STATE OF NEW HAMPSHIRE
DEPARTMENT OF NATURAL AND CULTURAL RESOURCES

172 Pembroke Road
Concord, NH 03302-1856
Tel. (603) 271-2606 Fax (603) 271-2629

PROJECT MANUAL

Project No.: CAP 2031

Kearsarge State Forest

Rollins/Winslow Park Improvements

January 16, 2024

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INVITATION TO BID

ROLLINS/WINSLOW PARK IMPROVEMENTS
CAP 2031
KEARSARGE STATE FOREST

1. Sealed Bids: Proposals for a General Contract for the Construction of the above project will be received by the Owner until 2:00 P.M. prevailing time on Tuesday, February 13, 2024, at which time they will be publicly opened and read aloud. All Bids shall be made out only on the form included in the specifications package and delivered in a sealed, labeled envelope marked: Bid Proposal for Rollins/Winslow Park Improvements and deposited in the bid box located at the reception desk of the Department of Natural and Cultural Resources (DNCR) offices at 172 Pembroke Road in Concord, NH. Bidders are invited to attend the Bid opening. Bids received after the above stated time and date will not be accepted.

2. Technical Questions: Questions regarding the Bidding Documents shall be referred to: Department of Natural and Cultural Resources, 172 Pembroke Road, Concord New Hampshire, 03301, attention Scott Coruth, Architect, Telephone (603) 271-3676, email: scott.d.coruth@dncr.nh.gov.

3. Documents: Bidding Documents may be examined at the Design, Development and Maintenance Section of DNCR, 172 Pembroke Road, Concord NH and at the following locations:

   Construction Summary of New Hampshire Inc.: 734 Chestnut Street, Manchester, New Hampshire 03104, (603) 627-8856, www.constructionsummary.com

   AlphaGraphics: 933 Islington Street, Portsmouth, NH 03801, (800) 581-2712 or (603) 436-3030, www.planroom.agportsmouth.com

   McGraw-Hill Construction: www.construction.com

   Signature Digital Imaging: 45 Londonderry Turnpike, Hooksett, NH 03106, (603) 624-4025, www.signaturenh.com

   Works in Progress: 20 Farrell Street, Suite 103, South Burlington, VT 05403. (800) 286 3633 or (802) 658-3797

   New Hampshire Department of Administrative Services Bureau of Purchase and Property Website: http://admin.state.nh.us/purchasing/vendorresources.asp

   New Hampshire State Parks Website: www.nhstateparks.org/news-events/improving-state-parks/rfps-projects.

4. Qualifications: All companies, corporations, and trade names bidding must be registered and have a Certificate of Existence from the New Hampshire Secretary of State's Office, Corporate Division (telephone 603-271-3244) in order to do business with the State of New Hampshire

5. Bid Security: A Bid Bond in the amount of five (5%) percent of the total amount of the lump sum bid price shall accompany each Bid Proposal in accordance with the Instructions to Bidders.

6. Bonds: Bidders shall be required to provide the Owner with financial responsibility as security for the completion of the contract in accordance with the plans, specifications, and contract documents, in the form of a Performance and Payment Bond in the amount of One Hundred (100%) Percent of the contract award, if the contract award is seventy-five thousand dollars ($75,000) or more, the cost of which shall be a part of the Base Bid. The form of bond and the surety shall be acceptable to the Commissioner. No contract bond shall be required on contract awards of less than seventy-five thousand dollars ($75,000).

7. Inspection of Site: Bidders are encouraged, but not required, to thoroughly inspect the two sites prior to submission of Proposals. Bidders should note that the Parks are currently closed for the season, and that the access roads are not maintained during winter months. Access to the sites are blocked by pad locked gates. Bidders shall contact Scott Coruth, Architect, in writing, at email: scott.d.coruth@dncr.nh.gov to indicate dates and times of anticipated site visits, and to request the pad lock combinations.

8. Awards: In most cases the proposal submitted by the qualified bidder with the lowest base bid price shall be selected. However, the Department of Natural and Cultural Resources (DNCR) reserves the right to reject any or all proposals or advertise for new proposals as it judges to be in the best interest of the state.

9. Regulations: Bidders' attention is called to the fact that this Project is required to comply with, in addition to all other requirements of the Contract Documents, Equal Employment Opportunity Regulations

10. Build America, Buy America Act: Bidders' attention is called to the fact that this Project is funded in whole or in part by a Federal Financial Assistance Program that is required to comply with the Build America, Buy America Act ("the Act"). Pub. L. No. 117-58, §§ 70901-52. Bidder is required to comply with, in addition to all other requirements of the Contract Documents, the Act.

END OF INVITATION TO BID

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

DEFINITIONS

1. Definitions set forth in the Specification Section 00 72 00 “General Conditions” or in other Contract Documents are applicable to the Bidding Documents.

2. Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements include the Invitation to Bid, Instructions to Bidders, the Proposal Form and other sample Bidding and Contract forms.

3. Addenda are written or graphic instruments issued prior to the execution of the Contract. They modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections. Addenda will become part of the Contract Documents when the Construction Contract is executed.

4. A Bid is a complete and properly signed Proposal to do the Work or designated portion thereof for the sums stipulated therein, submitted in accordance with the Bidding Documents.

5. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or deducted for sums stated in Alternate Bids.

6. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in Work, as described in the Bidding Documents, is accepted.

7. A Unit Price is an amount stated in the Bid as a possible price per unit of measurement for materials, equipment, services, or a portion of the Work as described in Bidding Documents. The choice of using Unit Prices, or an alternative method of payment, for additional Work shall be left solely to the Owner's discretion.

8. A Bidder is a person or entity who submits a Bid.

9. A Sub-Bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

BIDDER'S REPRESENTATION

1. Each Bidder by making his Bid represents that he has examined and understands the Bidding Documents, that the Bidding Documents are adequate to produce the required results, and that his Bid is in accordance therewith.

2. Bidders are encouraged to make any and all inspections and tests as they feel necessary to achieve such familiarization prior to submitting Bids. Such inspections and tests shall be conducted at times mutually acceptable to the Owner and Bidder. Unless waived by the Owner, Bidders shall make repairs following their testing, as necessary to restore tested areas to pre-testing condition. Should a Bidder conclude that time or other factor(s) prohibits him from performing sufficient tests, he shall so notify the Owner, in writing, prior to the receipt of Bids.

3. The submission of a Bid will be construed as conclusive evidence that the Bidder has made all such examinations and inspections necessary for a complete and proper assessment of the Work required, and that the Bidder has included in his Bid a sum sufficient to cover the cost of all items necessary to perform the Work as set forth in the proposed Contract Documents. No allowance will be made to a Bidder because of lack of such examination, inspection, or knowledge.

4. Each Bidder by making his Bid represents that he has assessed the conditions of the current construction marketplace, and verified that an adequate, experienced workforce is available to suitably man the Work of this Project and complete it in a timely fashion.

5. Each Bidder is assumed to have made himself familiar with all Federal, State and Local laws, ordinances, and regulations which in any manner affect those engaged in or upon the Work, or in any way affect those engaged or employed in the Work, and no plea of misunderstanding will be considered on account of ignorance thereof. The Contractor shall comply with all taxes, fees and assessments as levied by Federal, State and Local authorities.

6. Each Bidder by making his bid certifies, on behalf of itself and all Sub-contractors, Sub-subcontractors, Suppliers, and other entities retained by the contractor, that they have read, understood, and will comply with the Build America, Buy America Act (“the Act”). Pub. L. No. 117-58, §§ 70901-52, as required by federal law.

BIDDING PROCEDURES

1. All Bids must be prepared on the Bid Proposal Form provided in the Specification and submitted in duplicate copies in accordance with the Notice to Bidders and Instructions to Bidders. **Any bids submitted that are not on the official bid proposal forms will not be accepted.**

2. A Bid shall be invalid if it has not been deposited at the designated location prior to the time and date in the Invitation to Bid, or prior to any extension thereof issued to the Bidders.

3. Each copy of a Bid shall be signed by the person or persons legally authorized to bind the Bidder to a Contract. A Bid by a corporation shall further give the state of incorporation and have a corporate seal affixed.

4. Unless otherwise provided in any supplement to these Instructions to Bidders, no Bidder shall modify, withdraw, or cancel his Bid or any part thereof for Ninety (90) days after the time designated for the receipt of Bids in the Notice to Bidders.

5. Prior to the receipt of Bids, Addenda will be e-mailed, mailed, or delivered to each person or firm recorded by the Owner as having received the Bidding Documents and will be available for inspection wherever the Bidding Documents are kept available for that purpose.

BID SECURITY

1. Bid Security shall be made payable to the Owner, in the amount of not less than five percent (5%) of the Bid Sum and shall be attached to the Bid. Security shall be either a certified check made payable to the "Treasurer, State of New Hampshire," or Bid Bond issued by surety licensed to conduct business in the State of New Hampshire. The successful Bidder's security will be retained until he has signed the Agreement or Contract and furnished the required Performance and Payment Bonds and Certificates of Insurance. The Owner reserves the right to retain the Security of the next two lowest Bidders until the low Bidder enters into a Contract, or until Sixty (60) days after Bid opening, whichever occurs first. Bid Security of all other Bidders will be returned as soon as practicable. If any Bidder refuses to enter into an Agreement or Contract, the Owner will retain his Bid Security as liquidated damages, but not as a penalty.

EXAMINATION OF BIDDING DOCUMENTS

1. Each Bidder shall examine the Bidding Documents carefully and, not later than seven (7) days prior to the date of receipt of Bids, shall make written request to the Owner for interpretation or correction of any ambiguity, inconsistency, or error therein, which he may discover. Any interpretation or correction will be issued as an Addendum by the Owner. Only a written interpretation or correction by Addendum will be binding. No Bidder shall rely upon any interpretation or correction given by any other method. Bidders are encouraged to direct any questions which may arise to the Owner, in order to provide necessary clarifications prior to the receipt of Bids. Bidders shall promptly notify the Owner of any ambiguity, inconsistency, or error which they may discover upon examination of the Bidding Documents, or the existing building, site, or local conditions. Should a Bidder fail to notify the Owner of errors, discrepancies, or contradictions, he shall be assumed to have bid the more expensive alternative.

SUBSTITUTIONS

1. Each Bidder represents that his Bid is based upon the materials and equipment described in the Bidding Documents. Where the language "or approved equal" is used in the Bidding Documents, it is intended to require that all such materials and equipment shall be submitted as required by these Instructions to Bidders and approved by the Owner prior to the receipt of Bids.

2. No substitution will be considered unless written request has been submitted to the Owner for approval at least seven (7) days prior to the date for receipt of Bids. Each such request shall conform to the requirements of Section 01 25 00 "Substitution Procedure.".

3. If a Bidder proposes to use a material which, while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, he shall inform the Owner in writing of the nature of such deviations at the time the material is submitted for approval. It shall be the responsibility of the Bidder to notify the Owner, in writing, of the presence of Asbestos or

any other hazardous materials in any proposed substitution. Such written notice shall be in the form of a cover letter attached to the related documents.

4. In requesting approval of deviations or substitutions, a Bidder shall provide, upon request, evidence leading to a reasonable certainty that the proposed substitution or deviation will provide a quality of result at least equal to that otherwise attainable. If, in the opinion of the Owner, the evidence presented by the Bidder does not provide a sufficient basis for such reasonable certainty, the Owner may reject such substitution or deviation without further investigation.

5. In requesting approval of substitutions, a Bidder represents that he will provide the same warranty and/or guarantee for the substitution that he would for that specified.

6. The Contract Documents are intended to produce a building and site improvements of consistent character and quality of design. The Owner shall judge the design and appearance of proposed substitutes on the basis of their suitability in relationship to the overall design of the Project, as well as for their intrinsic merits. The Owner will not approve proposed substitutions which, in his opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the project.

7. The Contractor shall be solely responsible for coordinating the installation of accepted substitutions, making such changes as may be required for the Work to be complete in all respects. Any additional cost, or any loss or damage arising from the substitution of any material or any method for those originally specified shall be borne by the Contractor, notwithstanding approval or acceptance of such substitution by the Owner, unless such substitution was made at the written request or direction of the Owner.

8. The burden of proof of the merit of a proposed substitution is upon the proposer. Approval of a proposed substitution is valid only upon issuance by the Owner in written form, and the Owner's decision of approval or disapproval of a proposed substitution shall be considered final.

DETERMINATION OF RIGHT TO DO BUSINESS WITH STATE OF NEW HAMPSHIRE

1. If selected as the low bidder, the bidder must be registered and have a Certificate of Good Standing from the Secretary of State, Corporate Division (telephone 603-271-3244) in order to do business with the State of New Hampshire.

PROPOSAL SELECTION

1. In most cases the proposal submitted by the qualified bidder with the lowest base bid price shall be selected. However, the Department of Natural and Cultural Resources (DNCR) reserves the right to reject any or all proposals or advertise for new proposals as it judges to be in the best interest of the State of New Hampshire.

CONTRACTORS QUALIFICATIONS

1. Upon the Owner's request, the successful bidder shall provide evidence that they have been successfully performing this type, scale, and quality of Work for a minimum of five (5) years. Upon request by the Owner, a comprehensive list of all similar projects worked on in the past two (2) years by the Contractor shall be submitted along with contact information for three (3) references or owners representatives involved with three (3) different projects completed by the Contractor.

EXECUTION OF AGREEMENT

1. Execution and Approval of Agreement: The Agreement shall be signed by the successful Bidder and returned, together with Bonds if applicable, within fifteen (15) Days after the Agreement has been mailed or otherwise delivered to the Bidder. No Agreement shall be considered as in effect until it has been fully executed by all Parties thereto and, when the Price Limitation is more than $10,000, the Agreement has been concurred in by Governor and Council.

2. Failure to Execute Agreement: Failure to execute the Agreement within fifteen (15) Days after the Agreement has been mailed or otherwise delivered to the successful Bidder shall be just cause for the cancellation of the bid and the forfeiture of the Bid Security which shall become the property of the Department, not as a penalty, but in liquidation of damages sustained. Award of the Contract may then be made to the next lowest Bidder, or the Work may be re-advertised as the Commissioner of the Department of Natural and Cultural Resources may decide.

PRECONSTRUCTION CONFERENCE

1. Either before or soon after the actual award of the Contract (but in any event prior to the start of construction), the Contractor or his representative and his principal subcontractors shall attend a preconstruction conference with representatives of the Owner. The conference will serve to acquaint the participants with the general plan of contract administration and requirements under which the construction operation is to proceed.

END OF INSTRUCTIONS TO BIDDERS

SECTION 00 41 00

BID PROPOSAL FORM

Project No. **CAP 2031**

PROJECT: **Rollins/Winslow Park Improvements**
Kearsarge State Forest

BID OPENING DATE: **February 13, 2024,** at 2:00 pm at DNCR's office at 172 Pembroke Road, Concord, NH

START DATE: **April 10, 2024**

COMPLETION DATE: **June 10, 2024**

Sealed bid proposals for the above project will be accepted until the time and date indicated above. Bids may be deposited in the bid box at DNCR's offices in Concord or mailed to the attention of Scott Coruth, Architect, Department of Natural and Cultural Resources (DNCR), 172 Pembroke Road, Concord NH 03301. Please note on the outside of the sealed envelope: Bid Proposal for Rollins/Winslow Park Improvements.

DATE: _____

PROPOSAL OF: _____

GRAND TOTAL / LUMP SUM BASE BID (A+B): _____

PROPOSAL

Proposal of...

_____
(name)

_____
(address)

To furnish and deliver all materials, except as noted, and to perform all work in accordance with the Contract of the State of New Hampshire, Department of Natural and Cultural Resources for the construction of...

Project: **CAP 2031** **Rollins/Winslow Park Improvements**
Kearsarge State Forest

Commissioner
Department of Natural and Cultural Resources
172 Pembroke Road
Concord, N.H. 03302-1856

Commissioner:

In accordance with the advertisement of the Department of Natural and Cultural Resources inviting proposals for the project herein before named and in conformity with the Plans and Specifications on file in the office of the Department of Natural and Cultural Resources, _____
(firm name) hereby certifies that _____ is/are the only person, or persons, interested in this proposal as principals; that this proposal is made without collusion with any person, firm, or corporation; that an examination has been made of the Plans, of the Standard Specifications, and Special Attentions, Supplemental Specifications, and Special Provisions, all of which are attached hereto, and also of the site of the work; and I, or we, propose to furnish all necessary machinery, equipment, tools, labor, and other means of construction, and to furnish all materials specified in the manner and at the time prescribed; and understand that the quantities of work as shown herein are approximate only and are subject to increase or decrease, and further understand that all quantities of work are to be performed at the quoted prices.

To execute the form of contract and begin work within 15 (fifteen) days after the notice to proceed has been received or otherwise delivered to the contractor and to prosecute said work until its completion.

It is further proposed:

To furnish a contract bond in the amount of one hundred percent (100%) of the contract award, if the contract award is seventy-five thousand dollars ($75,000) or more, as security for the completion of the contract in accordance with the plans and specifications and contract documents. The form of bond and the surety shall be acceptable to the Commissioner. No contract bond shall be required on contract awards of less than seventy-five thousand dollars ($75,000).

To guarantee all of the work performed under this contract to be done in accordance with the plans and specifications and contract documents.

Enclosed, herewith, find certified check or bid bond in the amount of 5% of the total amount of the Lump Sum Price made payable to the "Treasurer, State of New Hampshire" as a proposal guarantee which is understood, will be forfeited in the event the form of contract is not executed, if awarded to the undersigned. Note: Personal checks will not be accepted as a proposal guarantee.

The undersigned acknowledges receipt of the following addenda, issued during the bidding time, and states that these have been incorporated in the proposal:

Addendum #1 dated_____

Addendum #2 dated_____

Addendum #3 dated_____

Dated_____

ALLOWANCE #1: Unanticipated Modification and/or Additions to Contract Items:

Include in the Contract, a stipulated sum/price of $40,000 for use upon the Project Managers instruction. This Allowance will make money available for modifications and/or additions to contract items due to owner-initiated changes, or for unknown, latent, or differing existing conditions, or for the removal of hazardous materials that are encountered by construction.

a. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Allowance. The cost of the bond for the amount of Allowance shall be included as part of the lump sum base bid.

b. Funds will be drawn from an Allowance only by Change Order. Contractor can proceed with Change Order Work against Allowance with direction from the Project Manager. The Contractor shall not proceed with any work that will exceed the amount of Allowance remaining.

c. Credits can only be added to an Allowance by Change Order. The Contractor may not use a credit until a Change Order is fully executed.

d. Notwithstanding the Contractors objection, the Project Manager may at any time reduce the funds remaining in the Allowance by Change Order.

e. At Final Payment of the Contract, funds remaining in the Allowance will be credited to the State.

SCHEDULE OF VALUES: Rollins/Winslow Park Improvements

INDICATE DOLLAR AMOUNT OF CONTRACT SUM ALLOCATED TO EACH CATEGORY OF WORK AS DESIGNATED BELOW:

Specification Sections	Description	Amount
	General Conditions	
	Bond Cost	
	Insurance	
02 41 16 **02 41 19**	**Demolition**	
03 45 00	**Precast Architectural Concrete**	
05 58 00	**Formed Metal Fabrications**	
06 10 00	**Rough Carpentry**	
06 15 16	**Wood Roof Decking**	
06 20 00	**Finish Carpentry**	
06 64 00	**Plastic Paneling**	
07 21 00	**Thermal Insulation**	
07 25 00	**Weather Barriers**	
07 31 13	**Asphalt Shingles**	
07 46 23	**Wood Siding**	
07 92 00	**Joint Sealants**	
08 11 13	**Hollow Metal Doors and Frames**	
08 71 00	**Door Hardware**	
09 91 00 **09 93 00**	**Painting, Staining and Transparent Finishing**	
10 14 00	**Signage**	
26 00 00	**Electrical**	
31 10 00	**Site Clearing**	
31 20 00	**Earth Moving**	
32 12 16	**Asphalt Paving**	
32 17 23	**Pavement Markings**	
32 92 00	**Turf and Grasses**	

Sub Total (A):

Allowance #1 (B): $40,000

Grand Total: lump sum base bid (A + B)

NOTE: This Schedule of Values must be completely filled out in order for bid proposal to be considered responsive.

SIGNATURE PAGE

Company Name:_____

Address:_____

Phone:_____

E-mail Address:_____

Signature of Authorized Bidder:

_____

Print:_____

Title:_____

Address of Bidder:_____
(If different than company)

Names and Addresses of Members of the Firm/Corporation

Name address

Name address

Name address

SECTION 00 72 00

GENERAL CONDITIONS

TABLE OF ARTICLES

ARTICLE 1 – GENERAL PROVISIONS

1.01 Definitions

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

B. Agreement: The written agreement between the Parties, executed on New Hampshire Form Number P-37, and these General Conditions, as modified, and exhibits and attachments made part of the agreement upon execution.

C. Allowance: The sum stipulated in the Contract Documents, for use by the Owner to pay for unanticipated Modifications or Changes to the Contract Price.

D. Architect: The term "Architect", where used throughout the Contract Documents, shall indicate the Design Professional retained or employed by the Owner and having the authority to make decisions about the design intent of the Project.

E. Bidding Requirements: The Invitation to Bid, Instructions to Bidders, bid bond or other bid security, if any, the Bid Proposal Form, and the bid with any attachments.

F. Business Day: All Days, except Saturdays, Sundays, and legal holidays indicated in the Contract Documents.

G. Change Order: A written order signed by the Parties after execution of the Agreement, indicating changes in the scope of Work, the Contract Price, or Contract Time.

H. Construction Change Directive: A change to the Work directed by the Owner pursuant to Section 6.03.

I. Construction Schedule: A schedule, prepared and maintained by the Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Time.

J. Contract: The entire and integrated written Agreement between the Owner and Contractor concerning the Work.

K. Contract Documents: Consist of the Agreement, Invitation to Bid, Instructions to Bidders, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract.

L. Contract Price: The stated amount in the Contractors bid, excluding Allowances, to perform the Work under the Contract Documents, as modified by any Alternates.

M. Contract Time: The period of time between the Date of Commencement and the total time authorized to achieve Final Completion.

N. Contractor: The person or entity identified in the Agreement and includes the Contractor's Representative.

O. Date of Commencement: The date of commencement of the Work as identified in the Notice to Proceed.

P. Day: A calendar day.

Q. Defective Work: Any portion of the Work that does not conform to the requirements of the Contract Documents.

R. Design Professional: The licensed architect or engineer, and its consultants, retained or employed by the Owner to perform design services for the Project.

S. Final Completion: The date when the Contractor's obligations under this Agreement are complete and accepted by the Owner and final payment becomes due and payable, as enumerated in Box 1.7 "Completion Date" of the Agreement.

T. Hazardous Material: Any substance or material identified now or in the future as hazardous under the Law, or any other substance or material that may be considered hazardous or otherwise subject to statutory or regulatory requirement governing handling, transportation, disposal, or cleanup.

U. Law: Federal, state, or local law, ordinance, code, rule, and regulations applicable to the Work with which the Contractor must comply that are enacted as of the Agreement date.

V. Modification: A written amendment to the Contract signed by both Parties, a Change Order, a Construction Change Directive, or a written order for a minor change in the Work issued by the Design Professional.

W. Notice to Proceed: A written notice by the Owner to the Contractor fixing the date on which the Contract Time will commence to run and on which Contractor shall start to perform the Work.

X. Others: Other contractors, suppliers, and persons or entities at the Site who are not employed by the Contractor or Subcontractors.

Y. Owner: The State Agency indicated in Box 1.1 “State Agency Name” of the Agreement and includes the Owner’s Representative.

Z. Owner’s Representative: The Owners appointed representative having authority to act on the Owners behalf and shall be responsible for general supervision and administration of the Contract.

AA. Parties: Collectively the Owner and the Contractor.

BB. Price Limitation: The amount indicated in Box 1.8 “Price Limitation” of the Agreement. The Price Limitation is the grand total lump sum, comprised of the Contract Price and the Allowance, available to pay for the Work under the Construction Documents.

