Period: 10 years from date of Substantial Completion.

PART 2- PRODUCTS

2.1 FIBER-CEMENT SIDING

A. General: ASTM C 1186, Type A, Grade II, fiber-cement board, noncombustible when tested according to ASTM E 136; with a flame-spread index of 25 or less when tested according to ASTM E 84.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Certain Teed Corp.
b. GAF Materials Corporation.
c. James Hardie.

B. Finish: Smooth

C. Sizes: Panels, Boards and Trim as required to construct areas indicated.

2.2 FIBER-CEMENT SOFFIT

A. General: ASTM C 1186, Type A, Grade II, fiber-cement board, noncombustible when tested according to ASTM E 136; with a flame-spread index of 25 or less when tested according to ASTM E 84.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Certain Teed Corp.
b. GAF Materials Corporation.
c. James Hardie.

B. Finish: Smooth

C. Size: As required to construct soffits indicated.

D. Ventilation: Provide perforated and unperforated soffit. Perforated on front canopy only.

E. Factory Priming: Manufacturer’s standard acrylic primer.

2.3 ACCESSORIES

A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.

1. Provide accessories made from same material as adjacent siding unless otherwise indicated.

B. Decorative Accessories: Provide the following fiber-cement decorative accessories as indicated:

1. Fasciae.

2. Moldings and trim.

C. Fasteners:

I. For fastening to wood, use siding nails of sufficient length to penetrate a minimum of I inch (25 mm) into substrate.

2. For fastening fiber cement, use hot-dip galvanized fasteners.

PART 3- EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of siding and soffit and related accessories.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION

A. General: Comply with siding and soffit manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

1. Do not install damaged components.
2. Center nails in elongated nailing slots without binging siding to allow for thermal movement.

B. Install fiber-cement siding and soffit and related accessories.

1. Install fasteners no more than 24 inches (600 mm) o.c.

C. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.

3.4 ADJUSTING AND CLEANING

A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.
B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

SECTION 076200
SHEET METAL FLASHING AND TRIM

PART I -GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Formed roof-drainage sheet metal fabrications.
2. Formed wall sheet metal fabrications.

1.3 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leak-proof, secure, and noncorrosive installation.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

B. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1.6. DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.7 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 10 years from date of Substantial Completion.

PART 2- PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, them1ally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Sheet Metal Standard for Copper: Comply with CDA's "Copper in Architecture Handbook." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.

1. Exposed Coil-Coated Finish:

    a. Two-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2. Color: As selected by Architect from manufacturer's full range.
3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of0.5 mil (0.013 mm).

C. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet according to ASTM A 653/A 653M, G90 (2275) coating designation.

1. Surface: Smooth, flat.

2.3 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

    a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
    b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
    c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.

C. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

D. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

E. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.

F. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.4 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.

1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with perfom1ance requirements, but not less than that specified for each application and metal.
2. Obtain field measurements for accurate fit before shop fabrication.
3. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 114 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

D. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

E. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.

F. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

G. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.

H. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.

I. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.

J. Do not use graphite pencils to mark metal surfaces.

2.5 ROOF-DRAINAGE SHEET METAL FABRICATIONS

A. Hanging Gutters: Fabricate to cross section required, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch- (2400-mm-) long sections. Furnish flat-stock gutter brackets and flat-stock gutter spacers and straps fabricated from same metal as gutters, of size recommended by cited sheet metal standard but with thickness not less than twice the gutter thickness. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters.

1. Gutter Profile: Style A according to cited sheet metal standard.
2. Expansion Joints: Lap type.
3. Gutters with Girth up to 15 Inches (380 mm): Fabricate from the following materials:

    a. Aluminum: 0.032 inch (0.81 mm) thick.

B. Downspouts: Fabricate rectangular downspouts to dimensions indicated, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors.
1. Fabricated Hanger Style: Fig l-35A according to SMACNA's "Architectural Sheet Metal Manual."