CC. Project: The building, facility, or other improvements for which the Contractor is to perform Work under the Agreement. It may also include construction by the Owner or Others.

DD. Site: The area of the Project location where the Work is to be performed.

EE. Subcontractor: A person or entity retained by the Contractor as an independent contractor to provide labor, materials, equipment, or services necessary to complete a specific portion of the work.

FF. Substantial Completion: The date when the Work (or a specified part thereof) is sufficiently complete in accordance with the Contract Documents so that the Owner may occupy or utilize the Project, or a designated portion, for the use for which it is intended, without unapproved disruption.

GG. Sub-Subcontractor: A person or entity who has an agreement with a Subcontractor, another Sub-subcontractor, or Supplier to perform a portion of the Subcontractor’s Work or to supply material or equipment.

HH. Supplier: A person or entity retained by the Contractor to provide material or equipment for the Work.

II. Work: The construction and services necessary or incidental to fulfill the Contractor’s obligations for the Project in conformance with and reasonably inferable from the Agreement and the Contract Documents. The Work may refer to the whole Project or only a part of the Project if work is also being performed by the Owner or Others.

1.02 Parties Relationship

A. The Parties agree to proceed with the Project on the basis of mutual trust, good faith, and fair dealing. The parties shall each endeavor to promote harmony and cooperation among all Project participants.

B. The Contractor represents that it is an independent contractor and that in its performance of the Work it shall act as an independent contractor.

C. Neither the Contractor nor any of its agents or employees shall act on behalf of or in the name of the Owner.

1.03 Ethics

A. The Parties shall perform their obligations with integrity, ensuring at a minimum that each:

1. Avoids conflicts of interest and promptly discloses any to the other Party.
2. Warrants that it has not and shall not pay or receive any contingent fees or gratuities to or from the other Party, including its agents, officers, and employees, Subcontractors, or others for whom they may be liable, to secure preferential treatment.

1.04 Design Professional

A. The Owner, through its Design Professional, shall provide all architectural and engineering design services necessary for completion of the Work, excluding however:

1. Design services delegated to the Contractor in accordance with Section 2.15.
2. Services within the construction means, methods, techniques, sequences, and procedures employed by the Contractor, its Subcontractors, and Sub-subcontractors in connection with their construction operations.

1.05 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

A. The Owners design professionals, including the Architect, the Architects consultants, Engineers, and other professionals providing services shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and Suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the design professionals reserved rights.

B. The Contractor, Subcontractors, Sub-subcontractors, and Suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and Suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of Work without the specific written consent of the Owner, and Owner's design professionals.

1.06 Digital Data Use and Transmission

A. Except as otherwise stated elsewhere in the Agreement, the Parties may transmit and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to shop drawings and other submittals, in electronic media or digital format, either directly, or though access to a secure Project website.

B. If the Agreement does not establish protocols for electronic or digital transmittals, the Parties shall jointly develop such protocols.

C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items 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 items, or from those established in applicable transmittal protocols.

ARTICLE 2 – CONTRACTOR'S RESPONSIBILITIES

2.01 General Responsibilities

A. The Contractor shall use its diligent efforts to perform the Work in an expeditious manner consistent with the Contract Documents. Such Work includes furnishing construction administration and management services.

B. The Contractor shall provide all labor, materials, equipment, and services necessary to complete the Work, all of which shall be provided in full accord with and reasonably inferable from the Contract Documents.

C. Unless the Contract Documents instruct otherwise, the Contractor shall solely be responsible for and have control over the construction means, methods, techniques, sequences, procedures, site security, and safety precautions, and for coordinating all portions of the Work under the Agreement.

D. The Contractor shall perform Work only within locations allowed by the Contract Documents, Law, and applicable permits unless otherwise directed by the Owner.

2.02 Construction Personnel and Supervision

A. The Contractor shall provide competent supervision for the performance of the Work. Before commencing the Work, or making a change in the supervisory personnel, the Contractor shall notify the Owner in writing of the name and qualifications of its proposed superintendent(s) and project manager so the Owner may review the individual's qualifications. If, for reasonable cause, the Owner refuses to approve the individual, or withdraws its approval after once giving it, the Contractor shall name a different superintendent or project manager for the Owner's review. Any disapproved superintendent shall not perform in that capacity thereafter at the Site. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

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

C. The Contractor shall permit only qualified persons to perform the Work. The Contractor shall enforce safety procedures, strict discipline, and good order among persons performing the Work. If the Owner determines that a particular person does not follow safety procedures, or is unfit or

unskilled for the assigned Work, the Contractor shall immediately reassign the person upon receipt of the Owner's written notice to do so.

D. The Contractor's representative shall possess full authority to receive instructions from the Owner and to act on those instructions.

E. The Contractor shall coordinate and supervise the work performed by Subcontractors to ensure that the Work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the Work. The Contractors and all Subcontractors at all times shall afford each trade, any separate contractor, or the Owner and Others, every reasonable opportunity for the installation of their work and the storage of materials, subject to the specific limitations or restrictions of a particular site.

2.03 Cooperation with Work of Owner and Others

A. The Owner may perform work at the Site directly or by Others. Any agreements with Others to perform construction or operations related to the Project shall include provisions pertaining to insurance, indemnification, waiver of subrogation, consequential damages, coordination, interference, cleanup, and safety that are substantively the same as the corresponding provisions of the Agreement.

B. If the Owner elects to perform work at the Site directly or by Others, the Parties shall coordinate the activities of all forces at the Site and agree upon fair and reasonable schedules and operational procedures for Site activities. The Owner shall require each separate contractor to cooperate with the Contractor and assist with the coordination of activities and the review of construction schedules and operations. The Contract Price and Contract Time may be equitably adjusted for changes resulting from the coordination of construction activities, and the Construction Schedule shall be revised accordingly.

C. With regard to work of the Owner and Others, the Contractor shall:

1. Proceed with the Work in a manner that does not hinder, delay, or interfere with the work of the Owner or Others or cause the work of the Owner or Others to become defective;
2. Afford the Owner or Others reasonable access for introduction and storage of their materials and equipment and performance of their activities; and
3. Coordinate the Contractor's Work with theirs.

D. Before proceeding with any portion of the Work affected by the construction or operations of the Owner or Others, the Contractor shall give the Owner prompt written notification of any defects the Contractor discovers in their work which will prevent the proper execution of the Work. The Contractor's obligations in this subsection do not create a responsibility for the work of the Owner or Others but are for the purpose of facilitating the Work. If the Contractor does not notify the Owner of defects interfering with the performance of the Work, the Contractor acknowledges that the work of the Owner or Others is not defective and is acceptable for the proper execution of the Work. Following receipt of written notice from the Contractor of defects, the Owner shall promptly inform the Contractor what action, if any, the Contractor shall take with regard to the defects.

2.04 Contract Document Review

A. Prior to commencing the Work, the Contractor shall examine and compare all Contract Documents as well as information furnished by the Owner, shall take field measurements of any existing conditions related to the Work, and shall observe any conditions at the Site affecting the Work. These obligations are for the purpose of facilitating coordination and construction of the Work by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Owner and, if directed, the Design Professional in the form of a request for information (RFI) any errors, inconsistencies, or omissions discovered by or made known to the Contractor by such examination. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

B. The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, ordinances, codes, rules and regulations, or lawful orders of authorities having jurisdiction, but the Contractor shall promptly report to the Owner any nonconformity discovered by or made known to the Contractor as a request for information.

C. Nothing in this section shall relieve the Contractor of responsibility for its own errors, inconsistencies, and omissions.

2.05 Workmanship

A. The Work shall be executed in accordance with the Contract Documents in a workmanlike manner. All materials used in the Work shall be furnished in sufficient quantities to facilitate the proper and expeditious execution of the Work and shall be new except as otherwise provided in the Contract Documents.

B. Work for which no explicit quality of standards of materials and/or workmanship is defined in the Contract Documents shall be of best quality for the intended use and consistent with the quality of surrounding work and of the construction of the Project generally.

C. All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with manufacturer's written instructions, unless specifically indicated otherwise in the Contract Documents.

D. Where the Work is to fit with existing conditions or work to be performed by Others, the Contractor shall join the Work fully and completely with such conditions or work, unless otherwise specified.

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

F. The Contractor shall study and compare all Drawings and verify all figures shown thereon before laying out or constructing the Work. The Contractor shall be responsible for errors in its work and the work of its Subcontractors that might reasonably have been avoided thereby. The Contractor shall establish and be responsible for the accuracy of all lines, grades, measurements, levels, column lines, wall and partition lines required by the various Subcontractors in laying out their Work and shall protect and preserve all permanent bench and other markers. Checking of the figures or layout by the Design Professional shall not relieve the Contractor of these responsibilities.

2.06 Material Furnished by the Owner or Others

A. If the Work includes installation of materials or equipment furnished by the Owner or Others, it shall be the responsibility of the Contractor to examine the items so provided and thereupon handle, store, and install the items, unless otherwise provided in the Contract Documents, with such skill and care as to provide a satisfactory and proper installation. Loss or damage due to acts or omissions of the Contractor shall be the responsibility of the Contractor and may be deducted from any amounts due or to become due the Contractor. Any defects discovered in such materials or equipment shall be reported at once to the Owner. Following receipt of written notice from the Contractor of defects, the Owner shall promptly inform the Contractor what action, if any, the Contractor shall take with regard to the defects.

2.07 Tests and Inspections

A. The Contractor shall schedule all tests, inspections, and approvals of the Work required by the Contract Documents, Law, or orders of authorities having jurisdiction at an appropriate time so as to not delay the progress of the Work. The Contractor shall give proper notice to all required parties of such tests, inspections, and approvals. If feasible, the Owner and Others may timely observe the tests at the normal place of testing. The Contractor shall bear all expenses associated with tests, inspections, and approvals required by the Contract Documents, which, unless otherwise agreed to, shall be conducted by an independent testing laboratory or entity retained by the Contractor, and approved by the Owner. Unless otherwise required by the Contract Documents, required certificates of testing, inspection, or approval shall be secured by the Contractor and promptly delivered to the Owner.

B. If the Owner or appropriate authorities determine that tests, inspections, or approvals in addition to those required by the Contract Documents will be necessary, the Contractor shall arrange for the procedures and give timely notice to the Owner and others who may observe the procedures. Costs of the additional tests, inspections, or approvals are at the Owner's expense except as provided in the subsection below.

C. If the procedures described in the two subsections immediately above indicate that portions of the Work fail to comply with the Contract Documents, the Contractor shall be responsible for costs of correction and retesting.

2.08 Warranty

A. The Contractor warrants that all materials and equipment shall be new unless otherwise specified, of good quality, in conformance with the Contract Documents, and free from defective workmanship and materials. At the Owner's request, the Contractor shall furnish satisfactory evidence of the quality and type of materials and equipment furnished. The Contractor further warrants that the Work shall be free from material defects not intrinsic in the design or materials required in the Contract Documents. The Contractor's warranty does not include remedies for defects or damages caused by normal wear and tear during normal usage, use for a purpose for which the Project was not intended, improper or insufficient maintenance, modifications performed by the Owner or Others, or abuse. The Contractor's warranty shall commence on the Date of Substantial Completion of the Work. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective.

B. With respect to any portion of the Work performed after Substantial Completion, the Contractor's warranty obligation shall be extended by the period of time between Substantial Completion and the actual performance of the later Work.

C. The Contractor shall obtain from its Subcontractors and Suppliers any special or extended warranties required by the Contract Documents. The Contractor's liability for such warranties shall be limited to the one-year correction period as provided in Section 2.09. After that period, the Contractor shall provide reasonable assistance to the Owner in enforcing the obligations of Subcontractors or Suppliers for such extended warranties.

2.09 Correction of Work Within One Year

A. If, prior to Substantial Completion and within one year after the date of Substantial Completion of the Work, any Defective Work is found, the Owner shall promptly notify the Contractor in writing. Unless the Owner provides written acceptance of the condition, the Contractor shall promptly correct the Defective Work at its own cost and time and bear the expense of additional services required for correction of any Defective Work for which it is responsible. If within the one-year correction period the Owner discovers and does not promptly notify the Contractor or give the Contractor an opportunity to test or correct Defective Work as reasonably requested by the Contractor, the Owner waives the Contractor's obligation to correct the Defective Work as well as the Owner's right to claim a breach of the warranty with respect to that Defective Work.

B. With respect to any portion of Work performed after Substantial Completion, the one-year correction period shall be extended by the period of time between Substantial Completion and the actual performance of the later Work. Correction periods shall not be extended by corrective work performed by the Contractor.

C. If the Contractor fails to correct Defective Work within a reasonable time after receipt of written notice from the Owner prior to final payment, the Owner may correct it in accordance with the Owners right to carry out the Work. In such case, an appropriate Change Order shall be issued deducting the cost of correcting the Defective Work from payments then or thereafter due the Contractor. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

D. The Contractor's obligations and liability, if any, with respect to any Defective Work discovered after the one-year correction period shall be determined by the Law. If, after the one-year correction period but before applicable limitation period has expired, the Owner discovers any Work which the Owner considers Defective Work, the Owner shall, unless the Defective Work requires emergency correction, promptly notify the Contractor, and allow the Contractor an opportunity to correct the Work if the Contractor elects to do so. If the Contractor elects to correct the Work, it shall provide written notice of such intent within fourteen (14) Days of its receipt of notice from the Owner and shall complete the correction of Work within a mutually agreed timeframe. If the Contractor does not elect to correct the Work, the Owner may have the Work corrected by itself or Others, and, if the Owner intends to seek recovery of those costs from the Contractor, the Owner shall promptly provide the Contractor with an accounting of the correction costs it incurs.

E. If the Contractor's correction or removal of Defective Work causes damage to or destroys other completed or partially completed Work or existing buildings, the Contractor shall be responsible for the cost of correcting the destroyed or damaged property.

F. The one-year period for correction of Defective Work does not constitute a limitation period with respect to enforcement of the Contractor's other obligations under the Contract Documents.

G. At the Owners option and with the Contractor's agreement, the Owner may elect to accept Defective Work rather than require its removal and correction. In such case, the Contract Price shall be equitably adjusted for any diminution in the value of the Project caused by such Defective Work. Such adjustment shall be effected whether or not final payment has been made.

2.10 Correction of Covered Work

A. On request of the Owner, Work that has been covered without a requirement that it be inspected prior to being covered shall be uncovered for the Owner's inspection. The Owner shall pay for the costs of uncovering and replacement if the Work proves to be in conformance with the Contract Documents, or if the defective condition was caused by the Owner or Others. If the uncovered Work proves to be defective, the Contractor shall pay the costs of uncovering and replacement.

B. If any Work is covered contrary to requirements in the Contract Documents, the Owner may issue an order to uncover the Work for the Owner's observation and re-cover the Work all at the Contractor's expense and with no adjustment to the Contract Time.

2.11 Safety

A. Safety Programs: The Contractor holds overall responsibility for safety programs. However, such obligation does not relieve the Subcontractors of their safety responsibilities or requirements to comply with the Law. The Contractor shall seek to avoid injury, loss, or damage to persons or property by taking reasonable steps to protect:

1. Its employees and other persons at the Site;
2. Materials and equipment stored at onsite or offsite locations for use in the Work; and
3. Property located at the Site and adjacent to work areas, whether or not the property is part of the Site.

B. The Contractor shall designate an individual at the Site in its employ as its safety representative. Unless otherwise identified by the Contractor in writing to the Owner, the Contractor's superintendent shall serve as its safety representative. When the Contractor is required to file an accident report with a public authority, the Contractor shall furnish a copy of the report to the Owner.

C. The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of authorities having jurisdiction bearing on safety or persons or property or their protection from damage, injury, or loss.

D. Damage or loss not insured under property insurance which may arise from the Work to the extent caused by negligent acts or omissions of the Contractor, or anyone for whose acts the Contractor may be liable, shall be promptly remedied by the Contractor.

E. The Contractor shall erect and maintain, as required by existing conditions and performance of the Work, reasonable safeguards for safety and protection, including posting danger signs and other

warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

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

G. If the Owner deems any part of the Work or Site unsafe, the Owner, without assuming responsibility for the Contractor's safety program, may require the Contractor to stop performance of the Work, take corrective measures satisfactory to the Owner, or both. If the Contractor does not adopt corrective measures, the Owner may perform them and deduct their cost from the Contract Price. The Contractor agrees to make no claim for damages, for an increase in the Contract Price or Contract Time based on the Contractor's compliance with the Owners reasonable request.

2.12 Emergencies

A. In an emergency affecting the safety of persons or property, the Contractor shall act in a reasonable manner to prevent threatened damage, injury, or loss. Any change in the Contract Price or Contract Time resulting from the actions of the Contractor in an emergency situation shall be determined as provided for in Article 6.

2.13 Hazardous Materials

A. The Contractor shall not be obligated to commence or continue Work until any Hazardous Material discovered at Site has been removed, rendered, or determined to be harmless by the Owner as certified by an independent testing laboratory and approved by the appropriate governmental agency.

B. If after commencing the Work, Hazardous Material is discovered at the Site, the Contractor shall be entitled to immediately stop Work in affected area. The Contractor shall promptly report the condition to the Owner, the Design Professional, and, if required, the authority having jurisdiction.

C. The Contractor shall not resume nor be required to continue any Work affected by any Hazardous Material without written mutual agreement between the Parties after the Hazardous Material has been removed or rendered harmless and only after approval, if necessary, of the authorities having jurisdiction.

D. The Owner shall be responsible for retaining an independent testing laboratory to determine the nature of the material encountered and whether the material requires corrective measures or remedial action. Such measures shall be the sole responsibility of the Owner and shall be performed in a manner minimizing any adverse effect upon the Work.

E. If the Contractor incurs additional costs or is delayed due to the presence or remediation of Hazardous Material, the Contractor shall be entitled to an equitable adjustment in the Contract Price, the Contract Time, or both.

2.14 Submittals

A. The Contractor shall submit to the Owner and the Design Professional all shop drawings, samples, product data, and similar submittals required by the Contract Documents for review and approval. The Contractor shall prepare and deliver its submittals in a manner consistent with the Construction Schedule and in such time and sequence so as not to delay the performance of the Work or the work of the Owner and Others. If the Contract Documents do not contain specific submittal requirements pertaining to portions of the Work, the Contractor agrees upon request to submit in a timely fashion to the Owner and Design Professional for review any shop drawings, samples, product data, or similar submittals as may reasonably be required by the Owner.

B. The Contractor shall be responsible for the accuracy and conformity of its submittals. By submitting shop drawings, samples, product data, and similar submittals, the Contractor represents to the Owner that the Contractor has:

1. Reviewed and approved them;
2. Determined and verified materials, field measurements and field construction criteria related thereto, or will do so; and
3. Checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

C. The Contractor shall perform all Work strictly in accordance with approved submittals. Approval of submittals is not an authorization to perform changed work, unless the procedures of Article 6 are followed. Approval does not relieve the Contractor from responsibility for Defective Work resulting from errors or omissions on the approved shop drawings.

D. No substitutions shall be made in the Work unless permitted in the Contract Documents and then only after the Contractor obtains approvals required under the Contract Documents for substitutions. All such substitutions shall be promptly memorialized in a Change Order following approval by the Owner and, if applicable, the Design Professional to provide for an adjustment in the Contract Price or Contract Time.

2.15 Design Delegation

A. If the Contract Documents specify that the Contractor is responsible for the design of a particular system or component to be incorporated into the Project, the Owner shall provide all required performance and design criteria. The Contractor shall not be responsible for the adequacy of such performance and design criteria.

B. As required by Law, the Contractor shall procure design services and certifications necessary to satisfactorily complete the Work from a licensed design professional. The signature and seal of the Contractor's design professional shall appear on all drawings, calculations, specifications, certifications, shop drawings, and other submittals related to the Work designed or certified by the Contractor's design professional.

2.16 Site Conditions

A. Site Visit: The Contractor acknowledges that it has visited, or has had the opportunity to visit, the Site to visually inspect the general and local conditions which could affect the Work.

B. Concealed or Unknown Site Conditions: If the conditions encountered at the Site are (a) subsurface or other physical conditions materially different from those indicated in the Contract Documents, or (b) unusual and unknown physical conditions materially different from conditions ordinarily encountered and generally recognized as inherent in Work provided for in the Contract Documents, the Contractor shall stop affected Work after the condition is first observed and give prompt written notice of the condition to the Owner and the Design Professional. The Contractor shall not be required to perform any Work relating to the unknown condition without the written mutual agreement of the parties. Any change in the Contract Price or the Contract Time as a result of the unknown condition shall be determined as provided in Article 6.

C. The Owner maintains possession of the premises and any improvements made by the Contractor. Under the Contract Documents, the Owner grants the Contractor the right to enter and use the premises. The Contractor shall confine its apparatus, the storage of materials, and the operations of the Contractor's workers to limits indicated by Law, ordinance, the Contract Documents, permits, and/or directions of the Owner and shall not unreasonably encumber the premises with the Contractor's materials or equipment.

D. The Contractor shall remove snow or ice within the limits of the Site indicated in the Contract Documents that might result in damage or delay.

2.17 Permits, Fees, Notices and Compliance with Laws

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

B. The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of authorities having jurisdiction applicable to performance of the Work.

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

2.18 Cutting, Fitting, and Patching

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

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

2.19 Cleaning Up

A. The Contractor shall regularly remove debris and waste materials at the Site resulting from the Work. Prior to discontinuing Work in an area, the Contractor shall clean the area and remove all rubbish and its construction equipment, tools, machinery, waste, and surplus material. The Contractor shall minimize and confine dust and debris resulting from construction activities. At the completion of the Work, the Contractor shall remove from the Site all construction equipment, tools, surplus materials, waste materials, and debris. All debris from the Project shall be cleaned up daily and removed from the Site at least on a weekly basis.

B. If the Contractor fails to commence compliance with cleanup duties within two (2) Business Days after written notification from the Owner of non-compliance, the Owner may implement appropriate cleanup measures without further notice and shall deduct the reasonable costs from any amounts due or to become due the Contractor in the next payment period.

2.20 Access to Work

A. The Contractor shall facilitate the access of the Owner, Design Professional, and Others to Work in progress.

2.21 Compliance with Laws

A. The Contractor shall comply with the Law at its own costs. The Contractor shall be liable to the Owner for all loss, cost, or expense attributable to any acts or omissions by the Contractor, its employees, subcontractors, and agents for failure to comply with the Law, including fines, penalties, or corrective measures. However, liability under this subsection shall not apply if prior approval by appropriate authorities and the Owner is received.

B. The Contract Price or Contract Time shall be equitably adjusted by Change Order for additional costs or time needed resulting from any changes in Law, including increased taxes, enacted after the date of the Agreement.

2.22 Royalties, Patents, and Copyrights

A. The Contractor shall pay all royalties and license fees which may be due on the inclusion of any patented or copyrighted materials, methods, or systems selected by the Contractor and incorporated in the Work. The Contractor shall defend, indemnify, and hold the Owner harmless from all suits or claims for infringement of any patent rights or copyrights arising out of such selection.

ARTICLE 3 – OWNER'S RESPONSIBILITIES

3.01 Information and Services

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

3.02 Site Information

A. To the extent the Owner has obtained or is required elsewhere in the Contract Documents to obtain, Site information, the Owner shall furnish surveys describing physical characteristics, legal limitations, and utility locations for the Site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information provided by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

B. The Owner shall provide tests, inspections, and other reports dealing with environmental matters, Hazardous Material, and other existing conditions, including structural, mechanical, and chemical tests, required by the Contract Documents or by Law.

3.03 Permits, Fees, and Approvals

A. Except for those permits and fees related to the Work which are the responsibility of the Contractor, the Owner shall secure and pay for necessary approvals, easements, assessments, and fees required for the development, construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

3.04 Mechanics and Construction Lien Information

A. The Owner shall furnish to the Contractor within fifteen (15) Days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

3.05 Owner's Representative

A. The Owner's Representative shall be fully acquainted with the Project and shall have authority to bind the Owner in all matters requiring the Owner's approval, authorization, or written notice. If the Owner changes its Representative or its Representative's authority, the Owner shall immediately notify the Contractor in writing.

3.06 Owner's Right to Stop the Work

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

3.07 Owner's Right to Carry Out the Work

A. If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may,

without prejudice to other remedies the Owner may have, correct such default or neglect. The Owner may, pursuant to Section 7.3, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Design Professional's additional services made necessary by such default, neglect, or failure. If current or future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

3.08 Submittals

A. The Owner or its Design Professional will review and approve, or take other appropriate action upon, the Contractor's submittals such as shop drawings, product data, and samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Owner's action will be taken with reasonable promptness while allowing sufficient time in the Owner's judgement to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Owner's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Owner's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

ARTICLE 4 – SUBCONTRACTS

4.01 Award of Subcontracts and Other Contracts for Portions of the Work

A. Promptly after the award of the Agreement, the Contractor shall provide the Owner and, if directed, the Design Professional with a written list of the proposed Subcontractors and significant Suppliers. If the Owner has a reasonable objection to any proposed Subcontractor or Supplier, the Owner shall notify the Contractor in writing. Failure to promptly object shall constitute acceptance.

B. If the Owner has reasonably and promptly objected, the Contractor shall not contract with the proposed Subcontractor or Supplier, and the Contractor shall propose another acceptable Subcontractor or Supplier to the Owner. No adjustment in the Contract Price or Contract Time shall be made because of such substitution.

C. The Contractor shall not change a Subcontractor or Supplier previously selected without the prior written approval of the Owner.

4.02 Binding of Subcontractors and Suppliers

A. The Contractor agrees to bind every Subcontractor and Supplier (and require every Subcontractor to so bind its subcontractors and suppliers) to the Contract Document's applicable provisions to that portion of the Work. Each subcontract agreement shall preserve and protect the rights of the Owner and its Design Professional under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the

Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors.

4.03 Contingent Assignment of Subcontracts

A. If the Agreement is terminated, each subcontract and supply agreement shall be assigned by the Contractor to the Owner, subject to the prior rights of any surety, provided that:

1. The Agreement is terminated by the Owner pursuant to Sections 9.03 or 9.04; and
2. The Owner accepts such assignment after termination by notifying the Contractor and Subcontractor or Contractor and Supplier in writing and assumes all rights and obligations of the Contractor pursuant to each subcontract or supply agreement.

B. If the Owner accepts such an assignment, and the Work has been suspended for more than thirty (30) consecutive Days, following termination, if appropriate, the Subcontractor's or Supplier's compensation shall be equitably adjusted as a result of the suspension.

ARTICLE 5 – TIME

5.01 General

A. Time is of the essence with regard to the obligations of the Contract Documents. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

B. Unless instructed by the Owner in writing, the Contractor shall not knowingly commence the Work before the effective date of insurance and Bonds to be provided by the Contractor as required by the Contract Documents.

C. Date of Commencement: The Contractor shall commence the Work after the Notice to Proceed has been received by the Contractor. The Notice to Proceed shall be issued immediately after the Agreement has been approved by the Governor and Council and shall establish the actual construction start date. Failure to commence the Work within fifteen (15) Calendar Days after the Date of Commencement shall be considered a Default of the Agreement. If the Date of Commencement is later than the advertised start date, the date of Final Completion shall be extended by an equivalent number of Days.

5.02 Construction Schedule

A. Before submitting the first application for payment, the Contractor shall submit to the Owner, and if directed, the Design Professional, a Construction Schedule showing the dates on which the Contractor plans to commence and complete various parts of the Work, including dates on which information and approvals are required from the Owner. Except as directed by the Owner, the Contractor shall comply with the approved Construction Schedule. Unless otherwise agreed, the Construction Schedule shall be formatted in a detailed precedence-style critical path method that (a) provides a graphic representation of all activities and events, including float values that will affect the critical path of the Work, and (b) identifies dates that are critical to ensure timely and orderly completion of the Work.

B. The Contractor shall revise the Construction Schedule at appropriate intervals as required by the conditions of the Work and Project. At a minimum, an updated schedule shall be submitted with each application for payment, and within seven (7) Days following receipt of information by the Contractor, which the Contractor believes may result in a change of completion date.

5.03 Delays and Extensions of Time

A. If the Contractor is delayed at any time in the commencement or progress of the Work by any cause beyond the control of the Contractor, the Contractor shall be entitled to an equitable extension of the Contract Time. Examples of causes beyond the control of the Contractor include, but are not limited to, the following:

1. Acts or omissions of the Owner, Design Professional, or Others.
2. Changes in the Work or the sequencing of the Work ordered by the Owner or arising from decisions of the Owner that impact the time of performance of the Work.
3. Encountering Hazardous Materials or concealed or unknown conditions.
4. Delay authorized by the Owner pending dispute resolution or suspension by the Owner under Section 9.01.
5. Transportation delays not reasonably foreseeable.
6. Labor disputes not involving the Contractor.
7. General labor disputes impacting the Project but not specifically related to the Site.
8. Fire.
9. Terrorism.
10. Epidemics.
11. Adverse governmental actions.
12. Unavoidable accidents or circumstances.
13. Adverse weather conditions not reasonably anticipated. Such conditions do not include typical weather conditions of remote mountain top sites.

B. The Contractor shall submit any requests for equitable extensions of the Contract Time in accordance with Article 6. The Contractor shall have the burden of demonstrating such impact and shall furnish to the Owner such documentation relating thereto as the Owner may reasonably require.

C. If the Contractor incurs additional costs as a result of a delay that is caused by items 1 through 13 above, the Contractor shall be entitled to an equitable adjustment in the Contract Price.

D. If delays to the Work are encountered for any reason, the Contractor shall provide prompt written notice to the Owner within five (5) Days of the cause of such delays after the Contractor first recognized the delay. The Parties agree to take reasonable steps to mitigate the effect of such delays.

E. Any changes in time that extend past Completion Date of the Contract, shall be formalized in a Change Order in accordance with Article 6, and subsequent Contract Amendment for approval by Governor and Council.

5.04 Liquidated Damages

A. The Contractor understands that if the date of Final Completion established in the Agreement, as may be amended by subsequent Change Order and approval by Governor and Council, is not attained, the Owner will suffer damages which are difficult to determine and accurately specify. The Contractor agrees that if the date of Final Completion is not attained, the Contractor shall pay the Owner the amount specified in the below Section as liquidated damages, and not as a penalty, for each Day that completion extends beyond the date of Final Completion. Should the amount of money otherwise due the Contractor be less than the amount of such liquidated damages, the Contractor and its Surety shall be liable to the Owner for such deficiency. When final acceptance of the Work has been duly made by the Owner, any liquidated damage charges shall end.

B. Allowing the Contractor to continue executing the Work after the date of Final Completion, shall in no way obligate the Owner to waive any of its rights under the Agreement.

C. Schedule of Liquidated Damages: The fixed, agreed, liquidated damages shall be assessed in accordance with the following:

Price Limitation		**Amount of Liquidated Damages per Day**
From more than:	To and Including:	
$0.00	$25,000.00	$300.00
$25,000.00	$50,000.00	$400.00
$50,000.00	$100,000.00	$500.00
$100,000.00	$500,000.00	$600.00

ARTICLE 6 – CHANGES

6.01 General

A. Changes in the Work that are within the general scope of the Agreement shall be accomplished, without invalidating the Agreement, by Change Order, and Construction Change Directive.

6.02 Change Orders

A. The Contractor may request, or the Owner may order, changes in the Work or the timing or sequencing of the Work that impacts the Contract Price or the Contract Time. All such changes in the Work that affect Contract Price or Contract Time shall be formalized in a Change Order and processed in accordance with this Article.

B. For changes in the Work, the Parties shall negotiate an appropriate adjustment to the Contract Price or the Contract Time, in good faith and conclude negotiations as expeditiously as possible. Acceptance of the Change Order and any adjustment in the Contract Price or Contract Time shall not be unreasonably withheld.

C. The Contractor shall not be obligated to perform changes in the Work that impact Contract Price or Contract Time until a Change Order has been executed or a written Construction Change Directive has been issued.

6.03 Construction Change Directives

A. The Owner may issue a written Construction Change Directive directing a change in the Work before agreeing on an adjustment to Contract Price or Contract Time or directing the Contractor to perform Work that the Owner believes is not a change. If the Parties disagree that the Construction Change Directive work is within the scope of the Work, the Contractor shall perform the disputed Work and furnish the Owner with an estimate of the costs to perform the disputed work in accordance with Owner's interpretations.

B. The Parties shall negotiate expeditiously and in good faith for appropriate adjustments, as applicable, to the Contract Price or the Contract Time arising out of a Construction Change Directive. As the directed Work is performed, the Contractor shall submit its costs for such Work with its application for payment beginning with the next application for payment within thirty (30) Days of the issuance of the Construction Change Directive. If there is a dispute as to the cost to the Owner, the Parties shall resolve the disputed amount, subject to the requirements of Article 10. Undisputed amounts may be included in applications for payment and shall be paid by the Owner in accordance with the Agreement.

C. When the Parties agree upon the adjustment in the Contract Price or the Contract Time, for a change in the Work directed by a Construction Change Directive, such agreement shall be the subject of a Change Order. The Change Order shall include all outstanding Construction Change Directives on which the Parties have reached agreement on Contract Price or Contract Time issued since the last Change Order.

6.04 Determination of Cost

A. An increase or decrease in the Contract Price or the Contract Time resulting from a change in the Work shall be determined as follows:

1. A mutually accepted lump sum properly itemized and supported by sufficient substantiating data, as determined by the Owner, to permit evaluation.
2. If the price change is an increase in the Contract Price, and the Work is performed by the Contractor and not a Subcontractor, it shall include the following indirect costs for Work performed by the Contractor: Workmen's Compensation and Employee Liability, and Unemployment and Social Security Taxes.
    a. In addition to the above indirect costs, the Contractor shall be allowed a markup not to exceed ten percent (10%). This markup shall be all inclusive for overhead, supervision, and profit.
3. If the price change is an increase in the Contract Price, and the Work is performed by both the Contractor and a Subcontractor, the Contractor shall be allowed a markup of ten percent (10%) on that portion of the Work performed by the Contractor, and a markup of five percent (5%) on the portion of the Work performed by the Subcontractor. The same percentages shall apply to Sub-subcontractors.
4. On any change that involves a decrease in the Contract Price, no overhead and profit shall be figured.

6.05 Changes Notice

A. Except as provided in Subsection 5.03 C for any claim for an increase in the Contract Price or Contract Time, the Contractor shall give the Owner written notice of the claim within fourteen (14)

Days after the occurrence giving rise to the claim or within fourteen (14) Days after the Contractor first recognizes the condition giving rise to the claim, whichever is later. Except in an emergency, notice shall be given before proceeding with the Work. Thereafter, the Contractor shall submit written documentation of its claim, including appropriate supporting documentation, within twenty-one (21) Days after giving notice, unless the Parties mutually agree upon a longer period of time. The Owner shall respond in writing denying or approving the Contractor's claim no later than fourteen (14) Days after receipt of the Contractors claim. Owner's failure to so respond shall be deemed a denial of the claim. Any change in the Contract Price or the Contract Time resulting from such claim shall be authorized by Change Order.

6.06 Incidental Changes

A. The Owner may direct the Contractor to perform incidental changes in the Work, upon concurrence with the Contractor that such changes do not involve adjustments in the Contract Price or Contract Time. Incidental changes shall be consistent with the scope and intent of the Contract Documents. The Owner shall initiate an incidental change in the Work by issuing a written order to the Contractor. Such written notice shall be carried out promptly and is binding on the Parties.

ARTICLE 7 – PAYMENT

7.01 Schedule of Values

A. Within fifteen (15) Days of receiving the Notice to Proceed and before the first application for payment, the Contractor shall submit to the Owner, for approval, a schedule of values allocating the Contract Price to various portions of the Work. This schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Owner may require. Upon approval by the Owner, this schedule shall be used as the basis for reviewing the Contractor's applications for payment and shall be revised if later found by the Owner to be inaccurate.

7.02 Progress Payments

A. Applications for Payment: The Contractor shall submit to the Owner and, if directed, the Design Professional a monthly application for payment no later than the first Day of the calendar month for the preceding calendar month. Contractor's applications for payment shall be itemized and supported by the Contractor's schedule of values based on a percentage of completion and shall include any other substantiating data as required by the Agreement. Applications for payment shall be notarized and include payment requests on account of properly authorized Change Orders or Construction Change Directives. The Owner shall pay the amount otherwise due on any payment application no later than thirty (30) Days after the Contractor has submitted a complete and accurate payment application, or such shorter time period as required by applicable state statute. The Owner may deduct from any progress payment amounts that may be retained pursuant to Subsection 7.02 D.

B. Stored Materials and Equipment: Unless otherwise provided in the Contract Documents, applications for payment may include materials and equipment not yet incorporated into the Work but delivered to and suitably stored onsite including applicable insurance, storage, and costs incurred transporting the materials to an offsite storage facility. Approval of payment applications for stored materials and equipment stored offsite shall be conditioned on a submission by the Contractor of bills of sale and proof of required insurance, or such other documentation satisfactory

to the Owner to establish proper valuation of the stored materials and equipment, the Owner's title to such materials and equipment, and to otherwise protect the Owner's interest therein, including transportation to the Site.

C. Lien Waivers and Liens

1. Partial Lien Waivers and Affidavits: If required by the Owner, as a prerequisite for payment, the Contractor shall provide partial lien and claim waivers in the amount of the application for payment and affidavits from is Subcontractors and Suppliers for the completed Work. Such waivers shall be conditional upon payment. In no event shall the Contractor be required to sign an unconditional waiver of lien or claim, either partial or final, prior to receiving payment or in an amount in excess of what it has been paid.
2. Removing Liens: If the Owner has made payments in the time required by this article, the Contractor shall, within thirty (30) Days after filing, cause the removal of any liens filed against the premises or public improvement fund by any party or parties performing labor or services or supplying materials in connection with the Work. If the Contractor fails to take such action on a lien, the Owner may cause the lien to be removed at the Contractor's expense, including bond costs and reasonable attorney's fees. This subsection shall not apply if there is a dispute pursuant to Article 10 relating to the subject matter of the lien.

D. Retainage: From each progress payment made prior to Substantial Completion, the Owner shall retain ten percent (10%) of the amount otherwise due after deduction of any amounts as provided in Section 7.02, and in no event shall such percentage exceed any applicable statutory requirements.

7.03 Adjustment of Contractor's Payment Application

A. The Owner may adjust or reject a payment application or nullify a previously approved payment application, in whole or in part, as may reasonably be necessary to protect the Owner from loss or damage based upon the following, to the extent that the Contractor is responsible under the Agreement:

1. The Contractor's repeated failure to perform the Work as required by the Contract Documents;
2. Except as accepted by the insurer providing builders risk or other property insurance covering the project, loss or damage arising out of or relating to the Agreement and caused by the Contractor to the Owner or to Others to whom the Owner may be liable;
3. The Contractor's failure to properly pay Subcontractors and Suppliers following receipt of such payment from the Owner;
4. Rejected, nonconforming or Defective Work not corrected in a timely fashion;
5. Reasonable evidence of delay in performance of the Work such that the Work will not be completed within the Contract Time;
6. Reasonable evidence demonstrating that the unpaid balance of the Contract Price is insufficient to fund the cost to complete the Work; and
7. Uninsured third-party claims involving the Contractor, or reasonable evidence demonstrating that third-party claims are likely to be filed unless and until the Contractor furnishes the Owner with adequate security in the form of a surety bond, letter of credit, or other collateral or commitment sufficient to discharge such claims if established.

B. No later than seven (7) Days after receipt of an application for payment, the Owner shall give written notice to the Contractor, at the time of disapproving or nullifying all or part of an application for payment, stating its specific reasons for such disapproval or nullification, and the remedial actions to be taken by the Contractor in order to receive payment. When the above reasons for disapproving or nullifying an application for payment are removed, payment will be promptly made for the amount previously withheld.

7.04 Acceptance of Work

A. Neither the Owner's payment of progress payments nor its partial or full use or occupancy of the Project constitutes acceptance of Work not complying with the Contract Documents.

7.05 Payment Delay

A. If for any reason not the fault of the Contractor, the Contractor does not receive a progress payment from the Owner within seven (7) Days after the time such payment is due, then the Contractor, upon giving seven (7) Days written notice to the Owner, and without prejudice to and in addition to any other legal remedies, may stop Work until payment of the full amount owing to the Contractor has been received.

7.06 Substantial Completion

A. The Contractor shall notify the Owner and, if directed, the Design Professional, when it considers Substantial Completion of the Work or a designated portion to have been achieved. The Owner, with the assistance of its Design Professional, shall promptly conduct an inspection to determine whether the Work or its designated portion can be occupied or used for its intended use by the Owner without excessive interference in completing any remaining unfinished Work. If the Owner determines that the Work or designated portion has not reach Substantial Completion, the Owner shall promptly compile a list of items to be completed or corrected so the Owner may occupy or use the Work or designated portion for its intended use. The Contractor shall promptly complete all items on the list.

1. The Contractor's notification of Substantial Completion shall include (a) a list of items to be completed or corrected, and (b) all permits, certificates, and special warranties required by the Contract Documents, endorsed by the Contractor and in a form reasonably acceptable to the Owner.

B. When Substantial Completion of the Work or a designated portion is achieved, the Owner or Design Professional shall prepare a Certificate of Substantial Completion establishing the date of Substantial Completion and the respective responsibilities of each Party for interim items such as security, maintenance, utilities, insurance, and damage to the Work and fixing the time for completion of all items on the list accompanying the Certificate of Substantial Completion. In the absence of a clear delineation of responsibilities, the Owner shall assume all responsibilities for items such as security, maintenance, utilities, insurance, and damage to the Work. The Certificate of Substantial Completion shall also list any items to be completed or corrected and establish the time for their completion or correction.

C. Unless otherwise provided in the Certificate for Substantial Completion, warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or a designated portion.

D. Upon the Owner's acceptance of Substantial Completion, the Owner shall pay to the Contractor the remaining retainage held by the Owner for the Work described in the Certificate of Substantial Completion, less a sum equal to two hundred percent (200%) of the estimated cost of completing or correcting remaining items on that part of the Work, as agreed to by the Parties as necessary to achieve Final Completion. The Owner shall pay the Contractor monthly the amount retained for unfinished items as each item is completed.

7.07 Partial Occupancy or Use

A. The Owner may occupy, or use completed or partially completed portions of the Work when:

1. The portion of the Work is designated in a Certificate of Substantial Completion;
2. Appropriate insurer(s) consent to the occupancy or use, and
3. Appropriate authorities having jurisdiction authorize the occupancy or use.

7.08 Final Completion and Final Payment

A. Upon notification from the Contractor that the Work is complete and ready for final inspection and acceptance, the Owner with the assistance of its Design Professional shall promptly conduct an inspection to determine if the Work has been completed and is acceptable under the Contract Documents.

B. When Final Completion has been achieved, the Contractor shall prepare for the Owner's written acceptance a final application for payment stating that to the best of the Contractor's knowledge, and based on the Owner's inspections, the Work has reached Final Completion in accordance with the Contract Documents.

C. Final payment of the balance of the Contract Price shall be made to the Contractor within thirty (30) Days after the Contractor has submitted a complete and accurate application for final payment, including submissions required under the subsection below.

D. Final payment shall be due on the Contractor's submission of the following to the Owner:

1. An affidavit declaring any indebtedness connected with the Work to have been paid, satisfied, or to be paid with the proceeds of final payment, so as not to encumber the Owner's property;
2. As-built record drawings, manuals, copies of warranties, and all other close-out documents required by the Contract Documents;
3. Release of any liens, conditioned on final payment being received;
4. Consent of any surety; and
5. Any outstanding known and unreported accidents or injuries experienced by the Contractor or its Subcontractors at the Site.

E. If, after Substantial Completion of the Work, the Final Completion of a portion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the balance due for

portions of the Work fully completed and accepted. If the remaining contract balance for Work not fully completed and accepted is less than the retained amount prior to payment, the Contractor shall submit to the Owner and, if directed, the Design Professional, the written consent of any surety to payment of the balance due for portions of the Work that are fully completed and accepted. Such payment shall not constitute a waiver of claims, but otherwise shall be governed by these final payment provisions.

F. Contractor Acceptance of Final Payment: Unless the Contractor provides written identification of unsettled claims with an application for final payment, its acceptance of final payment constitutes a waiver of all claims by the Contractor arising out of or related to the Agreement or the Work.

ARTICLE 8 – INDEMNITY, INSURANCE, AND BONDS

8.01 Indemnity

A. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, the Owner's officers, directors, members, consultants, agents, and employees, the Design Professional, and Others (the Indemnitees) from all claims for bodily injury and property damage, other than to the Work itself and other property insured, including reasonable attorney's fees, costs, and expenses, that may arise from the performance of the Work, but only to the extent caused by the negligent acts or omissions of the Contractor, Subcontractors, or anyone employed directly or indirectly by any of them or by anyone for whose acts any of them may be liable.

B. No Limitation on Liability: The limits and types of insurance set forth in this Article are the minimum required amounts and in no way limit the liability of the Contractor or Subcontractors. In any and all claims against the Indemnitees by any employee of the Contractor, anyone directly or indirectly employed by the Contractor or anyone for whose acts the Contractor may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor under workers' compensation acts, disability benefit acts, or other employment benefit acts.

8.02 Insurance

A. The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement and Section 8.03 "Insurance Requirements."

B. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where Project is located.

C. The Owner, its trustees, their officers, employees, representatives, and agents including the Design Professional, shall be included as additional insureds (except under worker's compensation and employer's liability insurance) for and relating to the Work to be performed by the Contractor.

D. Proof of Coverage: Certificates of Insurance, as evidence of the insurance required by these Contract Documents, shall be submitted by the Contractor to the Owner prior to the date of the Agreement and in all cases prior to the commencement of Work.

E. Subcontractor Insurance: The Contractor shall either require subcontractors to carry the insurance or the Contractor shall insure the activities of the Subcontractors in the types and form of insurance required under the Contract Documents, and in such amounts as the Contractor shall deem appropriate.

F. Notice of Cancelation or Expiration: Within ten (10) Days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide required coverage.

G. Workers Compensation Insurance: Workers compensation insurance is required for all workers on the Site of this Project. Per RSA 21-I:80-VI, at the outset of Work on any State construction project, the Contractor shall provide to the Owner a current list of all Subcontractors and Sub-subcontractors the Contractor has agreed to use on the Project, with a record of the entity to whom such Subcontractor is insured for workers compensation purposes. This list shall be posted on the Project Site and updated as needed to reflect any new Subcontractors or Sub-subcontractors.

1. If it is determined that a Subcontractor or Sub-subcontractor is present on the Site without their name and direct contracting relationship being posted in a visible location at the Site, the Contractor shall require the Subcontractor or Sub-subcontractor to provide the information within thirty-six (36) hours and to post the information in a visible location at the Site. If the information is not provided within thirty-six (36) hours of its request, the Contractor shall suspend the Subcontractor or Sub-subcontractor until the information is provided and posted.

8.03 Insurance Requirements

A. Workers Compensation Insurance: In accordance with RSA 281-A.
   1. Employers' Liability:
      a. $100,000 Each accident
      b. $500,000 Disease-policy limit
      c. $100,000 Disease-each employee

B. Commercial General Liability Insurance: Occurrence Form Policy; Include full Contractual Liability, Broad Form Property Damage, Explosion, Collapse, and Underground Hazard coverage
   1. Limits of Liability:
      a. $1,000,000 Each Occurrence; Bodily Injury & Property Damage
      b. $2,000,000 General Aggregate; Include Per Project Aggregate Endorsement
      c. $2,000,000 Products/Completed Operations Aggregate

C. Owners Protective Liability:
   1. Limits of Liability:
      a. $2,000,000 Each Occurrence
      b. $3,000,000 Aggregate

D. Commercial Automobile Liability: Covering all motor vehicles including owned, hired, borrowed, and non-owned vehicles
   1. Limits of Liability:
      a. $1,000,000 Combined Single Limit for Bodily Injury & Property Damage

E. Commercial Umbrella Liability:
   1. Limits of Liability:
      a. $1,000,000 Each Occurrence
      b. $1,000,000 Aggregate

F. Other Insurance: If blasting and/or demolition are required by the Contract Documents, the Contractor or Subcontractor shall obtain the respective coverage for those activities and shall furnish to the Owner a Certificate of Insurance evidencing the required coverage's prior to commencement of any operations involving blasting and/or demolition.