2.6 WALL SHEET METAL FABRICATIONS

A. Through-Wall Flashing: Fabricate continuous flashings in minimum 96-inch- (2400-mm-) long, but not exceeding 12-foot- (3 .6-m-) long, sections, under copings, and at shelf angles. Fabricate discontinuous lintel, sill, and similar flashings to extend 6 inches (150 mm) beyond each side of wall openings; and form with 2-inch- (50-mm-) high, end dams. Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

B. Opening Flashings in Frame Construction: Fabricate head, sill, and similar flashings to extend 4 inches (I 00 mm) beyond wall openings. Form head and sill flashing with 2-inch- (50-mm-) high, end dams. Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

PART 3- EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
3. Space cleats not more than 12 inches (300 mm) apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
4. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
5. Torch cutting of sheet metal flashing and trim is not permitted.
6. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of I 0 feet (3m) with no joints within 24 inches (600 mm) of corner or intersection.

1. Form expansion joints of intermeshing hooked flanges, not less than I inch (25 mm) deep, filled with sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws.

D. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Seal joints as required for watertight construction.

1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).
2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

3.3 ROOF-DRAINAGE SYSTEM INSTALLATION

A. General: Install sheet metal roof-drainage items to produce complete roof-drainage system according to cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.
B. Hanging Gutters: Join sections with joints sealed with sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchor them in position. Provide end closures and seal watertight with sealant. Slope to downspouts.

1. Fasten gutter spacers to front and back of gutter.
2. Anchor gutter with gutter brackets spaced not more than 24 inches (600 mm) apart to roof deck, unless otherwise indicated, and loosely lock to front gutter bead.
3. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet (15.24 m) apart. Install expansion-joint caps.

C. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints.

1. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches (1500 mm) o.c.
2. Provide elbows at base of downspout to direct water away from building.
3. Connect downspouts to underground drainage system.

3.4 WALL FLASHING INSTALLATION

A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

B. Through-Wall Flashing: Installation of through-wall flashing is specified in Section 042000 "Unit Masonry."

C. Opening Flashings in Frame Construction: Install continuous head, sill, and similar flashings to extend 4 inches (100 mm) beyond wall openings.

3.5 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 118-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

3.6 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean off excess sealants.

C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturers written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touch up or similar minor repair procedures.

SECTION 079200
JOINT SEALANTS

PART I -GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Latex joint sealants.

B. Related Sections:

1. Section 042000 "Unit Masonry" for masonry control and expansion joint fillers and gaskets.
2. Section 088000 "Glazing" for glazing sealants.
3. Section 093000 "Tiling" for sealing tile joints.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

1.5 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F (5 deg C).
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.6 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2- PRODUCTS

2.1 MATERIALS, GENERAL

A. 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 joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: Match color of adjacent material/surface.

2.2 SILICONE JOINT SEALANTS

A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, for Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:
    a. Dow Corning Corporation; 790.
    b. Pecora Corporation; 301 NS.
    c. Tremco Incorporated; Spectrem 800.

2.3 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex o siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Products: Subject to compliance with requirements, provide one of the following:

    a. May National Associated, Inc.: Bondaflex 600.
    b. Pecora Corporation; AC-20+.
    c. Tremco Incorporated; Tremflex 834.

2.4 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. 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. Provide self-adhesive tape where applicable.

2.5 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer 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 cleaners 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 to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3- EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Concrete.
    b. Masonry.
    c. Unglazed surfaces of ceramic tile.
    d. Exterior insulation and finish systems.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.
    b. Glass.
    c. Porcelain enamel.
    d. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by 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.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer 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.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure SA in ASTM C 1193, unless otherwise indicated.
4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.

a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.

1. Joint Locations:

a. Isolation and contraction joints in cast-in-place concrete slabs.

2. Silicone Joint Sealant: Single component, nonsag, traffic grade, neutral curing.

B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Construction joints in cast-in-place concrete.
b. Joints between plant-precast architectural concrete units.
c. Control and expansion joints in unit masonry.
d. Joints in dimension stone cladding.
e. Joints in exterior insulation and finish systems.
f. Joints between different materials listed above.
g. Perimeter joints between materials listed above and frames of doors, windows and louvers.
h. Other joints as indicated.

2. Silicone Joint Sealant: Single component, nonsag, neutral curing, Class 50.

C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

1. Joint Locations:

a. Isolation joints in cast-in-place concrete slabs.
b. Control and expansion joints in tile flooring.
c. Other joints as indicated.

2. Silicone Joint Sealant: Single component, nonsag, traffic grade, neutral curing.

D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings where indicated.
c. Vertical joints on exposed surfaces of walls.
d. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
e. Other joints as indicated.

2. Joint Sealant: Latex.

E. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.

2. Silicone Joint Sealant: Single component, nonsag, neutral curing, Class 50.

SECTION 081113
HOLLOW METAL DOORS AND FRAMES

PART I • GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Standard hollow metal doors and frames.

B. Related Sections:

1. Division 04 Section "Unit Masonry" for embedding anchors for hollow metal work into masonry construction.
2. Division 08 Section "Door Hardware" for door hardware for hollow metal doors
3. Division 08 Section "Door Hardware" for door hardware for hollow metal doors.
4. Division 09 Sections "Exterior Painting" and "Interior Painting" for field painting hollow metal doors and frames.

1.3 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings.

B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SOI A250.8.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance rating, and finishes.

B. Shop Drawings: Include the following:

1. Elevations of each door design.
2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.
7. Details of accessories.
8. Details of moldings, removable stops, and glazing.
9. Details of conduit and preparations for power, signal, and control systems.

C. Samples for Verification:

1. For each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches (75 by 125 mm).

2. For the following items, prepared on Samples about 12 by 12 inches (305 by 305 mm) to demonstrate compliance with requirements for quality of materials and construction:
    a. Doors: Show vertical-edge, top, and bottom construction; core construction; and hinge and other applied hardware reinforcement. Include separate section showing glazing if applicable,
    b. Frames: Show profile, corner joint, floor and wall anchors, and silencers, Include separate section showing fixed hollow metal panels and glazing if applicable.

D. Other Action Submittals:

1. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings, Coordinate with door hardware schedule.

1.5 INFORMATIONAL SUBMITTALS

A. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of hollow metal door and frame assembly.

1.6 QUALITY ASSURANCE

A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.

B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that arc listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL Lob.

C. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9, Label each individual glazed lite.

D. Smoke-Control Door Assemblies: Comply with NFPA 105 or UL 1784.

E. Pre-Installation Conference: Conduct conference at **Gill Park Pavilion, Liberty County, Georgia.**

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
   1. Provide additional protection to prevent damage to finish of factory-finished units.

C. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

D. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (I 02-mm-) high wood blocking. Do not store in a manner that traps excess humidity.

   1. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.

1.8 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.9 COORDINATION

A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Amweld Building Products, LLC.
2. Benchmark; a division of Therma-Tru Corporation.
3. Ceco Door Products; an Assa Abloy Group company.
4. Curries Company; an Assa Abloy Group company.
5. Deansteel Manufacturing Company, Inc.
6. Firedoor Corporation.
7. Fleming Door Products Ltd.; an Assa Abloy Group company.
8. Habersham Metal Products Company.
9. Karpen Steel Custom Doors & Frames.
10. Kewanee Corporation (The).
11. Mesker Door Inc.
12. Pioneer Industries, Inc.
13. Security Metal Products Corp.
14. Steelcraft; an Ingersoll-Rand company.
15. Windsor Republic Doors.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 10081A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011 M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A 6531A 653M, Commercial Steel (CS), Type B; with minimum G60 (ZI 80) or A60 (ZFI80) metallic coating.