8.04 Property Insurance

A. Builder's Risk: The Contractor shall insure the Work included in the Contract Documents, including modifications and Change Orders, on an "All Risk" basis, on a one hundred percent (100%) completed value basis of the Contract, as modified. Builder's Risk coverage shall include materials located at the Contractor's premises, onsite, in-transit, and at any temporary site. The policy by its own terms or by endorsement shall specifically permit partial or beneficiary occupancy prior to completion or acceptance of the entire Work. The policy shall be in the name of the State of New Hampshire Department of Natural and Cultural Resources and the Contractor. The policy shall provide for the inclusion of the names of all other Contractors, Subcontractors, and Others employed on the premises as insureds. The policy shall stipulate that the insurance company shall have no right of subrogation against any Contractors, Subcontractors, or other parties employed on the premises.

8.05 Owner's Insurance

A. Owner Liability Insurance: The Owner shall either self-insure or obtain and maintain its own liability insurance for protection against claims arising out of the performance of the Agreement, including, without limitation, loss of use and claims, losses, and expenses arising out of the Owner's acts or omissions.

8.06 Bonds

A. Performance and Payment Bond: In the event a bid is $75,000 or more, the Contractor shall furnish security by bond or otherwise in an amount equal to 100% of the Contract Price guaranteeing performance and payment. The payment security shall meet the requirements of New Hampshire RSA 447:16.

B. The fully executed performance and payment bond must be returned to the Owner a minimum of fifteen (15) Days prior to the Date of Commencement for the Work.

8.07 Professional Liability Insurance

A. To the extent the Contractor is required to procure design services in accordance with Section 2.15, the Contractor shall require its design professional to obtain professional liability insurance for claims arising from the negligent performance of design services under the Agreement, with a company reasonably satisfactory to the Owner, including coverage for all professional liability caused by any consultants to the Contractor's design professional, written for not less than the limits required for general liability. The Contractor's design professional shall be responsible for payment of any applicable retention or deductible. The Professional Liability Insurance shall contain a retroactive date providing prior acts coverage sufficient to cover all services performed by the Contractor's design professional for the Project. Coverage shall be continued in effect for eight years following the date of Substantial Completion.

ARTICLE 9 – SUSPENSION, NOTICE TO CURE, AND TERMINATION

9.01 Suspension by Owner for Convenience

A. The Owner may, without cause, order the Contractor in writing to suspend, delay, or interrupt the performance of the Work, for the convenience of the Owner and not due to any act or omission of the Contractor or any person or entity for whose acts or omissions the Contractor may be liable, then the Contractor shall immediately suspend, delay, or interrupt that portion of the Work for the time period ordered by the Owner. The Contract Price and the Contract Time shall be equitably adjusted by Change Order for the cost and delay resulting from any such suspension.

B. Any action taken by the Owner that is permitted by any other provision of the Contract Documents and that result in a suspension of part of the Work does not constitute a suspension of Work under this section.

9.02 Termination by Owner for Convenience

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

B. Upon receipt of Notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

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

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

9.03 Default

A. The Owner may terminate this Contract for default if the Contractor materially breaches this Contract by:

1. Refusing, failing, or being unable to commence the Work within the time specified in the Contract Documents
2. Refusing, failing, or being unable to properly manage the Work;
3. Refusing, failing, or being unable to supply the Work with sufficient numbers of properly skilled workers, proper materials, or construction equipment, or to maintain the Construction Schedule;
4. Refusing, failing, or being unable to make prompt payment to Subcontractors or Suppliers;
5. Disregarding Laws, ordinances, rules, regulations, or orders of any authority having jurisdiction or quasi-public authority having jurisdiction over the Project; or,
6. Refusing, failing, or being unable to substantially perform in accordance with the terms of the Agreement and Contract Documents, as determined by the Owner, or as otherwise defined elsewhere herein.

B. Upon the occurrence of any of the events described in Section 9.03 A, the Owner shall give written Notice to the Contractor setting forth the nature of the default and requesting cure within seven (7) Days from the date of notice. Within seven (7) Days of receipt of the Owner's notice of default, the Contractor shall furnish the Owner with either:

1. Written evidence that the default has been cured; or,
2. A written plan demonstrating steps to be taken by the Contractor to cure the default and accomplish completion of the Work in accordance with the requirements of the Contract Documents and within established cost and schedule requirements.

9.04 Owner's Remedies

A. If the Contractor fails to cure the default or provide a written plan to cure the default satisfactory to the Owner, or if the Contractor fails to expeditiously continue such cure until complete, the Owner may give written Notice to the Contractor of immediate termination, and the Owner, without prejudice to any other rights or remedies, may take any or all of the following actions:

1. Exclude the Contractor from the Site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
2. Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.
3. Require the Contractor to assign the Contractor's right, title, and interest in any or all of the Contractor's subcontracts or orders to the Owner.

B. When the Owner terminates the Agreement for default, the Owner shall be entitled to collect from the Contractor all direct, indirect, and consequential damages suffered by the Owner on account of the Contractor's default, including without limitation additional services and expenses of the Design Professional and attorney's fees and expenses made necessary thereby. The Owner shall be entitled to hold all amounts due the Contractor at the date of termination until all of the Owner's damages have been established, and to apply such amounts to such damages. In no case shall the Contractor be entitled to receive further payment until the Work is finished.

9.05 Contractor's Right to Terminate

A. Upon seven (7) Days written notice to the Owner, the Contractor may terminate the Agreement if the Work has been stopped for a thirty (30) Day period through no fault of the Contractor for any of the following reasons:

1. Under court order or order of other governmental authorities having jurisdiction;
2. As a result of the declaration of a national emergency or other governmental act during which, through no act or fault of the Contractor, materials are not available; or
3. Suspension by the Owner for convenience pursuant to Section 9.01

B. In addition, if the Work is stopped for a period of 60 consecutive Days through no act or fault of the Contractor, and upon seven (7) Days written notice to the Owner, the Contractor may terminate the Agreement if the Owner:

1. Has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work;
2. Fails to pay the Contractor in accordance with the Agreement; or
3. Otherwise materially breaches the Agreement

C. Upon termination by the Contractor in accordance with this Section, the Contractor is entitled to recover from the Owner payment for all Work executed and for any proven loss, cost, or expense in connection with the Work, including all demobilization.

9.06 Obligations Arising Before Termination

A. Even after termination, the provisions of this Agreement still apply to any Work performed, payments made, events occurring, costs charged or incurred, or obligations arising before the termination date.

ARTICLE 10 – DISPUTE MITIGATION AND RESOLUTION

10.01 Work Continuance and Payment

A. Unless otherwise agreed in writing, the Contractor shall continue the Work and maintain the Construction Schedule during any dispute mitigation or resolution proceedings. If the Contractor continues to perform, the Owner shall continue to make payments in accordance with the Agreement.

10.02 Direct Discussions

A. If the Parties cannot reach resolution on a matter relating to or arising out of the Agreement, the Parties shall endeavor to reach resolution through good faith direct discussions between the Parties' representatives, who shall possess the necessary authority to resolve such matters and who shall record the date of first discussions. If the Parties' representatives are not able to resolve such matter within five (5) Business Days from the date of first discussion, the Parties' representatives shall immediately inform senior executives of each of the parties in writing that a resolution could not be reached. Upon receipt of such notice, the senior executives of the Parties shall meet within five (5) Business Days to endeavor to reach resolution. If the dispute remains unresolved after fifteen (15) Days from the date of first discussion, the Parties shall submit such matter to the dispute mitigation and dispute resolution procedures selected below.

10.03 Mediation

A. If direct discussions pursuant to Section 10.02 do not result in resolution of the matter, the Parties shall endeavor to resolve the matter by mediation through the current Construction Industry Mediation Rules of the American Arbitration Association, or the Parties may mutually agree to select another set of mediation rules. The parties shall mutually agree upon the mediator and the mediation process. The mediation shall be convened within thirty (30) Business Days of the matter first being discussed and shall conclude within forty-five (45) Business Days of the matter first being discussed. Either party may terminate the mediation at any time after the first session by written notice to the non-terminating Party and mediator. The costs of the mediation shall be shared equally by the Parties.

10.04 Binding Dispute Resolution

A. If the matter is unresolved after submission of the matter to mediation, the Parties shall submit the matter to litigation in either the state or federal court having jurisdiction of the matter in the location of the Project.

10.05 Costs

A. The Parties shall pay their own costs and attorneys' fees of any binding dispute resolution procedures unless otherwise determined by the adjudicator.

10.06 Multiparty Proceeding

A. All parties necessary to resolve a matter agree to be parties to the same dispute resolution proceeding, if possible. Appropriate provisions shall be included in all other contracts relating to the Work to provide for the joinder or consolidation of such dispute resolution procedures.

10.07 Lien Rights

A. Nothing in this article shall limit any rights or remedies not expressly waived by the Contractor that Contractor may have under lien laws.

ARTICLE 11 – MISCELLANEOUS

11.01 Conflicting Terms

A. These General Conditions are supplementary to the General Provisions of the New Hampshire Form P-37 Agreement, and in no case shall be construed or interpreted to reduce or supersede the requirements thereof. In all cases these General Conditions shall be considered as additions to those described in the Agreement.

ARTICLE 12 – CONTRACT DOCUMENTS

12.01 Interpretation of Contract Documents

A. The Contract Documents are complimentary. If Work is shown only on one of the Contract Documents but not on the other, the Contractor shall perform the Work as though fully described on both.

B. In case of conflict between the drawings and specifications, the specifications shall govern. In any case of omissions or errors in figures, drawings, or specifications, the Contractor shall submit the matter to the Owner for clarification. The Owners clarifications are final and binding.

C. The Drawings are generally made to scale, but all working dimensions shall be taken from the figured dimensions, or by actual measurements taken at the Site, and in no case by scaling. Whether or not an error is believed to exist, deviation from the drawings and dimensions given thereon shall be made only after approval in writing from the Owner and its Design Professional.

D. Unless otherwise specifically defined in the Agreement, any terms that have well-known technical or trade meanings shall be interpreted in accordance with their well-known meanings.

12.02 Order of Precedence

A. In case of any inconsistency, conflict, or ambiguity among the Contract Documents, the documents shall govern in the following order:

1. Change Orders and written amendments to the Agreement;
2. The Agreement;
3. The drawings (large scale governing over small scale), specifications, and addenda issued and acknowledged before the execution of the Agreement;
4. Approved submittals;
5. Information furnished by the Owner;
6. Other Contract Documents listed in the Agreement.

B. Among categories of documents having the same order of precedence, the term or provision that is strictest shall control.

END OF GENERAL CONDITIONS

SECTION 00 73 13

BUILD AMERICA, BUY AMERICA REQUIREMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Project is funded in whole or in part by a Federal Financial Assistance Program that is required to comply with the Build America, Buy America Act ("the Act"). Pub. L. No. 117-58, §§ 70901-52, which was signed into law as part of the Infrastructure Investment and Jobs Act ("IIJA"). Pub. L. No. 117-58.

B. All iron and steel, manufactured products, and construction materials incorporated into the Project shall be produced in the United States. This requirement applies to the entire Project.

C. The Contractor and all Sub-contractors, Sub-subcontractors, Suppliers, and other entities retained by the Contractor are required to comply with, in addition to all other requirements of the Contract Documents, the requirements of the Act.

1.02 DEFINITIONS

A. Buy America Preference: Means all Iron and Steel, Manufactured Products, and Construction Materials incorporated into the Project are produced in the United States.

B. Component: Means an article, material, or supply, whether manufactured or unmanufactured, incorporated directly into a manufactured product; or, where applicable, an iron or steel product.

C. Construction Materials: Means articles, materials, or supplies that consist of only one of the items listed in paragraph (1) of this definition, except as provided in paragraph (2) of this definition. To the extent one of the items listed in paragraph (1) contains as inputs other items listed in paragraph (1), it is nonetheless a construction material.

1. The listed items are:

    a. Non-ferrous metals;
    b. Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cable);
    c. Glass (including optic glass);
    d. Fiber optic cable (including drop cable);
    e. Optical fiber;
    f. Lumber;
    g. Engineered wood; and
    h. Drywall

2. Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization of the construction material.

D. Iron or Steel Products: Means articles, materials, or supplies that consist wholly or predominantly of iron or steel or a combination of both.

1. Predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron and steel components.

E. Manufactured Products: Means:

1. Articles, materials, or supplies that have been:

a. Processed into a specific form and shape; or
b. Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.

2. If an item is classified as an iron or steel product, a construction material, or a section 70917(c) material under the definitions set forth in this section, then it is not a manufactured product. However, an article, material, or supply classified as a manufactured product under paragraph (1) of this definition may include components that are construction materials, iron or steel products, or section 70917(c) materials.

F. Produced in the United States: Means:

1. In the case of iron or steel products, all manufacturing processes from the initial melting stage through the application of coatings, occurred in the United States.
2. In the case of manufactured products:
   a. The product was manufactured in the United States; and
   b. The cost of the components of the manufactured products that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard that meets or exceeds this standard has been established under applicable law or regulation for determining the minimum amount of domestic content of the manufactured product.
3. In the case of construction materials, all manufacturing processes for the construction material occurred in the United States. See Section 1.05 for standards for “all manufacturing processes.”

G. Section 70917(c) Materials: Means cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives. Section 70917(c) materials are excluded from being classified as “construction materials” or as inputs of “construction materials.” As such, Section 70917(c) materials do not have a “Buy America Preference” unless they are used as a component of “manufactured product,” or “iron or steel product.”

1.03 APPLICATION OF A BUY AMERICA PREFERENCE

A. All articles, materials, supplies, and other components of construction incorporated into the Project shall be classified into one of the following categories:

1. Iron or steel products;
2. Manufactured Products;
3. Construction Materials; or
4. Section 70917(c) materials.

B. An article, material, or supply should not be considered to fall into multiple categories. The classification of an article, material, or supply as falling into one of the categories listed must be made based on its status at the time it is brought to the work site for incorporation into the Project. Articles, materials, or supplies incorporated into the Project must meet the Buy America Preference for only the single category in which it is classified.

C. The Act only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to the Project. It does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the Project. Nor does it apply to equipment and furnishing, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished Project, but are not an integral part of or permanently affixed to the structure.

1.04 CONSTRUCTION MATERIAL STANDARDS

A. The following standards shall be used to determine if a construction material is considered “produced in the United States". Except as specifically provided, only a single standard of this section should be applied to a single construction material:

1. Non-ferrous Metals: All manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.
2. Plastic and Polymer-Based Products: All manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.
3. Glass: All manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.
4. Fiber Optic Cable (including drop cable): All manufacturing processes, from the initial ribboning (if applicable) through buffering, fiber stranding and jacketing, occurred in the United States. All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others.
5. Optical Fiber: All manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.
6. Lumber: All manufacturing processes, from initial debarking through treatment and planning, occurred in the United States.
7. Drywall: All manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.
8. Engineered Wood: All manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the united States.

1.05 SUBMITTAL REQUIREMENTS

A. The Contractor shall be responsible for ensuring, and providing supporting certifications, that all items required to be submitted by individual Specification sections, and incidental items incorporated into the Work, comply with the Build America, Buy America Act. Such certification may be made either by manufacturers' standard compliance certification or made by the manufacturer on the Product/Material Compliance Form provided at the end of this Section.

B. At project Close-Out the Contractor shall fill out and submit to the Owner the form below titled "Build America, Buy America Certificate of Compliance", certifying that all articles, materials, supplies, and other components of construction incorporated into the Project meet the requirements of the Build America, Buy America Act.

END OF BUILD AMERICA, BUY AMERICA REQUIREMENTS

PRODUCT/MATERIAL COMPLIANCE FORM

Manufacturer Information

Company Name:

Street Address:

City, State, Zip Code:

Instructions: List all items provided by the indicated manufacturer that are being submitted and incorporated into the Work. Classify each item into one of the indicated categories. Section 70917(c) materials do not need to be individually listed.	**Product/Material Category**		
	Iron and Steel	**Manufactured Product**	**Construction Material**
Description			

I/We certify that all products/materials indicated above meet the requirements of the Build America, Buy America Act ("the Act"). Pub. L. No. 117-58, §§ 70901-52, which was signed into law as part of the Infrastructure Investment and Jobs Act ("IIJA"). Pub. L. No. 117-58. All items listed were produced or manufactured in the United States.

Manufacturers Authorized Representative

Name:

Title:

Signature:

Date:

BUILD AMERICA, BUY AMERICA CERTIFICATE OF COMPLIANCE

Project Name:
Project Number: **Contract Date:**

Owner: **State of New Hampshire, Department of Natural and Cultural Resources**

Contractor Name:
Street Address:
City, State, Zip Code:

The undersigned certifies that it has met all requirements of the Build America, Buy America Act ("the Act"). Pub. L. No. 117-58, §§ 70901-52, which was signed into law as part of the Infrastructure Investment and Jobs Act ("IIJA"). Pub. L. No. 117-58.

I/We further certify the following Buy America Preferences have been used on the Project:

1. All iron and steel used in the project were produced in the United States. This means all manufacturing processes, from initial melting stage through the application of coatings, occurred in the United States.

2. All manufactured products used in the project were produced in the United States. This means the manufactured product was manufactured in the United States, and the cost of the components of the manufactured product that were mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation.

3. All construction materials were manufactured in the United States. This means that all manufacturing processes for the construction material occurred in the United States.

I/We further certify that to the best of our knowledge this Certification is true and accurate, and that a false certification may be considered a criminal act in violation of 18 USC 1001.

NAME OF CONTRACTORS AUTHORIZED REPRESENTATIVE (print):

TITLE:

SIGNATURE OF AUTHORIZED REPRESENTATIVE:

DATE:

APPLICATION AND CERTIFICATE FOR PAYMENT

AIA DOCUMENT G702

TO (OWNER):

PROJECT:

APPLICATION NO:

Distribution to:
OWNER
ARCHITECT
CONTRACTOR

Period to:

FROM:

VIA (ARCHITECT):

ARCHITECT'S PROJECT NO:

CONTRACT DATE:

CONTRACT FOR:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for Payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

CHANGE ORDER SUMMARY			
Change Orders approved in previous months by Owner		ADDITIONS	DEDUCTIONS
TOTAL		-	
Approved this Month			
Number	Date Approved		
TOTALS		-	-
Net change by Change Orders			$0.00

1. ORIGINAL CONTRACT SUM	
2. Net change by Change Orders	
3. CONTRACT SUM TO DATE	
4. TOTAL COMPLETED & STORED TO DATE	
5. RETAINAGE:	
a. 10% of Completed Work	
b. 10% of Stored Material	
Total Retainage	
6. TOTAL EARNED LESS RETAINAGE	
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT . .	
8. CURRENT PAYMENT DUE	
9. BALANCE TO FINISH, PLUS RETAINAGE	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: Date:

State of: County of:

Subscribed and sworn to before me this _____ day of _____, 20__

Notary Public:

My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising the above application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED . . . . . $

(Attach explanation if amount certified differs from the amount applied for.)

ARCHITECT:

By: Date:

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract

CONTINUATION SHEET

AIA DOCUMENT G703

AIA Document G702, APPLICATION AND CERTIFICATE FOR PAYMENT, containing Contractor's signed Certification is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NUMBER:
APPLICATION DATE:
PERIOD TO:
ARCHITECTS PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G÷C)	BALANCE TO FINISH (C - G)	RETAINAGE
			FROM PREVIOUS APPLICATION (D+E)	THIS PERIOD					
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Office Use Only
(DSFM 106 rev 6/2019)
Date Rcv:_____
Rcv By:_____
Amount:_____
CK #:_____
Rev:_____
Permit #:_____

STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

Robert L. Quinn
Division of Fire Safety
Office of the State Fire Marshal
Paul J. Parisi, State Fire Marshal
Mailing Address: 33 Hazen Drive Concord NH 03305
603-223-4289, Fax 603-223-4294
TDD Access: Relay NH 1-800-735-2964 Arson Hotline 1-800-400-3526

STATE BUILDING PERMIT APPLICATION

Submit a separate application per permit

APPLICATION

Applicant Information (Property Owner)

Name: _____

Title: _____

Address: _____

City:_____ State :_____Zip:_____

Email:_____

Telephone #:_____

Property Information

Building Name:_____

Map/Lot#:_____

Address:_____

City:_____State:_____Zip:_____

APPLICATION INFORMATION

Permit Type (Check One):

☐Building Construction ☐Mechanical (Fuel Gas/Equipment)
☐Fire Protection ☐Mechanical (Non-Fuel gas portion of work)
☐Electrical ☐Plumbing

Construction Type:

☐New Construction
☐Addition
☐Renovation

IBC Use Group:_____ Building Area: _____SF

CONTRACTOR INFORMATION

General Contractor Name: _____Email:_____

Company Name:_____Telephone #:_____

Address:_____

City:_____State:_____Zip:_____

LICENSING INFORMATION

Please provide a copy of applicable license for electrical, plumbing or mechanical applications

☐Electrical ☐Fire Protection ☐Mechanical (Fuel Gas) ☐Plumbing

NH License #:_____Exp. Date:_____Email:_____

Name:_____Telephone #:_____

Company:_____

Address:_____

City:_____State:_____Zip:_____

RESPONSIBLE DESIGN PROFESSIONAL (IF APPLICABLE)

Name:_____NH License # & Exp. Date:_____

Company:_____

Address:_____

City:_____State:_____Zip:_____

Brief Description:

*Owner's Signature*_____ *Date:*_____

I hereby certify, subject to the penalties of unsworn falsification pursuant to RSA 641:3, that all statements made on this application are true to the best of my knowledge and that I am responsible to ensure that all construction work will be completed in accordance with all Federal, State and local laws and ordinances, including local Zoning Ordinances as applicable and the State of NH Building Code, and that I further authorize employees and or agents of the NH Fire Marshal's Office to enter this property for purposes of inspections.

PERMIT FEES PURSUANT TO NH CODE OF ADMINISTRATIVE RULES Saf-C 8105
***Please make checks payable to "Treasurer, State of New Hampshire"**

Calculations: (Electrical/Mechanical/Plumbing)

Total cost of construction for permit calculation :$_____(electrical/mechanical/plumbing only)

JOB COST	AMOUNT	MULTIPLY	INSP. FEE (MIN $75.00)
1st 100,000 0.01-100,000		1.2%	0.00
Cost 100,000.01-300,000	+	0.5%	+ 0.00
Costs 300,000.01 +	+	0.3%	+ 0.00
Total:	= 0.00	**Total Fee:**	= 0.00

Re-Inspection Fee (Electrical/Mechanical /Plumbing)

10% Re-inspection Fee: 10% of the fee calculated, provided that the fee shall not be less than $100.00 nor more than $500.00.

New Commercial Permit Fee (Building)

FEE TYPE	SQUARE FOOTAGE	FEE AMOUNT	TOTAL INSP. FEE
BUILDING PERMIT		0.30	0.00
OTHER STRUCTURES min. $35.00		1.00	0.00

New Commercial Renovation Permit Fee (Building)

FEE TYPE	SQUARE FOOTAGE	FEE AMOUNT	TOTAL INSP. FEE
BUILDING PERMIT		0.15	0.00
OTHER STRUCTURES min. $35.00		$1.00	0.00

New Commercial Permit & Renovation Permit Fee (Fire Protection)

FEE TYPE	# OF DEVICES	FEE AMOUNT EACH	TOTAL INSP. FEE MIN $35.00
FIRE PROTECTION		1.00	0.00

Re-Inspection fee for Building, Fire Protection and Other; Permit fee is $100.00 per inspection

SECTION 01 10 00

SUMMARY

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work sequence.
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.
7. Specification and drawing conventions.
8. Miscellaneous provisions.