D. Frame Anchors: ASTM A 5911A 591 M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.
1. For anchors built into exterior walls, steel sheet complying with ASTM A *10081*A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A I*53/A* 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A *153/A* 153M.

F. Powder-Aetuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow metal frames of type indicated.

G. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C *143/C* 143M.

H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. (96- to I92-kg/cu. m) density; with maximum flame-spread and smoke-development indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

1. Glazing: Comply with requirements in Division 08 Section "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (O.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STANDARD HOLLOW METAL DOORS

A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDl A250.8.

1. Design: Flush panel.

2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene,polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.

a. Fire Door Core: As required to provide fire-protection ratings indicated.

b. Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than 4.0 deg F x h x sq. ft./Btu
(0.704 K x sq. m/W) when tested according to ASTM C 1363.

I) Locations: Exterior doors and interior doors where indicated.

3. Vertical Edges for Single-Acting Doors: Beveled edge.

    a. Beveled Edge: 1/8 inch in 2 inches (3 mm in 50 mm).

4. Top and Bottom Edges: Closed with flush or inverted 0.042-inch- (1.0-mm-) thick, end closures or channels of same material as face sheets.

5. Tolerances: Comply with SOl 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Provide doors complying with requirements indicated below by referencing ANSI/SDl A250.8 for level and model and ANSl/SDI *A25004* for physical performance level:

    1. Level 2 and Physical Performance Level B (Heavy Duty), 16 gauge, Model 2 (Seamless).

C. Interior Doors: Face sheets fabricated from cold-rolled steel sheet. Provide doors complying with requirements indicated below by referencing ANSl/SDI A250.8 for level and model and ANSI/SDl *A25004* for physical performance level:

    1. Level 2 and Physical Performance Level B (Heavy Duty), 16 gauge, Model 2 (Seamless).

D. Hardware Reinforcement: Fabricate according to ANSI/SDl A250.6 with reinforcing plates from same material as door face sheets.

E. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDl A250.8 and with details indicated for type and profile.

B. Exterior Frames: Fabricated from metallic-coated steel sheet.

    1. Fabricate frames with mitered or coped corners.
    2. Fabricate frames as full profile welded unless otherwise indicated.
    3. Frames for Level 2 Steel Doors: 16 gauge steel sheet.

C. Interior Frames: Fabricated from cold-rolled steel sheet unless metallic-coated sheet Is indicated.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Fabricate knocked-down, drywall slip-on frames for in-place gypsum board partitions.
4. Frames for Level 2 Steel Doors: 16 gauge steel sheet.

D. Hardware Reinforcement: Fabricate according to ANSl/SOI A250.6 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.

B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch (50-mm) height adjustment. Terminate bottom of frames at finish floor surface.

2.6 HOLLOW METAL PANELS

A. Provide hollow metal panels of same materials, construction, and finish as specified for adjoining hollow metal work.

2.7 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, fabricated from
same material as door face sheet in which they are installed.

B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, fabricated from same material as frames in which they are installed.

2.8 LOUVERS

A. Provide louvers for interior doors, where indicated, that comply with SD1 111 C, with blades or baffles formed of 0.020-inch- (0.5-mm-) thick, cold-rolled steel sheet set into 0.032-inch- (0.8mm-) thick steel frame.

1. Sightproof Louver: Stationary louvers constructed with inverted V-shaped or Y- shaped blades.
2. Lightproof Louver: Stationary louvers constructed with baffles to prevent light from passing from one side to the other, any angle.
2. Fire-Rated Automatic Louvers: Louvers constructed with movable blades closed by actuating fusible link, and listed and labeled for use in fire-rated door assemblies of type and fire-resistance rating indicated by same testing and inspecting agency that established fire-resistance rating of door assembly.

2.9 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Ceiling Struts: Minimum 114-inch-thick by I-inch- (604-mm-thick by 2504-mm-*)* wide steel.

C. Grout Guards: Formed from same material as frames, not less than 0.016 inch *(004* mm) thick.

2.10 FABRICATION

A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Tolerances: Fabricate hollow metal work to tolerances indicated in SOl 117.

C. Hollow Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
2. Glazed Lites: Factory cut openings in doors.
3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend

minimum 3/4 inch (19mm) beyond edge of door on which astragal is mounted.

D. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
3. Provide countersunk, flat-or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
6. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Masonry Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Two anchors per jamb up to 60 inches (1524 mm) high.
        2) Three anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
        3) Four anchors per jamb from 90 to 120 inches (2286 to 3048 mm) high.
        4) Four anchors per jamb plus] additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 120 inches (3048 mm) high.

7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.

    a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

E. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.

F. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/SOl A250.8.
2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
3. Comply with applicable requirements in ANSI/SDl A250.6 and ANSI/DHI A1115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

F. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow metal work.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.11 STEEL FINISHES

A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDl A250.1 0 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 – EXECUTION

2.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installers present, for compliance with requirements for installation tolerance and other conditions affecting performance of the work.

B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.

C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

2.2 PREPARATION

A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

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B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:

I. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners ofjambs on parallel lines, and perpendicular to plane of wall.
4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line from head to floor.

C. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A2S0.II.

1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

a. At fire-protection-rated openings, install frames according to NFPA 80.
b. Where frames are fabricated in sections because of shipping or handling

limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.

c. Install framcs with removable glazing stops located on secure side of opening.
d. Install door silencers in frames before grouting.
e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

    a. Floor anchors may be set with powder-actuated fasteners instead of post installation expansion anchors if so indicated and approved on Shop Drawings.

3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.

4. Concrete Walls: Solidly fill space between frames and concrete with grout. Take precautions, including bracing frames, to ensure that frames are not deformed or damaged by grout forces.

5. Ceiling Struts: Extend struts vertically from top of frame at each jamb to overhead structural supports or substrates above frame unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction. Provide adjustable wedged or bolted anchorage to frame jamb members.

5. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearance specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:
   a. Jambs and Head: *118* inch (3 mm) plus or minus 1/16 inch (1.6 mm).
   b. Between Edges of Pairs of Doors: *118* inch (3 mm) plus or minus 1/16 inch (1.6mm).
   c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
   d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum ¾ inch (19 mm).
2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
3. Smoke-Control Doors: Install doors according to NFPA 105 and UBC Standard 7-2.

D. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

1. Secure stops with countersunk flat-or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each corner.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow metal work immediately after installation.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

D. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

SECTION 099113
EXTERIOR PAINTING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following exterior substrates:

1. Concrete.
2. Concrete masonry units (CMU).
3. Steel.
4. Galvanized metal.
5. Aluminum (not anodized or otherwise coated).
6. Wood.
7. Plastic trim fabrications.
8. Fiber cement siding, panels and trim.

B. Related Requirements:

1. Section 051200 "Structural Steel Framing" for shop priming of metal substrates with primers specified in this Section.
2. Section 099123 "Interior Painting" for surface preparation and the application of paint systems on interior substrates.

1.3 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product Include preparation requirements and application instructions.

B. Samples for Initial Selection: For each type of topcoat product

C. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas, Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturer of topcoat for use in paint system and on substrate indicated.

C. Colors: As selected by Architect from manufacturer's full range.

D. Paint System for High Performance Architectural Latex: "Duration" family by Sherwin Williams.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior: MPI #4.

2.4 PRIMERS/SEALERS

A. Primer, Bonding, Water Based: MPI #17.

2.5 METAL PRIMERS

A. Primer, Alkyd, Anti-Corrosive for Metal: MPI #79.

B. Primer, Galvanized, Water Based: MPI #134.

C. Primer, Quick Dry, for Aluminum: MPI #95

2.6 WOOD PRIMERS

A. Primer, Latex for Exterior Wood: MPI #6.

2.7 WATER-BASED PAINTS

A. Latex, Interior, High Performance Architectural, Semi-Gloss (Gloss Level 5): MPI #141.

2.7 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples

may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

l. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

C. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

E. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.