B. Related Work Specified Elsewhere:

1. SECTION 01 50 00: Temporary Facilities and Controls

1.02 PROJECT INFORMATION

A. Project Identification: Winslow/Rollins Park Improvements, CAP 2031

1. Project Location: Rollins State Park, 1066 Kearsarge Mountain Road, Warner, NH 03278
   Winslow State Park, 475 Kearsarge Mountain Road, Wilmot, NH 03287

B. Owner: State of New Hampshire, Department of Natural and Cultural Resources

1. Owner's Representative: Scott Coruth, Architect. Phone: 603-271-3676. Email: scott.d.coruth@dncr.nh.gov

1.03 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of the Project is defined by the Contract Documents and consists of the following:

1. Rollins State Park: Demolition and removal of existing pit toilet. Construction and installation of 2 new pit toilets. Selective demolition of the bathrooms in the existing toilet building and renovation into a storage room.
2. Winslow State Park: Demolition and removal of 2 existing pit toilets. Construction and installation of 2 new pit toilets. Site preparation, grading, and paving of a parking lot, including striping.

B. Type of Contract: Project will be constructed under a stipulated lump sum grand total contract with the State of New Hampshire in accordance with the General Conditions of the Contract for Construction.

C. The Contractor shall, except as otherwise specifically stated in Contract Documents, provide, and pay for all materials, labor, tools, equipment, water, heat, fuel, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities or every nature whatsoever necessary to execute, complete, and deliver the work within the specified time.

1.04 WORK SEQUENCE

A. Work shall commence within 15 days after issuance of Notice to Proceed. Failure to comply shall constitute a Default of Contract.

1.05 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Limit site disturbance, including earthwork and clearing of vegetation to 10-feet beyond building perimeter; 10-feet beyond surface walkways, patios, surface parking, and utilities less than 12-inches in diameter; 15-feet beyond primary roadway curbs and main utility branch trenches; and 25-feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities, and playing fields) that require additional staging areas in order to limit compaction in the constructed area.
2. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.06 COORDINATION WITH OCCUPANTS

A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.

2. Provide not less than 72-hours' notice to Owner of activities that will affect Owner's operations.

1.07 WORK RESTRICTIONS

A. Work restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 4:30 p.m., Monday through Friday, unless otherwise indicated.

1. Access for work outside of normal working hours shall be requested in writing to the Contract Administrator, at least one week in advance. The Contract Administrator may accept or reject the request.
2. No access during the following observed holidays:
   a. New Years' Day.
   b. Martin Luther King Jr. Civil Rights Day.
   c. Washington's Birthday.
   d. Memorial Day.
   e. Independence Day.
   f. Labor Day.
   g. Veterans' Day.
   h. Thanksgiving Day.
   i. Day after Thanksgiving.
   j. Christmas Day.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owners written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruptions to owner occupancy with owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.08 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words “shall,” “shall be,” or “shall comply with,” depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SUMMARY

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section Includes:

1. Schedule of Values
2. Applications for Payment
3. Allowances

1.02 SCHEDULE OF VALUES

A. Submit printed schedule on AIA Form G703 – Continuation Sheet for G702. Contractor's standard for or electronic media printout will be considered.

B. Submit Schedule of Values in duplicate within 15 days after the date of issuance of Notice to Proceed. Failure to submit within specified time period will constitute Default of Contract.

A. Utilize the Schedule of Values provided with the bid and any addenda. The Contractor may add line items to the Schedule of Values with approval from the contract administrator. No line items may be deleted. Identify each line item with number and title of specification Section. Identify General Conditions, bonds, and insurance.

C. Include separate line item for the amount of each Allowance and Alternates Specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by unit cost to achieve total for each item.

D. Revise schedule to list approved Change Orders, with each Application for Payment.

1.03 APPLICATION FOR PAYMENT

A. Submit three copies of each application or electronic transmittal along with any supporting materials.

B. Execute on AIA Form G702 – Application and Certificate for Payment.

C. Items on the Application for payment shall be consistent with the items listed on the Proposal Form. Utilize Schedule of Values for listing items in Application for Payment.

D. Submit updated construction schedule with each Application for Payment.

E. Payment Period: Submit monthly, or as otherwise allowed by the Owner.

1.04 ALLOWANCES

A. Contingency Allowances: Use the allowance only as directed by Section 00 41 00 “Bid Proposal Form”.

B. Contractor’s overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, insurance, equipment rental, and similar costs.

C. Change Orders authorizing use of funds from the contingency allowance will include Contractor’s related costs and reasonable overhead and profit margins.

D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF PRICE AND PAYMENT PROCEDURES

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes administrative and procedural requirements for substitutions.

B. Related Work Specified Elsewhere:

1. SECTION 01 20 00: Price and Payment Procedures
2. SECTION 01 60 00: Product Requirements

1.02 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitution for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitution for Convenience: Changes proposed by Contractor that are not required in order to meet other Project requirements but may offer advantage to Contractor.

1.03 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or installation cannot be provided.
b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparisons of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.

g. List of similar installation for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure or proposed substitution to produce indicated results.
n. Build America, Buy America: Submit certification from manufacturer, indicating that substitution meets the requirements of the Build America, Buy America Act. No substitution will be considered without this certification.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.04 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.05 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 – PRODUCTS

2.01 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Requested substitution provides sustainable design characteristics that specified product provided.
c. Substitution request is fully documented and properly submitted.
d. Requested substitution will not adversely affect Contractor's construction schedule.
e. Requested substitution has received necessary approvals of authorities having jurisdiction.
f. Requested substitution is compatible with other portions of the Work.
g. Requested substitution has been coordinated with other portions of the Work.
h. Requested substitution provides specified warranty.
i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed.

PART 3 – EXECUTION (Not Used)

END OF SUBSTITUTION PROCEDURES

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Work Specified Elsewhere:

1. SECTION 01 20 00: Price and Payment Procedures
2. SECTION 01 25 00: Substitution Procedures
3. SECTION 01 30 00: Administrative Requirements

1.02 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in Work, not involving adjustment to the Contract Sum or the Contract Time.

1.03 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specification.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.

2. Within time specified by Proposal Request or 14 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include and updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

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

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

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

5. Include an updated Contractor's construction schedule that indicated effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available float before requesting an extension of the Contract Time.

6. Comply with requirements in Section 01 25 00 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.04 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change Proposal Request, Architect will issue a Contract Change Order for signatures of Owner and Contractor on Owner's standard form.

1.05 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on Architects standard form. Construction Change Directive instructs Contractor to proceed with a change in Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and materials basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF CONTRACT MODIFICATION PROCEDURES

SECTION 01 30 00

ADMINISTRATIVE REQUIRMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes administrative provisions for coordinating construction operations, submittal procedures, delegated design, and Contractor's construction schedule including, but not limited to, the following:

1. Project management and coordination
2. Submittal procedures
3. Construction schedule

B. Related Work Specified Elsewhere:

1. SECTION 01 70 00: Execution and Closeout Requirements

1.02 PROJECT MANAGEMENT AND COORDINATION

A. Subcontract List: Submit a written summary identifying individuals or firms proposed for each portion of the Work.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance AT Project site. List e-mail addresses and telephone numbers.

C. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work.

D. Requests for Information (RFIs): On discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI. Use forms acceptable to Architect.

E. Schedule and conduct progress meetings at Project site at biweekly intervals. Notify Owner of meeting dates and times. Require attendance of each subcontractor or other entity concerned with current progress or involved in planning, coordination, or performance of future activities.

1. Contractor will record minutes and distribute to all attendees, including Owner/Architect.

1.03 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Requests for Electronic digital data files of the Contract Drawings will be considered on a case-by-case basis and documents may be provided by Architect for Contractor's use in preparing submittals. Contractor is to submit request for specific drawing file pertinent to shop drawing preparation.

1. Architect may furnish Contractor specific digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.

    a. The decision to provide digital file data is at the sole discretion of the architect. No damages or claims will be accepted for failure to provide requested digital data.
    b. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    c. Contractor shall execute a liability release and/or data licensing agreement in the form acceptable to the Architect.

B. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

1. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
2. Architect will discard submittals received from sources other than Contractor.

C. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with unique identifier, including project identifier, Specification Section number, and revision identifier.
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.

D. Identify options requiring selection by Architect.

E. Identify deviations from the Contract Documents on submittals.

F. Contractor's Construction Schedule Submittal Procedure:

1. Submit required submittals in the following format:

    a. Working electronic copy of schedule file, where indicated.
    b. PDF electronic file

2. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

3. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

PART 2 – PRODUCTS

2.01 SUBMITTAL PROCEDURES

A. General Submittal procedure Requirements: Prepare and submit submittals required by individual Specification Sections.

1. Submit electronic submittals vie email as PDF electronic files.

B. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2.02 ACTION SUBMITTALS

A. Submit electronic copies of each submittal unless otherwise indicated. Architect will return one copy.

B. Product Data: Mark each copy to show applicable products and options. Include the following:

1. Manufacturer's written recommendations, product specifications, and installation instructions.
2. Wiring diagrams showing factory-installed wiring.
3. Printed performance curves and operational diagrams.
4. Testing by recognized testing agency.
5. Compliance with specified standards and requirements.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit on sheets at least 8-1/2 by 11-inches but not larger than 24 by 36-inches. Include the following:

1. Dimensions and identification of products.
2. Fabrication and installation drawings and roughing-in and setting diagrams.
3. Wiring diagrams showing field-installed wiring.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.

D. Samples: Submit Samples for review of kind, color, pattern, and texture and for comparison of these characteristics between submittal and actual component as delivered and installed. Include name of manufacturer and product name on label.

1. If variation is inherent in material or product, submit at least three sets of paired units that show variations.

2.03 INFORMATIONAL SUBMITTALS

A. Informational Submittals: Submit electronic copies of each submittal unless otherwise indicated. Architect will return one copy.

B. Qualification Data: Include lists of completed projects with project names and addresses, names, and addresses of architects and owners, and other information specified.

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

2.04 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, schedule in the format outlined in the General Conditions.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

C. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.

D. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by with Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew size, and equipment required to achieve compliance, and indicate date by which recovery will be accomplished.

PART 3 – EXECUTION

3.01 SUBMITTAL REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Architect will review each action submittal, make marks to indicate corrections or modification required, will signify each submittal with an action stamp, and will signify appropriately to indicate action.

C. Informational Submittals: Architect will review each submittal and will return a copy. Architect will forward each submittal to appropriate party.

D. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

3.02 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule a minimum of one day before each regularly scheduled progress meeting.
   1. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribute copies of approved schedule to Owner/Architect, subcontractors, testing and inspecting agencies, and parties identified by Contractor with a need-to-know schedule responsibility. When revisions are made, distribute updated schedules to the same parties.

END OF ADMINISTRATIVE REQUIREMENTS

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and –control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related activities do not limit Contractor's other quality-assurance and –control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and –control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.02 CONFLICTING REQUIREMENTS

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

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

1.03 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

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

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

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installation of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

1.04 QUALITY CONTROL

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

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

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

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

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

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspection.
3. Adequate quantities of representative sample of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and of test samples.
5. Delivery of samples to testing agencies.

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

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 REPAIR AND PROTECTION

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

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with Contract Document requirements for cutting and patching in Section 01 70 00 “Execution and Closeout Requirements.”

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

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

END OF QUALITY REQUIREMENTS

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1. The Work shall include, but shall not necessarily be limited to:
   a. Temporary utilities
   b. Construction facilities
   c. Temporary controls
   d. Project Identification

B. Related Work Specified Elsewhere:

1. SECTION 01 26 00: Contract Modification Procedures
2. SECTION 01 70 00: Execution and Closeout Requirements

1.02 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.03 PROJECT CONDITIONS

A. The Contractor shall be permitted to utilize the existing Owner utilities at the site where available. These utilities include electric power and water. The Contractor shall provide temporary sanitary facilities for the workmen, temporary cell phones and temporary fire safety devices such as fire extinguishers.

PART 2 – PRODUCTS

2.01 TEMPORARY FACILITIES

A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

2.02 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to Municipal or State system as directed by authorities having jurisdiction.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities. Permanent sanitary facilities installed under this Contract shall not be used during construction.

D. Electric Power Service: Connect to Owner's existing electric power service where available. Maintain equipment in a condition acceptable to Owner.

E. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

3.03 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30-feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in manner that will prevent people and animals from easily entering site except by entrance gate.

D. Barricades, Warning Signs, and Lights: Comply with authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

3.05 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability or temporary facilities to essential and intended uses.

B. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot by satisfactorily repaired.

END OF TEMPORARY FACILITIES AND CONTROLS

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes administrative and procedural requirements for selection of products for use in Project.

1. The Work shall include, but shall not necessarily be limited to:
   a. Product delivery, storage, and handling
   b. Manufacturers' standard warranties
   c. Special warranties
   d. Comparable products

B. Related Work Specified Elsewhere:

1. SECTION 01 20 00: Price and Payment Procedures
2. SECTION 01 25 00: Substitution Procedures

1.02 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Products: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.03 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and drawing numbers and titles. Note that no substitutions for convenience are allowed per Section 01 25 00.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

    a. Form of Approval: As specified in Section 01 30 00 "Administrative Requirements."
    b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 30 00 "Administrative Requirements."

1.04 QUALITY ASSURANCE

A. Compatibility of Options: If contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.

2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by owner's construction forces. Coordinate location with owner.

1.06 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to owner.
2. Special Warranty: Written warranty required by Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 70 00 "Execution and Closeout Requirements."

PART 2 – PRODUCTS

2.01 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.

3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term “as selected”, Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product complies with requirements. Comparable products or substitutions for Contractor’s convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor’s convenience will not be considered.
3. Products:

    a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements.

4. Manufacturers:

    a. Restricted List: Where Specifications include a list of manufacturers’ names, provide a product by one of the manufacturers listed that complies with requirements.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers and/or products, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product names. Comply with requirements in “Comparable Products” Article for consideration of an unnamed product by one of the other named manufacturers. All effort has been made by the Architect to verify that Basis-of-Design Products meet the requirements of the Build America, Buy America Act, however, manufacturers may change their products as their needs dictate and as such the Contractor shall be responsible for determining compliance with the Act, and selecting equal products should the Basis-of-Design products no longer comply.

C. Visual Selection Specification: Where Specifications include the phrase “as selected by Architect from manufacturer’s full range” or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer’s product line that includes both standard and premium items.

2.02 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor’s request for comparable products when the following conditions are satisfied. Note that substitutions for convenience are not

allowed per Section 01 25 00. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses or architects and owners, if requested.
5. Samples, if requested.

PART 3 – EXECUTION (Not Used)

END OF PRODUCT REQUIREMENTS

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes general administrative and procedural requirements governing execution and closeout of the Work including, but not limited to, the following:

1. Execution
2. Cutting and patching
3. Closeout procedures
4. Operations and maintenance manuals
5. Project record documents

B. Related Work Specified Elsewhere:

1. SECTION 01 10 00: Summary
2. SECTION 01 30 00: Administrative Requirements

1.02 INFORMATIONAL SUBMITTALS

A. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

B. Build America, Buy America: Submit Build America, Buy America Certificate of Compliance in accordance with Section 00 73 13 “Build America, Buy America requirements.”

1.03 CLOSEOUT SUBMITTALS

A. Contractor’s List of Incomplete Items: Initial submittal at Substantial Completion.

B. Project Record Documents:

1. Record Drawings: Submit one paper-copy set of marked-up record prints and an annotated PDF electronic file of marked-up record prints.

1.04 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

3. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architects opinion, reduce the buildings aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.05 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractors List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

a. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting the Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
b. Submit closeout submittals specified in other Division 1 Sections, including project record documents.
c. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
d. Submit test/adjust/balance records.
e. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

a. Advise Owner of pending insurance changeover requirements.
b. Make final changeover of permanent locks and deliver keys to Owner. Advise Owners personnel of changeover in security provisions.
c. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
d. Terminate and remove temporary facilities from project site, along with mockups, construction tools, and similar elements.
e. Complete final cleaning requirements, including touchup painting.
f. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificates will be issued.

1.06 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 01 20 00 “Price and Payment procedures.”
2. Certified List of Incomplete Items: Submit certified copy of Architects Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

PART 2 – PRODUCTS

2.01 MATERIALS

A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

B. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

2.02 RECORD DRAWINGS

A. Record Prints: Maintain a set of prints of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued. Mark to show actual installation where installation varies from that shown originally. Accurately record information in an acceptable drawing technique.

1. Record drawings are to be updated at a minimum weekly.
2. Review markings with Architect and Owner at Project Meetings.
3. Identify and date each record Drawing; include the designation “PROJECT RECORD DRAWING” in a prominent location.

B. Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect.

PART 3 – EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Comply with the "Underground Utility Damage Prevention System" per NH RSA 374 by notification to DIG-SAFE SYSTEM, Inc., of intent to excavate within 100 feet of an underground utility. Contact DIG-SAFE at least seventy-two (72) hours in advance of starting any excavation.

B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

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

D. Space Requirements: Verify space requirements and dimension of items shown diagrammatically on Drawings.

3.02 CONSTRUCTION LAYOUT AND FIELD ENGINEERING

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

3.03 INSTALLATION

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

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturers written instructions and recommendations for installing products in applications indicated.

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

D. Templates: Obtain and distribute to the parties' involved templates for work specified to be factory prepared and field installed.

E. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place. Where size and type of attachments are not indicated, verify size and type required for load conditions.

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

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

3.04 CUTTING AND PATCHING

A. Temporary Support: Provide temporary support of work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

D. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installers written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering, and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

E. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into adjoining construction in a manner that will minimize evidence of patching and refinishing.
2. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance.

3.05 CLEANING

A. General: Clean Project site and work areas daily, including common areas. Dispose of materials lawfully.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
3. Remove debris from concealed spaces before enclosing space.

B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
2. Remove labels that are not permanent.
3. Clean transparent materials, including mirrors. Remove excess glazing compounds.
4. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Sweep concrete floors broom clean.
5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and foreign substances. Clean plumbing fixtures. Clean light fixtures, lamps, globes, and reflectors.

END OF EXECUTION AND CLOSEOUT REQUIREMENTS

SECTION 02 41 16

STRUCTURE DEMOLITION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Structure Demolition as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Demolishing designated structures.
   b. Demolishing designated underground tanks.
   c. Protecting items designated to remain.
   d. Removing demolished items.

B. Related Work Specified Elsewhere:

1. SECTION 31 10 00: Site Clearing
2. SECTION 31 20 00: Earth Moving

1.02 QUALITY ASSURANCE

A. Conform to applicable codes for demolition of structures, safety of adjacent structures, dust control, runoff control, and disposal.

B. Conform to applicable codes for procedures when hazardous or contaminated materials are discovered.

C. Obtain required permits from authorities having jurisdiction.

1.03 QUALIFICATIONS

A. Demolition Firm: Company specializing in performing work of this section with minimum 5 years documented experience.

B. Design shoring, bracing, underpinning and other supports under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of New Hampshire.

1.04 SCHEDULING

A. Schedule Work to coincide with site excavation work and new construction.

1.05 PROJECT CONDITIONS

A. Buildings indicated to be demolished will be vacated before start of Work.

B. Owner assumes no responsibility for actual condition of buildings to be demolished.

C. Notify Architect upon discovery of hazardous materials.

D. Do not sell demolished materials on-site.

E. Maintain existing sidewalks, paths, and trails to greatest extents possible.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine existing buildings indicated to be demolished before demolition.

B. Determine where removals may result in structural deficiency or unplanned building collapse during demolition. Coordinate demolition sequence and procedures to prevent structures from becoming unstable.

3.02 PREPARATION

A. Notify affected utility companies before starting work and complying with utility's requirements.

B. Erect and maintain temporary barriers and security devices, including warning signs and lights, and similar measures, for protection of the public, Owner, and existing improvements indicated to remain.

C. Protect existing landscaping materials, trees, appurtenances, structures, and other items indicated to remain.

D. Prevent movement or settlement of adjacent structures. Provide bracing and shoring.

E. Test soils around underground tanks for contamination.

3.03 DEMOLITION REQUIREMENTS

A. Use of explosives is not permitted.

B. Conduct demolition to minimize interference with adjacent structures.

C. Cease operations immediately when adjacent structures appear to be in danger. Notify Architect. Do not resume operations until directed.

D. Conduct operations with minimum interference to public or private accesses to occupied adjacent structures. Maintain egress and access from adjacent structures at all times.

E. Sprinkle Work with water to minimize dust. Provide hoses and water connections required for this purpose.

3.04 DEMOLITION

A. Remove foundation walls and footings to minimum of two feet below finish grade beyond area of new construction.

B. Remove concrete slabs-on-grade.

C. Empty underground tanks located within demolition area.

D. Remove underground tanks, components, and piping from site.

END OF STRUCTURE DEMOLITION

SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to provide all Selective Demolition as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

The Work of this Section is not necessarily fully represented on the Drawings or specifically identified herein. The Contractor, either himself or through his various subcontractors, shall thoroughly review all documents and shall visit the site and existing building prior to bidding, as required to fully satisfy himself as to the types, locations and quantities of demolition work required for the complete and proper execution of the Work. No pleas of misunderstanding resulting from failure to adequately inspect existing conditions will be entertained and no additional expenses related thereto will be granted.

1. The Work shall include, but shall not necessarily be limited to:
   a. Selective demolition of interior partitions, systems, and building components designated to be removed.
   b. Protection of portions of building adjacent to or affected by selective demolition
   c. Removal of abandoned utilities and wiring systems
   d. Notification to Owner of schedule of shut-off of utilities which serve occupied spaces.
   e. Removal and legal disposal of materials
   f. Protection of designated site improvements and adjacent construction
   g. Interruption, capping or removal of utilities as applicable

1.02 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.03 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.04 QUALITY ASSURANCE

A. Codes and Regulations: Comply with governing codes and regulations. Use experienced workers.

1.05 PROJECT CONDITIONS

A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.
2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect. Hazardous materials will be removed by Owner under a separate contract.

D. Storage or sale of removed items or materials on-site is not permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1.06 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 – PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulation before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing conditions and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

D. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.02 UTILITY SERVICES AND MECHNICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off utilities with utility companies.
3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
4. Disconnect, demolish, and remove plumbing and HVAC systems, equipment, and components indicated on Drawings to be removed.
    a. Piping to be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Equipment to be Removed: Disconnect and cap services and remove equipment.

3.03 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
3. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 50 00 “Temporary Facilities and Controls.”

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

C. Remove temporary barricades and protections where hazards no longer exist.

3.04 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least two hours after flame-cutting operations.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose off-site.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Owner, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and recycle or dispose of them.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

3.06 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SELECTIVE DEMOLITION

SECTION 03 45 00

PRECAST ARCHITECTURAL CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Precast Architectural Concrete as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Standard precast concrete units.
   b. Custom precast concrete units.

B. Related Work Specified Elsewhere:

1. SECTION 09 91 00: Painting

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each precast concrete mixture. Include compressive strength and water-absorption tests.

C. Shop Drawings:

1. Detail fabrication and installation of architectural precast units.
2. Indicate plans, elevations, dimensions, shapes, and cross sections of each unit.
3. Indicate joints, reveals, drips, chamfers and extent and location of each surface finish.
4. Detail loose and cast-in hardware and connections.

D. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, fabricator, and testing agency.