F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

H. Aluminum Substrates: Remove loose surface oxidation.

I. Wood Substrates:

1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

J. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
4. Paint entire exposed surface of window frames and sashes.
5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed to view:

a. Uninsulated metal piping.
b. Uninsulated plastic piping.
c. Pipe hangers and supports.
d. Metal conduit.
e. Plastic conduit.
f. Tanks that do not have factory-applied final finishes.
g. xRefrigerant piping insulation.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that *dry* film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. High-Performance Architectural Latex System:

a. Prime Coat: Latex, exterior, matching topcoat.
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5), MPI #141.

B. CMU Substrates:

1. High-Performance Architectural Latex System:

a. Prime Coat: Block filler, latex, interior/exterior, MPI #4.
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level5), MPI #141.

C. Steel Substrates:

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal, MPI #79.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level5), MPI #141.

D. Galvanized-Metal Substrates:

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, galvanized, water based, MPI #134.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level5), MPI #141.

E. Aluminum (Not Anodized or Otherwise Coated) Substrates:

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, quick dry, for aluminum, MPI #95.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.

c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5), MPI #141.

F. Wood Substrates: Including wood trim and fiber cement siding, panels and trim.

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, latex for exterior wood, MPI #6.
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5), MPI #141.

G. Plastic Trim Fabrication Substrates:

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, bonding, water based, MPI # 17.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5), MPI #141.

H. ASJ Insulation-Covering Substrates: Including pipe and duct coverings.

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, bonding, water based, MPI #17.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5), MPI # 141.

SECTION 099123
INTERIOR PAINTING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Steel.
2. Cast iron.
3. Concrete.
4. Galvanized metal.
5. Aluminum (not anodized or otherwise coated).
6. Wood.
7. Gypsum board.
8. ASJ insulation covering.

B. Related Requirements:

1. Section 051200 "Structural Steel Framing" for shop priming of metal substrates with primers specified in this Section.
2. Section 099113 "Exterior Painting" for surface preparation and the application of paint systems on exterior substrates.

1.3 DEFINITIONS

A. Gloss Level I: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples for Initial Selection: For each type of topcoat product.

C. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than I gal. (3.8 L) of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. Colors: As selected by Architect from manufacturer's full range.

D. Paint System for High Performance Architectural Latex: "Duration" family by Sherwin Williams.

2.3 PRIMERS/SEALERS

A. Primer Sealer, Latex, Interior: MPI #50.

B. Primer, Latex, for Interior Wood: MPI #39.

C. Primer, Bonding, Water Based: MPI #17.

2.4 METAL PRIMERS

A. Primer, Alkyd, Anti-Corrosive, for Metal: MPI #79.

B. Primer, Galvanized, Water Based: MPI #134.

C. Primer, Quick Dry, for Aluminum: MPI #95.

2.5 WATER-BASED PAINTS

A. Latex, Interior, High Performance Architectural, (Gloss Level 3): MPI #139.

B. Latex, Interior, High Performance Architectural, Semi-Gloss (Gloss Levels 5): MPI #141.

2.6 FLOOR COATINGS

A. Floor Paint, Latex, Low Gloss (Maximum Gloss Level 3): MPI #60.

2.6 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be identified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.
5. Plaster: 12 percent.

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.

F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

H. Aluminum Substrates: Remove loose surface oxidation.

I. Wood Substrates:

I. Scrape and clean knots and apply coat of knot sealer before applying primer.
2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI MANUAL”

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed in equipment rooms:

a. Uninsulated metal piping.
b. Uninsulated plastic piping.
c. Pipe hangers and supports.
d. Metal conduit.
e. Plastic conduit.
f. Tanks that do not have factory-applied final finishes.
g. Refrigerant piping insulation.

2. Paint the following work where exposed in occupied spaces:

a. Uninsulated metal piping.
b. Uninsulated plastic piping.
c. Pipe hangers and supports.
d. Metal conduit.
e. Plastic conduit.
f. Duct and pipe insulation having paintable jacket material.
g. Other items as directed by Architect.

3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Traffic Surfaces:

1. Latex Floor Enamel System:

a. Prime Coat: Floor paint, latex, low gloss (maximum Gloss Level 3), MPI #60.
b. Intermediate Coat: Floor paint, latex, low gloss (Maximum Gloss Level 3), MPI #60.
b. Topcoat: Floor paint, latex, low gloss (maximum Gloss Level 3), MPI #60.

B. Steel Substrates:

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal, MPI #79.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5), MPI #141.

C. Galvanized-Metal Substrates:

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, galvanized, water based, MPI #134.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5), MPI #141.

D. Aluminum (Not Anodized or Otherwise Coated) Substrates:

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, quick dry, for aluminum, MPI #95.

b. Intennediate Coat: Latex, interior, high perfonnance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5), MPI #141.

E. Wood Substrates: Including wood trim and wood-based panel products.

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, latex, for interior wood, MPI #39.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5), MPI #141.

F. Fiberglass and Plastic Substrates:

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer, bonding, water based, MPI #17.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5), MPI #141.

G. Gypsum Board Substrates:

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer sealer, latex, interior, MPI #50.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3), MPI #139.

H. ASJ Insulation-Covering Substrates: Including pipe and duct coverings.

1. High-Performance Architectural Latex System:

a. Prime Coat: Primer sealer, latex, interior, MPI #50.
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3), MPI #139.

SECTION 102800
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 -GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Public-use washroom accessories.
2. Public-use shower room accessories.
3. Private-use bathroom accessories.
4. Under lavatory guards.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include the following:

1. Construction details and dimensions.
2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
3. Material and finish descriptions.
4. Features that will be included for Project.
5. Manufacturer's warranty.

B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated.
2. Identify products using designations indicated.

C. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

D. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.

1.5 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

B. Deliver inserts and anchoring devices set into concrete or masonry as required preventing delaying the Work.

1.6 WARRANTY

A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 15 years from date of Substantial Completion.

PART 2- PRODUCTS

2.1 MATERIALS

A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.

B. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.

C. Steel Sheet: ASTM A l 008/ A I 008M, Designation CS (cold rolled, commercial steel), 0.036-inch (0.9-mm) minimum nominal thickness.

D. Galvanized-Steel Sheet: ASTM A 653/A 653M, with 060 (Z180) hot-dip zinc coating.

E. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.

F. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and theft resistant where exposed, and of galvanized steel where concealed.

G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).

H. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

I. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

2.2 PUBLIC & PRIVATE-USE WASHROOM ACCESSORIES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. A & J Washroom Accessories, Inc.
2. American Specialties, Inc.
3. Bobrick Washroom Equipment, Inc.
4. Bradley Corporation.
5. GAMCO Specialty Accessories; a division of Bobrick Washroom Equipment, Inc.
6. Tubular Specialties Manufacturing, Inc.

B. Toilet Tissue (Roll) Dispenser: (TTD)

1. Description: Roll-in-reserve dispenser with hinged front secured with tumbler lockset.
2. Mounting: Surface mounted.
3. Operation: Eccentric-shaped, molded-plastic spindle revolves one-half revolution per dispensing operation for controlled delivery; core cannot be removed until roll is empty.
4. Capacity: Designed for 4-1/2- or 5-ineh- (114- or 127-mm-) diameter tissue rolls.
5. Material and Finish: Stainless steel, No.4 finish (satin).