B. Material Certificates: For the following items:

1. Cementitious materials.
2. Reinforcing materials and prestressing tendons.
3. Admixtures

C. Material Test Reports: For aggregates, by a qualified testing agency.

D. Quality-control and special inspection reports.

1.04 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm that assumes responsibility for engineering architectural precast concrete units to comply with performance requirements. This responsibility includes preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

B. Testing Agency Qualifications: Qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.

C. Quality-Control Standard: For manufacturing procedures and testing requirements, quality-control recommendations and dimensional tolerances for types of units required, comply with PCI MNL 117, "Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products."

D. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M, "Structural Welding Code – Steel"; and AWS D1.4/D1.4M, "Structural Welding Code – Reinforcing Steel."

E. Mockups: Before production of architectural precast concrete units, construct full-sized mockups to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mockup as indicated on Drawings complete with anchors, connections, and joint fillers.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undamaged at time of Substantial Completion.

1.05 COORDINATION

A. Furnish loose connection hardware and anchorage items to be embedded in or attached to other construction without delaying the Work. Provide locations, setting diagrams, templates, instructions, and directions, as required, for installation.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver architectural precast units in such quantities and at such times to limit unloading units temporarily on the ground or other rehandling.

B. Support units during shipment on nonstaining shock-absorbing material.

C. Store units with adequate dunnage and bracing and protect units to prevent staining, and to prevent cracking, distortion, warping or other physical damage.

D. Handle and transport units in a manner that avoids excessive stresses that cause cracking or damage.

E. Lift and support units only at designated points indicated on Shop Drawings.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 PERFORMANCE REQUIRMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design architectural precast concrete units.

B. Design Standards: Comply with ACI 318 and design recommendations of PCI MNL 120, "PCI Design Handbook – Precast and Prestressed Concrete," applicable to types of architectural precast concrete units indicated.

C. Design precast concrete units and connections to maintain clearances at openings, to allow for fabrication and construction tolerances, to accommodate live load deflection, shrinkage and creep of structure, and other building movements.

2.03 MOLD MATERIALS

A. Molds: Rigid, dimensionally stable, non-absorptive material, warp and buckle free, that provides continuous and true precast concrete surfaces within fabrication tolerances indicated; nonreactive with concrete and suitable for producing required finishes.

2.04 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A615/A615M, Grade 60 (Grade 420), deformed.

B. Low-Alloy-Steel Reinforcing Bars: ASTM A706/A706M, deformed.

C. Plain-Steel Welded Wire Reinforcement: ASTM A1064/A1064M, fabricated from galvanized-steel wire into flat sheets.

D. Deformed-Steel Welded Wire Reinforcement: ASTM A1064/A1064M, flat sheet.

E. Supports: Suspend reinforcement from back of mold or use bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place in accordance with PCI MNL 117.

2.05 CONCRETE MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or Type III, gray, unless otherwise indicated.

B. Supplementary Cementitious Materials:

1. Fly Ash: ASTM C618, Class C or F, with maximum loss on ignition of 3 percent.
2. Metakaolin: ASTM C618, Class N.
3. Silica Fume: ASTM C1240, with optional chemical and physical requirement.
4. Slag Cement: ASTM C 989, Grade 100 or 120.

C. Normal-Weight Aggregates: Except as modified by PCI MNL 117, ASTM C33/C33M, with coarse aggregates complying with Class 5S. Stockpile fine and coarse aggregates for each type of exposed finish from single source (pit or quarry) for Project.

D. Lightweight Aggregates: Except as modified by PCI MNL 117, ASTM C330/C330M, with absorption less than 11 percent.

E. Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 117.

F. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and to not contain intentionally added chlorides.

2.06 ACCESSORIES

A. Precast Accessories: Provide clips, hangers, high-density plastic or steel shims, and other accessories required to install architectural precast concrete units.

2.07 GROUT MATERIALS

A. Nonmetallic, Nonshrink Grout: Packaged, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with ASTM C1107/C1107M, Grade A for dry pack and Grade B and C for flowable grout and of consistency suitable for application within a 30-minute working time. Water-soluble chloride ion content less than 0.06 percent by weight of cement when tested according to ASTM C1218/C1218M.

2.08 CONCRETE MIXTURES

A. Prepare design mixtures for each type of precast concrete required.

B. Limit use of fly ash and slag cement to 20 percent of portland cement by weight; limit metakaolin and silica fume to 10 percent of portland cement by weight.

C. Design mixtures may be prepared by a qualified independent testing agency or by qualified precast plant personnel at architectural precast concrete fabricator’s option.

D. Limit water-soluble chloride ions to maximum percentage by weight of cement permitted by ACI 318 (ACI 318M) or PCI MNL 117 when tested in accordance with ASTM C1218/C1218M.

E. Normal-Weight Concrete Mixtures: Proportion full-depth mixture by either laboratory trial batch or field test data methods in accordance with ACI 211.1, with materials to be used on Project, to provide normal-weight concrete with the following properties:

1. Compressive Strength (28 Days): 5000 psi minimum.
2. Maximum Water-Cementitious Materials Ration: 0.45.

F. Water Absorption: 6 percent by weight or 14 percent by volume, tested in accordance with ASTM C642, except for boiling requirement.

G. Add air-entraining admixture at manufacturers prescribed rate to result in concrete at point of placement having an air content complying with PCI MNL 117.

H. When included in design mixtures, add other admixtures to concrete mixtures in accordance with manufacturers written instructions.

2.09 MOLD FABRICATION

A. Molds: Accurately construct molds, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes and for prestressing and de-tensioning operations. Coat contact surfaces of molds with release agent before reinforcement is placed. Avoid contamination of reinforcement and prestressing tendons by release agent.

B. Maintain molds to provide completed architectural precast units of shapes, lines, and dimensions indicated, within fabrication tolerances specified.

1. Form joints are not permitted on faces exposed to view in the finished work.

2.10 FABRICATION

A. Cast-In Anchors, Inserts, Plates, Angles, and Other Anchorage Hardware: Fabricate anchorage hardware with sufficient anchorage and embedment to comply with design requirements. Accurately position for attachment of loose hardware, and secure in place during precasting operations. Locate anchorage hardware where it does not affect position of main reinforcement or concrete placement.

1. Weld-headed stud and deformed bar anchors used for anchorage in accordance with AWS D1.1/D1.1M and AWS C5.4, “Recommended Practices for Stud Welding.”

B. Furnish loose hardware items including steel plates, clips angles, seat angles, anchors, dowels, cramps, hangers, and other hardware shapes for securing architectural precast concrete units to supporting and adjacent construction.

C. Cast-in reglets, slots, holes, and other accessories in architectural precast concrete units as indicated on Contract Drawings.

D. Cast-in openings larger than 10 inches in any dimension. Do not drill or cut openings or prestressing strand without Architects approval.

E. Reinforcement: Comply with recommendations in PCI MNL 117 for fabricating, placing, and supporting reinforcement.

F. Reinforce architectural precast concrete units to resist handling, transportation, and erection stresses and specified in-place loads.

G. Prestress tendons for architectural precast concrete units by either pre-tensioning or post-tensioning methods. Comply with PCI MNL 117.

H. Comply with requirements of PCI MNL 117 and requirements in this Section for measuring, mixing, transporting, and placing concrete. After concrete batching, no additional water may be added.

I. Place concrete in a continuous operation to prevent cold joints or planes of weakness from forming in precast concrete units.

J. Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items, and minimize pour lines, honeycombing, or entrapped air voids on surfaces. Use equipment and procedures complying with PCI MNL 117.

1. Place self-consolidating concrete without vibration in accordance with PCI TR-6, “Interim Guidelines for the Use of Self-Consolidating Concrete in Precast/Prestressed Concrete Institute Member Plants.” Ensure adequate bond between face and backup concrete, if used.

K. Comply with PCI MNL 117 for hot- and cold-weather placement.

L. Identify pickup points of architectural precast concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint or permanently mark casting date on each architectural precast concrete unit on a surface that does not show in finished structure.

M. Cure concrete, in accordance with requirements in PCI MNL 117, by moisture retention without heat or by accelerated heat curing using low-pressure live steam or radiant heat and moisture. Cure units until compressive strength is high enough to ensure that stripping dos not have an effect on performance or appearance of final product.

N. Discard and replace architectural precast concrete units that do not comply with requirements, including structural, manufacturing tolerance, and appearance, unless repairs meet requirements in PCI MNL 117 and Architect’s approval.

2.11 FINISHES

A. Exposed faces shall be free of joint marks, grain, and other obvious defects. Corners, including false joints shall be uniform, straight, and sharp. Finish exposed-face surfaces of architectural precast concrete units as follows:

1. Precast Vaults and Frost Posts: Provide as-cast surface finish in accordance with ACI.
2. Vault Top: Provide a smooth finished surface suitable to receive painted finish according to 09 91 00 “Painting.”

3. Step Pads: Broom finished.

2.12 SOURCE QUALITY CONTROL

A. Quality-Control Testing: Test and inspect precast concrete in accordance with PCI MNL 117 requirements. If using self-consolidating concrete, also test and inspect in accordance with PCI TR-6, ASTM C1610/C1610M, ASTM C1611/C1611M, ASTM C1621/C1621M, and ASTM C1712.

B. Strength of precast concrete unit is considered deficient if unit fails to comply with ACI 318 (ACI 318M) requirements for concrete strength.

C. Defective Units: Discard and recast architectural concrete units that do not comply with acceptability requirements in PCI MNL 177, including concrete strength, manufacturing tolerance, and color and texture range. Chipped, spalled, or cracked units may be repaired, subject to Architect's approval. Architect reserves the right to reject precast units that do not match approved samples, sample panels, and mockups. Replace unacceptable units with precast concrete units that comply with requirements.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install clips, hangers, bearing pads, and other accessories required for connecting architectural precast concrete units to supporting members and backup materials.

B. Erect architectural precast concrete level, plumb, and square within specified allowable tolerances. Provide temporary supports and bracing as required to maintain position, stability, and alignment of units until permanent connections are completed.

1. Remove projecting lifting devices and grout fill voids within recessed lifting devices flush with surface of adjacent precast surfaces when recess is exposed.

3.02 REPAIRS

A. Repair architectural precast concrete units if permitted by Architect. Architect reserves the right to reject repaired units that do not comply with requirements.

B. Mix patching materials and repair units so cured patches blend with color, texture, and uniformity of adjacent exposed surfaces and show no apparent line of demarcation between original and repaired work, when viewed in typical daylight illumination from a distance of 10 feet.

C. Remove and replace damaged architectural precast concrete units when repairs do not comply with requirements.

3.03 CLEANING

A. Clean surfaces of precast concrete units exposed to view.

B. Perform cleaning procedures, if necessary, in accordance with precast concrete fabricator's recommendations. Protect other work from staining or damage due to cleaning operations.

C. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes or damage adjacent materials.

END OF PRECAST ARCHITECTURAL CONCRETE

SECTION 05 58 00

FORMED METAL FABRICATIONS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Formed Metal Fabrications as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Formed metal shrouds.
   b. Closures and trim.
   c. Miscellaneous formed metal fabrications.

B. Related Work Specified Elsewhere:

1. SECTION 09 91 00: Painting

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product, including finishing materials.

B. Shop Drawings: Show fabrication and installation details for formed metal fabrications.

1. Include, plans, elevations, component details, and attachment details.
2. Indicate materials and profiles of each formed metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.

C. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 INFORMATIONAL SUBMITTALS

A. Mill Certificates: Signed by manufacturers certifying that products furnished comply with requirements.

B. Evaluation Reports: For post-installed anchors, from ICC-ES.

1.04 QUALITY ASSURANCE

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

B. Installer Qualifications: Fabricator of products.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver formed metal products wrapped in protective coverings and strapped together in suitable packs or in heavy-duty cartons. Remove protective coverings before they stain or bond to finish surfaces.

B. Store products on elevated platforms in a dry location.

1.06 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls, columns, beams, and other construction contiguous with formed metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 – PRODUCTS

2.01 SHEET METAL

A. General: Fabricate products from sheet metal without pitting, seam marks, roller marks, stains, discolorations, or other imperfections where exposed to view on finished units.

B. Galvanized-Steel Sheet: ASTM A 653/A 653M, G90 coating, either commercial steel or forming steel.

2.02 MISCELLANEOUS MATERIALS

A. Sealant: Elastomeric sealant complying with Section 07 92 00 “Joint Sealant” and as recommended in writing by formed metal manufacturer.

B. Filler Metal and Electrodes: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded or brazed and as necessary for strength, corrosion resistance, and compatibility in fabricated items.

1. Use filler metals that will match the color of metal being joined and will not cause discoloration.

C. Fasteners: Fabricated from same basic metal and alloy as fastened metal unless otherwise indicated. Do not use metals that are incompatible with materials joined.

1. Provide concealed fasteners for interconnecting formed metal items and for attaching them to other work unless otherwise indicated.
2. Provide Phillips flat-head machine screws or square or hex socket flat-head machine screws for exposed fasteners unless otherwise indicated.

D. Nonstructural Anchors: For applications not indicated to comply with design loads, provide fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193.

E. Anchor Materials:

1. Material for Exterior Locations and Where Stainless Steel is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.03 FABRICATION, GENERAL

A. Shop Assembly: Preassemble formed metal items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

B. Coordinate dimensions and attachment methods of formed metal items with those of adjoining construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned unless otherwise indicated.

C. Form metal to profiles indicated, in maximum lengths to minimize joints. Produce flat, flush surfaces without cracking or grain separation at bends. Fold back exposed edges of unsupported sheet metal to form a 1/2-inch-wide hem on the concealed side, or ease edges to a radius of approximately 1/32 inch and support with concealed stiffeners.

D. Provide weep holes where water may accumulate. Locate weep holes in inconspicuous locations.

E. Increase metal thickness or reinforce with concealed stiffeners, backing materials, or both, as needed to provide surface flatness equivalent to stretcher-leveled standard of flatness and sufficient strength for indicated use.

1. Support joints with concealed stiffeners as needed to hold exposed faces of adjoining sheets in flush alignment.

F. Build in straps, plates, and brackets as needed to support and anchor fabricated items to adjoining construction. Reinforce formed metal items as needed to attach and support other construction.

G. Provide support framing, mounting and attachment clips, splice sleeves, fasteners, and accessories needed to install formed metal items.

H. Where welding or brazing is indicated, weld or braze joints and seams continuously. Grind, fill, and dress to produce smooth, flush, exposed surfaces in joints that are not visible after finishing is completed.

1. Use welding and brazing procedures that will blend with and not cause discoloration of metal being joined.

2.04 CLOSURES AND TRIM

A. Form tight closures and trim from metal of type and thickness indicated below. Fabricate to fit tightly to adjoining construction, with weathertight joints at exterior installation.

1. Steel Sheet: Minimum thickness of 18 gauge or as indicated on Drawings.

a. Finish: As specified in Section 09 91 00 “Painting.”

2. Closures and trim may be fabricated from prefinished metal sheet in lieu of finishing after fabrication provided unfinished edges are concealed from view and not exposed to weather.

B. Conceal fasteners where possible; otherwise, locate where they are as inconspicuous as possible. Size fasteners to support closures and trim, with fasteners spaced to prevent buckling or waviness in finished surfaces.

C. Drill and tap holes needed for securing closures and trim to other surfaces.

D. Incorporate gaskets where indicated or needed for concealed, continuous seal at abutting surfaces.

E. Miter or cope trim members at corners and reinforce with bent metal splice plates to form tight joints.

2.05 GENERAL FINISH REQUIREMENTS

A. Complete mechanical finishes of flat sheet metal surfaces before fabrication where possible. After fabrication, finish all joints, bends, abrasions, and other surface blemishes to match sheet finish.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Finish items indicated on Drawings after assembly.

D. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of formed metal fabrications.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Locate and place formed metal items level and plumb and in alignment with adjacent construction. Perform cutting, drilling, and fitting required to install formed metal fabrications.

1. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.

B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where needed to protect metal surfaces and to make a weathertight connection.

C. Form tight joints with exposed connections accurately fitted together. Provide reveals and openings for sealants and joint fillers as indicated.

D. Corrosion Protection: Apply bituminous paint or other permanent separation materials on concealed surfaces where metals would otherwise be in direct contact with substrate materials that are incompatible or could result in corrosion or deterioration of either material or finish.

3.03 ADJUSTING AND CLEANING

A. Unless otherwise indicated, clean metals by washing thoroughly with water and soap, rinsing with clean water, and drying with soft cloths.

B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in field to the shop; make required alterations and refinish entire unit or provide new units.

3.04 PROTECTION

A. Protect finishes of formed metal items from damage during construction period. Remove temporary protective coverings at time of Substantial Completion.

END OF FORMED METAL FABRICATIONS

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Rough Carpentry as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job. It is not intended that this Section specifically identify all Rough Carpentry required.

1. The Work shall include, but shall not necessarily be limited to:
   a. Framing with dimensional lumber
   b. Shear wall panels
   c. Wood blocking, cants, and nailers
   d. Wood furring and grounds
   e. Wood sheathing
   f. Anchors and fasteners

B. Related Work Specified Elsewhere:

1. SECTION 06 20 00: Finish Carpentry
2. SECTION 08 71 00: Door Hardware
3. SECTION 10 14 00: Signage

1.02 DEFINITIONS

A. Exposed Framing: Framing not concealed by other construction.

B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

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. RIS: Redwood Inspection Service
4. SPIB: The Southern Pine Inspection Bureau
5. WCLIB: West Coast Lumber Inspection Bureau
6. WWPA: Western Wood Products Association

1.03 SPECIAL CONDITIONS

A. The Contractor shall carefully review the Drawings for additional technical requirements and details related to the Work of this Section. Particular attention shall be paid to the structural characteristics of framing materials.

B. The Contractor shall pay special attention to the selection and installation of lumber and related materials for rough carpentry to remain exposed after completion. The best of the materials available shall be reserved for this purpose.

C. The Contractor shall be responsible for carefully examining existing framing to remain, verifying that it is structurally sound and suitable for continued use and notifying the Architect upon the discovery of any conditions which suggest that existing materials may be rotted, checked, warped, termite infested, improperly installed or otherwise unsuitable for continued use.

D. Coordinate the location of framing, blocking, nailers, furring, grounds, and similar supports for finish materials, millwork, casework, finish carpentry, equipment, hardware, and accessories so that the installation of finish work may be properly executed in compliance with the intended design requirements. Before starting installation of supports, carefully check all related shop drawings and submittals.

1.04 ACTION SUBMITTALS

A. Lumber & Sheathing Schedule: Indicating lumber and sheathing sizes, species and grade, grading agency, moisture content and application location.

B. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details. MSDS sheets are not required to be submitted.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirement. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

C. Fastener Patterns: Full-sized templates for fasteners in exposed framing.

D. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.05 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood
2. Metal framing anchors

1.06 DELIVERY, STORAGE AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 – PRODUCTS

2.01 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.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
4. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent for 2-inch nominal thickness or less, no limit for more than 2-inch nominal thickness unless otherwise indicated.

C. Wood Structural Panels:

1. Plywood: PS 1, PS2 or APA PRP-108

2.02 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
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 that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
3. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
4. Wood floor plates that are installed over concrete slabs-on-grade.

2.03 DIMENSION LUMBER FRAMING

A. Load-Bearing Partitions: No. 1 grade.

1. Application: Exterior walls and interior load-bearing partitions.
2. Species: Spruce-pine-fir; NLGA, WCLIB, or WWPA

B. Ceiling Joists: No. 2 grade

1. Species: Spruce-pine-fir; NLGA, NeLMA, WCLIB, or WWPA

C. Joists, Rafters, and Other Framing Not Listed Above: No.1 grade

1. Species: Spruce-pine-fir; NLGA, NeLMA, WCLIB, or WWPA

2.04 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction.

B. For items of dimension lumber size, provide Standard, Stud, or No. 3 grade lumber 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. Western woods; WCLIB or WWPA
7. Northern species; NLGA
8. Eastern softwoods; NeLMA

C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine; No. 3 grade; SPIB
2. Hem-fir or hem-fir (north); Standard or No. 3 Common grade; NLGA, WCLIB, or WWPA
3. Spruce-pine-fir (south) or spruce-pine-fir; Standard or No. 3 Common grade; NeLMA, NLGA, WCLIB, or WWPA
4. Eastern softwoods; No. 3 Common grade; NeLMA
5. Northern species; No. 3 Common grade; NLGA
6. Western woods; Standard or No. 3 Common grade; WCLIB or WWPA

D. For blocking not used for attachment of other construction, Utility, Stud or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment purpose.

E. 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.

F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.05 SHEATHING

A. Softwood plywood shall conform to the requirements of the latest edition of U.S. Product Standard PS-1, Construction and Industrial.

B. Plywood thicknesses shall be as scheduled below, unless specifically noted otherwise on the Drawings.

1. Exterior Plywood Wall Sheathing: 1/2-inch; APA Rated, Exposure 1 sheathing.
2. Exterior Plywood Roof Sheathing @ Asphalt Shingles: 5/8-inch; APA Rated, Exposure 1 sheathing.
3. Interior Wall Backing: 1/2-inch APA Rated, fire-retardant-treated sheathing.
4. Miscellaneous Plywood (not specified elsewhere): Shall conform to the general applications and corresponding grades of softwood plywood as published in U.S. Product Standard PS-1 and shall be selected by means of its intended use, subject to Architect's approval.

2.06 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article 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 with hot-dip zinc coating complying with ASTM A 153/A 153M or Type 304 stainless steel.

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.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers. All components to have a galvanized finish.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspection agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.07 METAL FRAMING ANCHORS

A. Manufacturers: Subject to compliance with requirements, provide products by Simpson Strong-Tie Co., Inc. or approved equal.

B. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those of products of manufacturers listed. 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.

C. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A 653/A 653 M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel TYPE B (HSLAS Type B); G185 coating designation; and not less than 0.036 inch thick.

D. Stainless-Steel Sheet: ASTM A 666, Type 304.

1. Use for exterior locations and where indicated.

2.08 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

C. Water-Repellent Preservative: NWWDA-tested and –accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

A. Set rough carpentry to required level 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, grounds, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

D. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.

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.

G. 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.

H. Comply with AWPA 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

I. 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 2304.10.1, "Fastening Schedule," in ICC's International Building Code

J. Use hot dipped galvanized steel common 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. Drive nails snug but do not countersink nail heads unless otherwise indicated.

K. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.

1. Comply with approved fastener patterns where applicable. Before fastening, mark fastener locations, using a template made of sheet metal, plastic, or cardboard.
2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

3.02 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for screeding or 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. Attached items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.03 WALL AND PARTITION FRAMING INSTALLATION

A. General: Provide double bottom plates and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single bottom plate and top plate may be used for non-load-bearing partitions and a single top plate 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- size wood studs spaced 16 inches on center unless otherwise indicated.
2. For interior partitions and walls, provide 2-by-6 inch nominal- or 2-by-4 inch nominal- size wood studs spaced 16 inches on center unless otherwise indicated.
3. Provide continuous horizontal blocking at mid-height of partitions more than 96 inches high, using members of 2-inch nominal thickness and of same width as wall or partition.

B. Construct corners and intersections with three or more studs, except that two studs may be used for interior non-load-bearing partitions.

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 load-bearing walls, provide double-jamb studs for openings 60 inches and less in width, and triple-jamb studs for wider openings. Provide headers of depth indicated.

3.04 CEILING JOIST AND RAFTER FRAMING INSTALLATION

A. Rafters: Notch to fit exterior wall plates and toenail or use metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing, if any, and support with metal hangers. When rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.

B. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions if any.

3.05 PLYWOOD INSTALLATION

A. Plywood materials shall be installed according to recommendations of the American Plywood Association.

B. Plywood roof sheathing shall be installed using manufacturer's standard galvanized "H" clips as recommended by the manufacturer.

3.06 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry become sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF ROUGH CARPENTRY

SECTION 06 15 16

WOOD ROOF DECKING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Wood Roof Decking as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Solid-sawn wood roof decking

B. Related Work Specified Elsewhere:

1. SECTION 06 10 00: Rough Carpentry
2. SECTION 06 20 00: Finish Carpentry
3. SECTION 07 21 00: Thermal Insulation
4. SECTION 07 31 13: Asphalt Shingles
5. SECTION 09 91 00: Painting
6. SECTION 09 93 00: Staining and Transparent Finishing

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 QUALITY ASSURANCE

A. Standard for Solid-Sawn Wood Decking: Comply with AITC 112:

1.04 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Schedule delivery of wood decking to avoid extended on-site storage and to avoid delaying the Work.

C. Store materials under cover and protected from weather and contact with damp or wet surfaces. Provide for air circulation within and around stacks and under temporary coverings. Stack wood decking with surfaces that are to be exposed in the final Work protected from exposure to sunlight.

1.05 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within the limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 – PRODUCTS

2.01 WOOD DECKING, GENERAL

A. General: Comply with DOC PS 20 and with applicable grading rules of inspection agencies certified by ALSC's Board or Review.

B. Source Limitation: Obtain products from a single source from a single manufacturer.

C. Moisture Content: Provide wood decking with 15 percent maximum moisture content at time of dressing.

2.02 SOLID-SAWN WOOD DECKING

A. Decking Species: Douglas fir-larch or Douglas fir-larch (North)

B. Decking Nominal Size: 2-inches by 6-inches

C. Decking Grade: Select(ed) Decking or Select Dex

D. Grade Stamps: Factory mark each item with grade stamp of grading agency. Apply grade stamp to surfaces that will not be exposed to view.

E. Face Surface: Smooth

F. Edge Pattern: Vee grooved.

G. Preservative Treatment: Pressure treat solid-sawn exterior wood decking according to AWPA C31 with inorganic boron (SBX) and redry wood to 15 percent maximum moisture content.

2.03 ACCESSORY MATERIALS

A. Fasteners for Solid-Sawn Decking: Provide fastener size and type complying with decking standards for thickness of deck used.

B. Nails: Common; complying with ASTM F 1667, Type I, Style 10

C. Spikes: Round; complying with ASTM F 1667, Type III, Style 3

D. Fastener Material: Stainless steel.

E. Bolts for Anchoring Decking to Walls: Carbon steel; complying with ASTM A 307 with ASTM A 563/A 563M hex nuts and, where indicated, flat washers, all hot-dip zinc coated.

F. Penetrating Sealer: Clear sanding sealer complying with Section 09 93 00 “Staining and Transparent Finishing” and compatible topcoats specified for use over it.

2.04 FABRICATION

A. Predrill decking for lateral spiking to adjacent units to comply with referenced decking standard.

B. Seal Coat: After fabrication and surfacing decking, apply a saturation coat of penetrating sealer in fabrication shop.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine walls and support framing in areas to receive wood decking for compliance with installation tolerances and other conditions affecting performance of wood decking.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install solid-sawn wood decking to comply with referenced decking standard.

1. Locate end joints for controlled random lay-up.

B. Anchor wood roof decking, where supported on walls, with bolts as indicated.

C. Apply joint sealant to seal roof decking at exterior walls at the following locations:

1. Between decking and supports located at exterior walls
2. Between decking and exterior walls that butt against underside of decking
3. Between tongues and grooves of decking over exterior walls and supports at exterior walls.

3.03 ADJUSTING

A. Repair damaged surfaces and finishes after completing erection. Replace damaged decking if repairs are not approved by Owner.

3.04 PROTECTION

A. Provide temporary waterproofing covering as the Work progresses to protect roof decking until roofing is applied.

END OF WOOD ROOF DECKING

SECTION 06 20 00

FINISH CARPENTRY

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Finish Carpentry as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Exterior standing and running trim
   b. Interior standing and running trim
   c. Window sills and trim
   d. Wood door trim

B. Related Work Specified Elsewhere:

1. SECTION 06 10 00: Rough Carpentry
2. SECTION 07 46 23: Wood Siding
3. SECTION 09 91 00: Painting
4. SECTION 09 93 00: Staining and Transparent Finishing

1.02 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.

B. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 QUALITY ASSURANCE

A. Perform work in accordance with AWI AWS Section 6 grades identified in Section.

1.04 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Stack lumber, plywood, and other panels flat with spacers between each bundle to provide air circulation. Protect materials from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

1.05 PROJECT CONDITIONS

A. Weather Limitations for Exterior Work: Proceed with installation only when existing and forecast weather conditions permit work to be performed and at least one coat of specified finish can be applied without exposure to rain, snow, or dampness.

B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.

1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 – PRODUCTS

2.01 MATERIALS, GENERAL

A. Environmental Quality Characteristics:

1. Adhesives: Maximum volatile organic compound content in accordance with SCAQMD Rule 1168; adhesives shall not contain urea formaldehyde
2. Aerosol Adhesives: Maximum volatile organic compound content in accordance with GS-36
3. Composite Wood Products: Contain no added urea-formaldehyde resins

B. VOC Limits for Installation Adhesives: Installation adhesives shall comply with the following limits for VOC content when calculated according to 40 CFR 59, subpart D (EPA Method 24):

1. Wood Glues: 30 g/L
2. Multipurpose Construction Adhesives: 70 g/L
3. Contact Adhesive: 250 g/L

2.02 EXTERIOR MATERIALS

A. Exterior Softwood Lumber: Douglas Fir or Ponderosa pine

1. Grade: D & Better
2. Cut: Plain sawn
3. Finger Jointing: Not permitted

B. Lumber Moisture Content Range: 9-15 percent

2.03 INTERIOR MATERIALS

A. Interior Softwood Lumber: Douglas Fir or Ponderosa pine

1. Cut: Plain sawn
2. Finger Jointing: Not permitted

2.04 FABRICATION

A. Fabricate finish carpentry to AWI AWS Section 6 Custom Grade.

B. When necessary to cut and fit on site, fabricate materials with ample allowance for cutting. Furnish trim for scribing and site cutting.

2.05 FINISHES

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. On items to receive transparent finishes, use wood filler matching surrounding surfaces and of types recommended for applied finishes.

D. Stain, seal, and varnish exposed to view surfaces.

E. Seal internal surfaces and semi-concealed surfaces

F. Seal surfaces in contact with cementitious materials.

2.06 ACCESSORIES

A. Fasteners and Anchors:

1. Fasteners: ASTM A153/A153M, hot dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
2. Nails and Staples: ASTM F1667

B. Concealed Joint Fasteners: Threaded steel.

C. Wood Filler: Solvent or oil base, tinted to match surface finish color.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify mechanical, electrical, and building items affecting work of this Section are placed and ready to receive this work.

C. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

B. Prime lumber and molding to be painted including both faces and edges unless factory primed. Cut to required lengths and prime ends. Comply with requirements in Section 09 91 00 “Painting”

3.03 DEMOLITION

A. Modify and extend existing finish carpentry installations using materials and methods as specified.

3.04 INSTALLATION

A. Install work in accordance with AWI AWS Section 6 and Custom Grade and manufacturer’s instructions.

B. Set and secure materials and components in place, plumb and level.

C. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.

1. Scribe and cut exterior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
2. Coordinate exterior finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate exterior finish carpentry.

D. Carefully scribe work abutting other components, with maximum gaps of 1/32-inch. Do not use additional overlay trim to conceal larger gaps.

E. Standing and Running Trim: Install trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available to greatest extent possible. Do not use pieces less than 96-inches long except where necessary.

1. Use scarf joints for end-to-end joints.
2. Stagger end joints in adjacent and related members.
3. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base if finished.
4. Install standing and running trim with no more variation from a straight line than 1/8-inch in 96-inches.

F. Site Applied Wood Treatment:

1. Brush apply one coat of preservative treatment on wood in contact with roofing and related metal flashings.
2. Treat site-sawn cuts. Apply preservative to site-sawn cuts in accordance with WDMA I.S.4.
3. Allow preservative to dry prior to erecting members.

G. Preparation for Site Finishing:

1. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
2. Site Finishing: Refer to Section 09 91 00 “Painting” and 09 93 00 “Staining and Transparent Finishing”

3.05 TOLERANCES

A. Conform to AWI AWS Section 6 requirements for the following:

1. Smoothness
2. Gaps
3. Flushness
4. Flatness

B. Maximum Variation from Indicated Position: 1/16-inch.

C. Maximum Offset from Alignment with Abutting Materials: 1/32-inch.

3.06 SCHEDULES

A. Exterior Finish Carpentry:
1. Soffits and Fascia’s: Softwood; prepare for stain finish.
2. Window Casings and Moldings: Softwood; prepare for stain finish.
3. Door Casing and Moldings: Softwood; prepare for stain finish.
4. Standing and Running Trim: Softwood; prepare for stain finish.

B. Interior Finish Carpentry:
1. Door Casing: Softwood; prepare for transparent finish.
2. Window Sills and Frames: Softwood; prepare for transparent finish.

END OF FINISH CARPENTRY

SECTION 06 64 00

PLASTIC PANELING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Plastic Paneling as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Glass-fiber reinforced plastic (FRP) wall paneling
   b. Accessories and trim

B. Related Work Specified Elsewhere:

1. SECTION 06 10 00: Rough Carpentry
2. SECTION 06 20 00: Finish Carpentry
3. SECTION 07 92 00: Joint Sealants

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Submit shop drawings of each wall showing locations of paneling and trim members with respect to all discontinuities in the wall elevation.

C. Selection Samples: Submit manufacturer's standard physical selection samples representing manufacturer's full range of available colors and patterns.

D. Samples for Verification: For plastic paneling and trim accessories, in manufacturer's standard sizes.

E. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 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. Flame-Spread Index: 200 or less.
2. Smoke-Developed Index: 450 or less.
3. Testing Agency: Acceptable to authorities having jurisdiction.

1.04 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Environmental Limitations: Do not deliver or install plastic paneling until spaces are enclosed and weathertight and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.05 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity and ventilation) within the limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.06 WARRANTY

A. Furnish one year guarantee against defects in material and workmanship.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide products by Nudo, or comparable products by Crane Composites, Fibertech, Marlite, or approved equal.

B. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 PLASTIC SHEET PANELING

A. General: Gelcoat-finished, glass-fiber reinforced plastic panels complying with ASTM D 5319.

1. Nominal Thickness: Not less than 2.3mm (0.090 inches).
2. Surface Texture: As selected by Architect from manufacturer's full range.
3. Color: As selected by Architect from manufacturer's full range.

2.03 ACCESSORIES

A. Trim Accessories: Manufacturer's standard narrow one-piece extrusions designed to retain and cover edges of panels.

1. Material: Aluminum
2. Color: As selected by Architect from manufacturer's full range.
3. Trim Schedule:
    a. Top Edges and Bottom Edges
    b. Inside Corners
    c. Vertical and Horizontal Joints

B. Exposed Fasteners: Not Permitted.

C. Adhesive: As recommended by plastic paneling manufacturer.

1. Adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. Sealant: Single-component, mildew-resistant, neutral curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements of Section 07 92 00 "Joint Sealants." Color matched to panels.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Prepare substrate by sanding high spots and filling low spots as needed to provide flat, even surface for panel installation.

B. Clean substrates of substances that could impair bond of adhesive, including oil, grease, dirt, and dust.

C. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.

D. Lay out paneling before installing. Locate panel joints to provide equal panels at ends of walls not less than half the width of full panels.

1. Mark plumb lines on substrate at panel joint locations for accurate installation.
2. Locate trim accessories to allow clearance at panel edges according to manufacturer's written instruction.

3.03 INSTALLATION

A. Install plastic paneling according to manufacturer's written instructions.

B. Install panels in a full spread of adhesive. Drive rivets and exposed fasteners are not permitted.

C. Install trim accessories with adhesive and nails or staples. Do not fasten through panels.

D. Fill grooves in trim accessories with sealant before installing and bed inside corner trim in a bead of sealant.

E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.

F. Maintain uniform space between adjacent panels and between panels and floors, ceilings, and fixtures. Fill space with sealant.

G. Remove excess sealant and smears as paneling is installed. Clean with a solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF PLASTIC PANELING

SECTION 07 21 00

THERMAL INSULATION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Thermal Insulation as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Board Insulation

1.02 ACTION SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

B. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 INFORMATIONAL SUBMITTALS

A. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.04 QUALITY ASSURANCE

A. Manufacturers Qualifications: Manufacturer with a minimum of ten years' experience manufacturing products in this Section shall provide all products listed.

B. Installer Qualifications: Products listed in this Section shall be installed by a single organization with at least five years' experience successfully installing insulation on projects of similar type and scope as specified in this Section.

1.05 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.

C. Store materials in dry locations with adequate ventilation, free from water, and in such a manner to permit easy access for inspection and handling.

1.06 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within the limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Do not apply insulation when substrate temperatures are under 40 degrees F prior to installation

C. Surfaces must be dry prior to application of spray foam. Excess humidity may cause poor adhesion, and result in product failure.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide products by CertainTeed Corp., Insulation Group, which is located at 750 E. Swedesford Rd. P.O. Box 860; Valley Forge, PA 19482-0860, or comparable products by Owens Corning, Johns Manville or approved equal.

B. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 BOARD INSULATION

A. Extruded Polystyrene Board Insulation (XPS): Comply with ASTM C 578, Type IV, 25 psi minimum compressive strength, 1.55 lb. /cu. Ft.

1. Thermal Resistance: (180 day real-time aging as mandated by ASTM C578, measured per ASTM C 518 at mean temperature of 75 degrees F): R-5.0 per inch of thickness, with 90% lifetime limited warranty on thermal resistance.
2. Blowing Agent Formulation: Zero ozone depleting
3. Edge Condition: Tongue and groove
4. Surface Burning Characteristics (ASTM E 84): Flame spread less than 25, smoke developed less than 450, certified by independent third party such as Underwriters Laboratories (UL).
5. Indoor Air Quality: Compliance certified by independent third party
6. Recycled Content: Minimum 20%, certified by independent third party such as Scientific Certification Systems.
7. Warranty: Limited lifetime warranty covering all ASTM C 578 physical properties.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify that all exterior and interior wall, partition, floor/ceiling assembly and roof construction has been completed to the point where insulation may correctly be installed.

C. Verify that substrate and cavities are dry and free of any foreign material that will impede application.

3.02 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.

3.03 BOARD INSULATION INSTALLATION

A. Install products in strict accordance with manufacturer's recommendations and written instructions.

B. Continuous Installation over Sheathing:

1. Begin installation after framing, bracing, and sheathing is complete.
2. Use maximum board lengths to minimize number of joints. Locate joints square to framing members. Center end joints over framing. Provide additional framing as necessary. Stagger each coarse at least one stud space to minimize continuous vertical seams. Boards may be installed vertically if less seam sealing results.
3. Butt board edges together tightly, and carefully fit around openings and penetrations.
4. Fasten insulation boards to exterior face of the stud framing using recommended fasteners.
5. Space fasteners 16 inches on center at the board perimeter, or consistent with framing spacing, but not greater than 24 inches on center. Space fasteners 24 inches on center in the field, or consistent with framing spacing. Drive fasteners so the stress plate is tight and flush with the board surface, but not countersunk.
6. Repair boards damaged during installation. Patch holes less than 1 inch across with flashing tape. Patch holes greater than 1 inch across with matching board material and then seal with flashing tape.

3.04 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF THERMAL INSULATION

SECTION 07 25 00

WEATHER BARRIERS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Weather Barriers as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Weather barrier membranes
   b. Seam tape
   c. Flexible flashing
   d. Fasteners

B. Related Work Specified Elsewhere:

1. SECTION 06 10 00: Rough Carpentry
2. SECTION 07 46 23: Wood Siding

1.02 ACTION SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

B. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

1.04 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Deliver weather barrier materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Store weather barrier materials as recommended by weather barrier manufacturer.

1.05 SCHEDULING

A. Review requirements for sequencing of installation of weather barrier assembly with installation of windows, doors, louvers, and flashings to provide a weather-tight barrier assembly.

B. Schedule installation of weather barrier materials and exterior cladding within nine months of weather barrier assembly installation.

1.06 WARRANTY

A. Provide manufacturer's warranties:

1. Weather barrier manufacturer's warranty for weather barrier for a period of ten (10) years from date of substantial completion.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide products from DuPont which is located at: Chestnut Run Plaza 728, Wilmington, DE 19805, or approved equal.

B. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 WEATHER BARRIER

A. Basis of Design: Spunbonded polyolefin, non-woven, non-perforated. Weather Barrier is based upon DuPont Tyvek CommercialWrap D and related assembly components.

B. Performance Characteristics:

1. Air Penetration: 0.001 cfm/sf at 75 Pa when tested in accordance with ASTM E 2178. Type 1 when tested in accordance with ASTM E 1677. ≤0.04 cfm/ft @ 75 Pa when tested in accordance with ASTM E 2357.
2. Water Vapor Transmission: 30 perms, when tested in accordance with ASTM E 96, Method B.
3. Water Penetration Resistance: 235 cm when tested in accordance with AATCC Test Method 127
4. Basis Weight: 2.4 oz. /square yard, when tested in accordance with TAPPI Test Method T-410.
5. Air Infiltration Resistance: Air infiltration at >750 seconds, when tested in accordance with TAPPI Test Method T-460
6. Tensile Strength: 33/41 lbs./in., when tested in accordance with ASTM D 822, Method A
7. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E 84. Flame Spread: 15, Smoke Developed: 25

2.03 ACCESSORIES

A. Seam Tape: Pressure-sensitive plastic tape recommended by weather barrier manufacturer for sealing joints and penetrations in weather barrier.

B. Fasteners:

1. Wood Frame Construction: Weather Barrier manufacturer's Caps; #4 nails with large 1 inch plastic cap fasteners or 1 inch minimum plastic cap staple with leg length sufficient to achieve a minimum penetration of 5/8 inch into the wood stud.

C. Sealants: Provide sealants that comply with ASTM C 920, elastomeric polymer sealant to maintain watertight conditions, as recommended by weather barrier manufacturer.

D. Flexible Flashing:

1. Flexible membrane flashing materials for window openings and penetrations as manufactured by weather barrier manufacturer.
2. Straight flashing membrane materials for flashing windows and doors and sealing penetrations such as masonry ties, etc. as manufactured by weather barrier manufacturer.
3. Dual-sided flashing membrane materials for brick mold and non-flanged windows and doors as manufactured by weather barrier manufacturer.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify substrate and surface conditions are in accordance with weather barrier manufacturer's recommended tolerances prior to installation of weather barrier and accessories.

3.02 INSTALLATION

A. Install weather barrier over exterior face of exterior wall substrate in accordance with manufacturer recommendations

B. Install weather barrier prior to installation of windows and doors.

C. Start weather barrier installation at a building corner, leaving 6 to 12 inches of weather barrier extended beyond corner to overlap.

D. Install weather barrier in a horizontal manner starting at the lower portion of the wall surface with subsequent layers installed in a shingling manner to overlap lower layers. Maintain weather barrier plumb and level

E. Window and Door Openings: Extend weather barrier completely over openings.

F. Overlap weather barrier.

1. Exterior corners: minimum 12-inches
2. Seams: minimum 6-inches

G. Weather Barrier Attachment:

1. Wood Frame Construction: Attach weather barrier to studs through exterior sheathing. Secure using weather barrier manufacturer's recommended fasteners, space 6 to 18 inches vertically on center along stud line, and 24 inches on center maximum horizontally.

3.03 PROTECTION

A. Protect installed weather barrier from damage.

END OF WEATHER BARRIERS

SECTION 07 31 13

ASPHALT SHINGLES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Asphalt Shingles as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Asphalt Shingles
   b. Underlayment

B. Related Work Specified Elsewhere:

1. SECTION 06 10 00: Rough Carpentry

1.02 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For each type of asphalt shingle, ridge and hip cap shingles, ridge vent and exposed valley lining indicated.

C. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.04 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer

B. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for asphalt shingles.

C. Research/Evaluation Reports: For each type of asphalt shingle required, from the ICC.

D. Warranties: Sample of special warranties

E. Maintenance Data: For each type of asphalt shingle to include in maintenance manuals.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

1.06 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Store roofing materials in a dry, well-ventilated, weathertight location according to asphalt shingle manufacturer's written instructions. Store underlayment rolls on end on pallets or other raised surfaces. Do not double stack rolls.

C. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

1.07 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install asphalt shingles until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1. Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended by manufacturer.

1.08 WARRANTY

A. Special Warranty: Standard form in which manufacturer agrees to repair or replace asphalt shingles that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Manufacturing defects.
   b. Structural failures including failure of asphalt shingles to self-seal after a reasonable time.
2. Material Warranty Period: 50 years from date of Substantial Completion, prorated, with first 12 years non-prorated.
3. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds up to 110 mph for 10 years from date of Substantial Completion.
4. Algae-Discoloration Warranty Period: Asphalt shingles will not discolor 10 years from date of Substantial Completion.
5. Workmanship Warranty Period: 10 years from date of Substantial Completions

B. Special Project Warranty: Roofing Installer's Warranty, or warranty form at end of this Section, signed by roofing installer, covering the Work of this Section, in which roofing Installer agrees to repair or replace components of asphalt shingle roofing that fail in materials, workmanship or weathertightness, within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide products manufactured by CertainTeed Corporation, or comparable products by GAF Materials Corporation, Owens Corning or approved equal.

B. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

A. Laminated-Strip Asphalt Shingles: ASTM D 3462, laminated, multi-ply overlay construction, glass-fiber reinforced, mineral-granule surfaced and self-sealing.

1. Basis of Design Product: Subject to compliance with requirements, provide CertainTeed Landmark Pro.
2. Butt Edge: Notched cut
3. Weight per Square: 240 to 267 lb
4. Strip Size: Manufacturer's standard
5. Algae Resistance: Granules treated to resist algae discoloration
6. Color and Blends: As selected by Architect from manufacturer's full range

B. Ridge Shingles: Manufacturer's standard units to match asphalt shingles or site-fabricated units cut from asphalt shingle strips. Trim each side of lapped portion of unit to taper approximately 1-inch.

2.03 UNDERLAYMENT MATERIALS

A. Self-Adhering Sheet Underlayment, Polyethylene Faced: ASTM D 1970, minimum of 40-mil-thick, slip resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; cold applied.

1. Basis of Design Product: Subject to compliance with requirements, provide Grace, W.R. & Co., Ice-and-Water Shield, or comparable product by one of the following:

    a. Carlisle Coatings & Waterproofing, Inc.
    b. Henry Company
    c. Johns Manville
    d. Owens Corning
    e. Protecto Wrap Company

2.04 ACCESSORIES

A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

B. Roofing Nails: ASTM F 1667; aluminum, stainless-steel, copper, or hot-dip galvanized-steel wire shingle nails, minimum 0.120-inch diameter, barbed shank, sharp-pointed, with a minimum 3/8-inch diameter flat head and of sufficient length to penetrate 3/4-inch into solid wood decking or extend at least 1/8-inch through OSB or plywood sheathing.

1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

2.05 METAL FLASHING AND TRIM

A. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item.

2. Sheet Metal: Anodized aluminum
3. Drip Edges: F- or D-Style. Fabricate in lengths not exceeding 10 feet with 4-inch roof-deck flange and 1-1/2 inch fascia flange with 3/8-inch drip at lower edge.
4. Cricket Flashings: Fabricate with concealed flange extending a minimum of 24-inches beneath upslope asphalt shingles and 6-inches beyond each side of skylight and 6-inches above the roof plane.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking, or metal clips and that installation is within flatness tolerances.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provision has been made for flashings and penetrations through asphalt shingles.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 UNDERLAYMENT INSTALLATION

A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

B. Self-Adhering Sheet Underlayment: Install, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install at locations indicated on Drawings, lapped in direction to shed water. Lap sides not less than 3-1/2 inches. Lap ends not less than 6 inches staggered 24-inches between courses. Roll laps with roller. Cover underlayment within seven days.

3.03 METAL FLASHING INSTALLATION

A. General: Install metal flashings according to ARMA's "Residential Asphalt Roofing Manual" and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

B. Cricket Flashings: Install against the roof-penetrating element extending concealed flange beneath up slope asphalt shingles and beyond each side.