C. Towel (Folded) Dispenser: (PTD)

1. Description: Combination unit for dispensing C-fold or multifold towels.
2. Mounting: Surface mounted with stainless-steel collar.
3. Minimum Towel-Dispenser Capacity: 600 C-fold or 800 multi fold paper towels.
4. Material and Finish: Stainless steel, No. 4 finish (satin).
5. Lockset: Tumbler type for towel-dispenser compartment.

D. Waste Receptacle:(WR)

1. Description: Unit, with removable waste receptacle.
2. Mounting: Surface mounted with stainless-steel collar.
3. Minimum Waste-Receptacle Capacity: 12 gal. (45.4 L).
4. Material and Finish: Stainless steel, No.4 finish (satin).
5. Liner: Reusable, vinyl waste-receptacle liner.

E. Liquid-Soap Dispenser:(SD)

1. Description: Designed for dispensing soap in liquid or lotion or lather form.
2. Mounting: Vertically oriented, surface mounted.
3. Capacity: 40 oz.
4. Materials: Stainless steel, No.4 finish (satin).
5. Lockset: Tumbler type.
6. Refill Indicator: Window type.

F. Grab Bar:(GB)

1. Mounting: Flanges with concealed fasteners.
2. Material: Stainless steel, 0.05 inch (1.3 mm) thick.

    a. Finish: Smooth, No.4 finish (satin) on ends and slip-resistant texture in grip area.

3. Outside Diameter: 1-1/4 inches (32 mm).
4. Configuration and Length: As indicated on Drawings.

G. Robe Hook (mounted on door inside toilet rooms) :(RH)

1. Description: Single-prong unit.
2. Material and Finish: Stainless steel, No.4 finish (satin).

H. Mirror Unit:(M)

1. Frame: 18x36 Stainless-steel channel.

a. Corners: Welded and ground smooth.

2. Integral Shelf: 5 inches (127 mm) deep.
3. Hangers: Produce rigid, tamper and theft-resistant installation, using method indicated below.

a. One-piece, galvanized-steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.

2.3 PUBLIC & PRIVATE-USE SHOWER ACCESSORIES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Basco, Inc.
2. Bobrick Washroom Equipment, Inc.
3. Franklin Brass by Liberty Hardware Manufacturing Corporation; a Masco company.
4. GAMCO Specialty Accessories; a division of Bobrick Washroom Equipment, Inc.
5. Ginger; a Masco company.
6. Seachrome Corporation.
7. Tubular Specialties Manufacturing, Inc.

B. Shower Curtain Rod:

1. Outside Diameter: 1-1/4 inches (32 mm).
2. Mounting: Flanges with concealed fasteners.
3. Rod Material and Finish: Stainless steel, No.4 finish (satin).
4. Flange Material and Finish: Stainless steel, No.4 finish (satin).
5. Accessories: Integral chrome-plated brass glide hooks.

C. Soap Dish:

1. Mounting: Recessed.
2. Material and Finish: Stainless steel, No.4 finish (satin).

D. Towel Pin:

1. Description: Projecting minimum of 3 inches (75 mm) from wall surface.
2. Material and Finish: Stainless steel, No.4 finish (satin).

2.4 UNDER LAVATORY GUARDS

A. Basis-of-Design Product: Subject to compliance with requirements, provide LavShield by TruBro or comparable product by one of the following:

1. Plumberex Specialty Products, Inc.

B. Under lavatory Guard:

1. Description: Insulating pipe covering for supply and drain piping assemblies that prevent direct contact with and burns from piping; allow service access without removing coverings.
2. Material and Finish: Antimicrobial, molded plastic, white.

2.5 FABRICATION

A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.

B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3- EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to ASTM F 446.

C. Abbreviations indicated for each accessory is indicated to match locations shown on large scale floor plans.

3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.

B. Remove temporary labels and protective coatings.

C. Clean and polish exposed surfaces according to manufacturer's written recommendations.