C. Rake Drip Edges: Install rake drip edge flashings over underlayment and fasten to roof deck.

D. Eave Drip Edges: Install eave drip edge flashings below underlayment and fasten to roof sheathing.

3.04 ASPHALT SHINGLE INSTALLATION

A. General: Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

B. Install starter strip along lowest roof edge, consisting of an asphalt shingle strip with tabs removed with self-sealing strip face up at roof edge.

1. Extend asphalt shingles 1/2-inch over fascia at eaves and rakes.
2. Install starter strip along rake edge.

C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.

D. Fasten asphalt shingle strips with a minimum of six roofing nails located according to manufacturer's written instructions.

1. Where roof slope exceeds 20:12, seal asphalt shingles with asphalt roofing cement spots after fastening with additional roofing nails.
2. Where roof slope is less than 4:12, seal asphalt shingles with asphalt roofing cement spots.
3. When ambient temperature during installation is below 50 degrees F, seal asphalt shingles with asphalt roofing cement spots.

E. Ridge Shingle: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.

1. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

3.05 ROOFING INSTALLER'S WARRANTY

A. WHEREAS <**Insert name**> of <**Insert address**>, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following Project:

1. Owner: **<Insert name of Owner>**
2. Address: **<Insert address>**
3. Building Name/Type: **<Insert information>**
4. Address: **<Insert address>**
5. Area of Work: **<Insert information>**
6. Acceptance Date: **<Insert date>**
7. Warranty Period: **<Insert date>**
8. Expiration Date: **<Insert date>**

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period.

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he shall, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a weathertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
   a. Lightning;
   b. Peak gust wind speed exceeding 110 mph;
   c. Fire;
   d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
   e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
   f. Vapor condensation on bottom of roofing; and
   g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty and is liable for consequential damages to building or building contents resulting from leaks or faults or defects of roofing work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of such alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said

work, shall have notified the Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.

5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed the **<Insert day>** day of **<Insert month>**, **<Insert year>.**

1. Authorized Signature: **<Insert signature>**
2. Name: **<Insert name>**
3. Title: **<Insert title>**

END OF ASPHALT SHINGLES

SECTION 07 46 23

WOOD SIDING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Wood Siding as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Clapboard siding

B. Related Work Specified Elsewhere:

1. SECTION 06 10 00: Rough Carpentry
2. SECTION 06 20 00: Finish Carpentry
3. SECTION 07 25 00: Weather Barriers
4. SECTION 09 93 00: Staining and Transparent Finishing

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product specified.

B. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 QUALITY ASSURANCE

A. Manufacturers Qualifications: Minimum 5 years' experience harvesting and milling forest products.

B. Installer Qualifications: Minimum 2 years' experience installing similar products.

C. Grading Agency Qualifications: An independent testing and inspecting agency recognized by authorities having jurisdiction as qualified to label siding for compliance with referenced grading rules.

1.04 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Store siding in a dry, well-ventilated, weathertight location according to manufacturer's written instructions.

1.05 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit siding installation and related work to be performed according to manufacturer's written instructions.

PART 2 – PRODUCTS

2.01 CLAPBOARD SIDING

A. General: Beveled wood clapboard siding

1. Species: White cedar or Pine
2. Pattern: Waney Edge Bevel
3. Grade: Rustic
4. Exposure: 8-inches to 10-inches
5. Finish: Plain Sawn, S4S
6. Moisture: Kiln-dried to approximately 12%
7. Edge: Square butt

B. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 ACCESSORIES

A. Flashing: Provide factory painted aluminum flashing at door heads and where indicated.

B. Fasteners:

1. For fastening wood, use stainless steel siding nails of sufficient length to penetrate a minimum of 1-inch into substrate.
2. For fastening aluminum flashings, use stainless steel or aluminum fasteners.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION, GENERAL

A. Comply with siding manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

B. Do not install damaged components.

3.03 CLAPBOARD SIDING INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Products shall have all butt and scarf joints sealed with a quality, exterior rated, flexible sealant prior to paint application. All non-trim/fascia abutments shall be sealed with the same exterior grade sealant.

C. Ends exposed due to post-manufacturing field cuts shall be sealed with a premium, 100% acrylic primer, to ensure that no fiber is left to the elements.

D. Use only corrosion resistant fasteners. Acceptable are stainless steel or hot-dipped galvanized nails; minimum size – 7 penny.

E. Joints shall fall over framing lumber and shall be double nailed. Siding boards of 10 inches or greater in width require 3 nails evenly spaced across the face of the board. Do not nail any less than 1/2-inch from any edge and fasten a minimum of 24-inches on center.

F. Drive nails perpendicular to the framing lumber and the wood trim product; drive nails flush with the products surface. Nails shall penetrate at least 1-1/4 inches into the structural framing.

3.04 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.

END OF WOOD SIDING

SECTION 07 92 00

JOINT SEALANTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Joint Sealants as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Silicone joint sealants.

1.02 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product specified, including Preparation instructions and recommendations

B. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer and testing agency.

B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

1.04 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

1.05 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within the limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. 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 degrees F.

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.

1.06 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.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Provide joint sealant products manufactured by Tremco, Inc., Commercial Sealants and Waterproofing Division, An RPM Company which is located in: Beachwood, OH, or comparable products by Dow Corning Corporation, Sika Corporation, Pecora Corporation, or approved equal.

B. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants and accessory materials that are compatible with one another, and with adjacent materials, as demonstrated by sealant manufacturer using ASTM C 1087 testing and related experience.

B. Joint Sealant Standard: Comply with ASTM C 920 and other specified requirements for each sealant.

2.03 SILICONE JOINT SEALANTS

A. Single-Component, Non-sag, Non-Staining, Neutral-Curing Silicone Joint Sealant **SJS #1**: ASTM C 920, Type S, Grade NS, Class 100/50, Use NT; SWRI validated.

1. Basis of Design Product: Spectrem 1 by Tremco
2. Volatile Organic Compound Content: 1 g/L maximum
3. Staining, ASTM C 1248: None on concrete, marble, granite, limestone, and brick.
4. Color: As selected by Architect from manufacturer's standard line of colors.

B. Mildew-Resistant, Single-Component, Acid-Curing Silicone Joint Sealant **SJS #2**: ASTM C 920, Type S, Grade NS, Class 25, Use NT.

1. Basis of Design Product: Tremsil 200 Sanitary by Tremco
2. Volatile Organic Compound Content: 1 g/L maximum

3. Staining, ASTM C 1248: None on concrete, marble, granite, limestone, and brick.
4. Color: As selected by Architect from manufacturer's standard line of colors.

2.04 SOLVENT-RELEASE-CURING JOINT SEALANTS

A. Butyl-Rubber-Based Joint Sealant **BJS #1**: ASTM C 1311.

1. Basis of Design Product: Tremco Butyl Sealant
2. Volatile Organic Compound (VOC) Content: 250 g/L maximum.
3. Color: As selected by Architect from manufacturer's standard line of colors.

2.05 JOINT SEALANT ACCESSORIES

A. Cylindrical Sealant Backing: ASTM C 1330, Type B non-absorbent, bi-cellular material with surface skin, or Type O open-cell polyurethane, as recommended by sealant manufacturer for application.

B. Bond Breaker Tape: Polymer tape compatible with joint sealant and adjacent materials and recommended by sealant manufacturer.

C. Joint Substrate Primers: Substrate primer recommended by sealant manufacturer for application.

D. Cleaners: Chemical cleaners acceptable to joint sealant manufacturer.

E. Masking Tape: Non-Staining, non-absorbent tape product compatible with joint sealants and adjacent surfaces.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine joint profiles and surfaces to determine if work is ready to receive joint sealants. Verify joint dimensions are adequate for development of sealant movement capability. Verify joint surfaces are clean, dry, and adequately cured. Proceed with joint sealant work once conditions meet sealant manufacturer's written recommendations.

3.02 PREPARATION

A. Joint Surface Cleaning: Clean joints prior to installing joint sealants using materials and methods recommended by sealant manufacturer. Comply with ASTM C 1193.

1. Remove curing compounds, laitance, form-release agents, dust, and other contaminants.
2. Clean nonporous and porous surfaces utilizing chemical cleaners acceptable to sealant manufacturer.
3. Protect elements surrounding the Work of this section from damage or disfiguration. Apply masking tape to adjacent surfaces when required to prevent damage to finishes from sealant installation.

3.03 SEALANT APPLICATION

A. Sealant and Primer Installation Standard: Comply with ASTM C 1193 and manufacturer's written instructions.

B. Joint Backing: Select joint backing materials recommended by sealant manufacturer as compatible with sealant and adjacent materials. Install backing material at depth required to produce profile of joint sealant allowing optimal sealant movement.
   1. Install joint backing to maintain the following joint ratios:
      a. Joints up to 1/2-inch wide: 1:1 width to depth ratio.
      b. Joints greater than 1/2-inch wide: 2:1 width to depth ratio; maximum 1/2-inch joint depth.
   2. Install bond breaker tape over substrates when sealant backings are not used.

C. Masking: Mask adjacent surfaces to prevent staining or damage by contact with sealant or primer.

D. Joint Priming: Prime joint substrates when recommended by sealant manufacturer or when indicated by preconstruction testing or experience. Apply recommended primer using sealant manufacturer's recommended application techniques.

E. Liquid Sealant Application: Install sealants using methods recommended by sealant manufacturer, in depths recommended for application. Apply in continuous operation from bottom to top of joint vertically and horizontally in a single direction. Apply using adequate pressure to fill and seal joint width.
   1. Tool sealants immediately with appropriately shaped tool to force sealants against joint backing and joint substrates, eliminating voids and ensuring full contact.
   2. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
   3. Tool exposed joint surface concave using tooling agents provided by sealant manufacturer for application.

F. Cleaning: Remove excess sealant using materials and methods approved by sealant manufacturer that will not damage joint substrate materials.
   1. Remove masking tape immediately after tooling joint without disturbing seal.
   2. Remove excess sealant from surfaces while still uncured.

3.04 EXTERIOR JOINT-SEALANT SCHEDULE

A. Exterior concealed watertight joints in cladding system: **SJS #1**
B. Exterior perimeter joints at frames of doors, windows, storefront frames, curtain wall frames, and louvers: **SJS #1**

3.05 INTERIOR JOINT-SEALANT SCHEDULE

A. Interior sanitary joints between plumbing fixtures, food preparation fixtures, and casework and adjacent walls, floors, and counters: **SJS #2**
B. Interior concealed sealants at thresholds and sills: **BJS #1**

END OF JOINT SEALANTS

SECTION 08 11 13

HOLLOW METAL DOORS AND FRAMES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Hollow Metal Doors and Frames as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Hollow metal doors
   b. Steel louvers in hollow metal doors

B. Related Work Specified Elsewhere:

1. SECTION 06 10 00: Rough Carpentry
2. SECTION 07 92 00: Joint Sealants
3. SECTION 08 71 00: Door Hardware
4. SECTION 09 91 00: Painting

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, core descriptions, fire-resistance ratings, temperature-rise ratings, and finishes.

B. Shop Drawings: Include the following:

1. Elevations of each door type.
2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
3. Locations of reinforcement and preparations for hardware.
4. Details of each different wall opening condition.
5. Details of anchorages, joints, field splices, and connections.
6. Details of accessories.
7. Details of moldings, removable stops, and glazing.

C. 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 final Door Hardware Schedule.

D. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of hollow-metal door and frame assembly, for tests performed by a qualified testing agency.

1.04 QUALITY ASSURANCE

A. Manufacturers Qualifications: Provide all products from a single manufacturer who is a member of the Steel Door Institute.

1.05 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and project-site storage. Do not use non-vented plastic.

C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

1.06 PROJECT CONDITIONS

A. Field Verification: The Contractor shall take all measurements, make all investigations, and in general provide field work and coordination as required to ensure the proper fit of all Work specified herein. Frames shall be sized, positioned, and installed in accordance with the design intent represented on the Drawings. The design intent shall not be modified due to the Contractor's failure to provide coordination or obtain properly fabricated materials. Such coordination shall be provided sufficiently in advance so as to avoid delays in the construction schedule.

B. It shall be the responsibility of the Contractor to coordinate frame thicknesses with each wall and partition type to ensure proper fit.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide products from Ceco Door Products; an Assa Abloy Group company, or comparable products by Steelcraft, Republic Doors and Frames, or approved equal.

B. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 EXTERIOR DOORS AND FRAMES

A. Construct exterior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as

specified. Door frames and doors shall be galvanized in wet locations, toilet rooms and as indicated. Minimum thickness of face sheet gauge is prior to galvanizing, where galvanizing is indicated.

B. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3: At all locations unless otherwise indicated.

1. Physical Performance: Level A according to SDI A250.4.
2. Doors:
   a. Type: As indicated in the Door Schedule.
   b. Thickness: 1-3/4 inches.
   c. Face: Metallic-coated steel sheet, minimum thickness of 0.053-inch, 16-gage face sheets with minimum A40 coating.
   d. Edge Construction: Model 2, Seamless.
   e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion providing a U factor of 0.26 and a minimum R-value of 3.75.
3. Frames:
   a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053-inch, with minimum A40 coating.
   b. Construction: Full profile welded with thermal break.
4. Exposed Finish: Prime

2.03 FRAME ANCHORS

A. Jamb Anchors:

1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042-inch thick.
2. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
3. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

2.04 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

2.05 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 metal thickness. 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. Hollow-Metal Doors:

1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026-inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6-inches apart. Spot weld sheets no more than 5-inches on center. Fill spaces between stiffeners with glass or mineral-fiber insulation.
2. Vertical Edges for Single-Acting Doors: Bevel edges 1/8-inch in 2-inches.
3. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets.
4. Bottom Edge Closures: Close bottom edges of doors with end closures or channels of same material as face sheets.
5. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.

C. Fabricate concealed stiffeners and edge channels from either cold or hot-rolled steel sheet.

D. Hardware Preparation: Factory prepare hollow-metal work to receive template mortised hardware; including cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive non-templated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

E. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with mitered hairline joints.

1. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
2. Provide loose stops and moldings on inside of hollow-metal work.
3. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

2.06 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead, and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.07 ACCESSORIES

A. Louvers: Provide louvers for doors, where indicated, which comply with SDI 111C, with blades or baffles formed of 0.020-inch thick, cold-rolled steel sheet set into 0.032-inch thick steel frame.

1. Sightproof Louver: Stationary louvers constructed with inverted-V or inverted-Y blades.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances 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. 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.

3.02 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 Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Steel Doors:
   a. Between Door and Frame Jambs and Head: 1/8-inch plus or minus 1/32-inch.
   b. Between Edges of Pairs of Doors: 1/8-inch to 1/4-inch plus or minus 1/32-inch.
   c. At Bottom of Door: 5/8-inch plus or minus 1/32-inch.
   d. Between Door Face and Stop: 1/16-inch to 1/8-inch plus or minus 1/32-inch.

3.03 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. 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.

C. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF HOLLOW METAL DOOR AND FRAMES

SECTION 08 71 00

DOOR HARDWARE

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Door Hardware as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Mechanical door hardware

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and Architectural Hardware Consultant.

B. Product Test Reports: For Compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.

C. Warranty: Special warranty specified in this Section.

1.04 QUALITY ASSURANCE

A. Accessibility Requirements: For door hardware on doors in an accessible route, comply with ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
2. Comply with the following maximum opening-force requirements:
   a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
   b. Sliding Doors: 5 lbf applied parallel to door at latch.
   c. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2-inch high.

4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from latch, measured to the leading edge of the door.

1.05 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Structural failures including excessive deflection, cracking, or breakage.
   b. Faulty operation of doors and door hardware.
   c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
2. Warranty Period: Ten years from date of Substantial Completion, unless otherwise indicated.

PART 2 – PRODUCTS

2.01 SCHEDULED DOOR HARDWARE

A. Provide door hardware for each door as scheduled on Drawings to comply with requirements in this Section.

1. Door Hardware Sets: Provide quantity, item, size, finish, or color indicated, and named manufacturer's products, unless otherwise noted.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 2 Articles following. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer's Products: Manufacturer and product designations are listed for each door hardware type required for the purpose of establishing minimum requirements.

2.02 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide products from Hager Companies which is located at: 139 Victor St., St. Louis, MO 63104, or comparable products by other manufacturers listed below.

B. The following manufacturers are approved subject to compliance with requirements, for the product categories listed:

1. Hinges: Hager, Stanley
2. Locks and Latches: Sargent, Schlage
3. Deadbolts: Sargent, Schlage
4. Closers: Hager, LCN, Sargent
5. Gasketing and Weatherstripping: Hager, National Guard

6. Thresholds: Hager, National Guard

2.03 HINGES

A. Hinges:

1. Butts and Hinges: ANSI/BHMA A156.1
2. Template Hinge Dimensions: ANSI/BHMA A156.7

B. Butt Hinges:

1. Hinge weight and size unless otherwise indicated in hardware sets:
   a. Doors from 36-inches wide up to 42-inches wide and up to 1-3/4 inches thick provide heavy weight-ball bearing hinges a minimum of 4-1/2 inches in height.
   b. Width of hinge is to be minimum required to clear surrounding trim.
2. Base material unless otherwise indicated in hardware sets:
   a. All Doors: 304 Stainless Steel.
   b. Stainless Steel ball bearing hinges shall have stainless steel ball bearings. Steel ball bearings are unacceptable.
3. Quantity of hinges per door unless otherwise stated in hardware sets:
   a. Doors 60-inches up to 90-inches in height provide 3 hinges.
4. Hinge design and options unless otherwise indicated in hardware sets:
   a. Hinges are to be of a square corner five-knuckle design, flat button tips and have ball bearings unless otherwise indicated in hardware sets.
   b. Out-swinging exterior and out-swinging access controlled doors shall have non-removable pins (NRP) to prevent removal of pin while door is in closed position.
5. Basis of Design Products: Hager BB1199 heavy weight, or Stanley FBB199 heavy weight

2.04 LOCKS AND LATCHES (MORTISE)

A. Locks and Latches (Mortise): ANSI/BHMA A156.13 Series 1000 Certified to Grade 1 for Operational and Security.

B. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets. Material and Design:

1. Lock cases from fully wrapped, 12 gauge steel, Zinc dichromate for corrosion resistance.
2. Non-handed, field reversible without opening lock case.
3. Break away spindles to prevent unlocking during forced entry or vandalism.
4. Levers are to be Zinc cast, Forged Brass or Stainless Steel and plated to match finish designation in hardware sets.
5. Sectional Roses are to be of solid Brass or Stainless Steel material and have a minimum diameter of 2-7/16 inches.
6. Escutcheons are to be of solid Brass or Stainless Steel material.
7. Armor fronts are to be self-adjusting to accommodate a square edge door or a standard 1/8-inch beveled door edge.

C. Latch and Strike:

1. Stainless Steel latch bolt with minimum of 3/4-inch throw and deadlocking for keyed and exterior functions.
2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4 inches by 4-7/8 inches with proper lip length to protect surrounding trim.
3. Deadbolts to be 1-3/4 inches total length with a minimum of a 1-inch throw and 3/4-inch internal engagement when fully extended and made of Stainless Steel material.

D. Basis of Design Products: Schlage L Series, Escutcheon Trim, or Sargent 8200 Series, Escutcheon Trim.

2.05 CYLINDERS AND KEYING

A. Cylinders: ANSI A156.5, Grade 1, 7-pin type removable cylinders. Small Format Interchangeable Cores (SFIC).
1. Shall be furnished with cams/tailpieces as required for locking device that is being furnished for project.

B. Keying: Keyed in like-groups.

C. Basis of Design Product: Schlage IC Cylinders, or Sargent 7300B Series

2.06 CLOSERS

A. Closers: BHMA Certified ANSI A156.4 Grade 1; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm.

B. Mounting:

1. Out swing doors shall have surface parallel arm mount closers except where noted on hardware schedule.
2. Provide brackets and shoe supports for aluminum doors and frames to mount fifth screw.

C. Basis of Design Products: Hager 5100 Series, LCN 4030 Series, or Sargent 351 Series

2.07 DOOR GASKETING AND WEATHERSTRIP

A. Door Gasketing and Edge Seal Systems: ANSI/BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

B. Basis of Design Products:

1. Weather Stripping: Hager 881S, or National Guard Products 700EN
2. Door Bottom Sweeps: Hager 750S, or National Guard Products 200NA

2.08 THRESHOLDS

A. Thresholds: ANSI/BHMA A156.21; fabricated to full width of opening and full depth of frame.

B. Basis of Design Products:

1. Saddle Threshold: Hager 413S, or National Guard Products 1/4-inch high Flat Saddle

2.09 SILENCERS

A. Silencers: ANSI/BHMA A156.16; Where smoke, light, or weather seals are not required, provide three silencers per single door frame, two per double door frame and four per dutch door frame.

2.10 FABRICATION

A. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.

B. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
2. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

2.11 FINISHES

A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.

B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.

1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30-inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

D. Lock Cylinders: Install construction cores to secure building and areas during construction period. Provide and install permanent cores and keying at Substantial Completion and test for smooth operation.

E. Thresholds: Set thresholds for exterior doors and other doors indicated in a full bed of sealant complying with requirements specified in Section 07 92 00 "Joint Sealants."

F. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

G. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.02 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

3.03 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

D. Leave manufacturer's protective film intact and provide proper protection for all other finish hardware items that do not have protective material from manufacturer until Architect accepts Project as complete.

3.04 HARDWARE SET SCHEDULE

A. Guide: Door hardware items have been placed in sets which are intended to be a guide of design, grade, quality, function, operation, performance, exposure, and like characteristics of door hardware, and may not be complete. Provide door hardware required to make each set complete and operational.

B. Hardware schedule does not reflect handing, backset, method of fastening and like characteristics of door hardware and door operation.

C. Review door hardware sets with door types, frames, sizes, and details on drawings. Verify suitability and adaptability of items specified in relation to details and surrounding conditions.

D. The following hardware sets list items of finish hardware required for each opening. The quantities of each type are the responsibility of the finish hardware supplier.

SET #1: Finish US26D
Locations: Pit Toilets

Qty.	Item	Description
3	Hinges	As specified
1	Deadbolt Lockset	Cylinder x Blank Rose
1	Mortise Lockset	Privacy function with Indicator (F22); "August" lever
1	Closer	As specified
1	Perimeter Gasketing	As specified
1	Door Sweep	As specified
1	Threshold	As specified

Notes: Door unlocked when not occupied and locked by thumbturn inside when in use. Turning thumbturn or closing door unlocks outside lever. Indicator to have green and red markings with "Vacant/Occupied" wording. Door always lockable from exterior to prevent public entry.

END OF DOOR HARDWARE

SECTION 09 91 00

PAINTING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Painting as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Painting and finishing of all interior and exterior exposed items and surfaces, and any other surfaces indicated on the Drawings or herein specified to receive paint. NOTE: Special attention shall be given to the proper priming of all sides and edges of all exterior wood to be painted.
   b. All necessary surface preparation and priming.
   c. Field testing compatibility of new paint with existing paint or finishes to be covered.
2. The painting subcontractor shall fully examine all Drawings and Specification Sections to determine scope of their provisions regarding painting and finishing. All surfaces that are primed or left unfinished by the requirements of other Sections of the Specifications shall be painted or finished as a part of this Section.

1.02 ACTION SUBMITTALS

A. Product Data: Provide a complete list of all products to be used, with the following information for each.

1. Manufacturer's name, product name and/or catalog number, and general product category.

B. Samples for Initial Selection: For each product specified, color chips indicating manufacturers full range of available colors and sheens.

C. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 INFORMATIONAL SUBMITTALS

A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years' experience.

B. Installer Qualifications: All products listed in this section are to be applied by a Painting Contractor with a minimum of five years demonstrated experience in surface preparation and field application of the same type and scope as specified.

1.04 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 solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

C. Store materials in an area that is within the acceptable temperature range per manufacturer's instructions. Protect from freezing.

1.05 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within the limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Do not apply paint in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide Sherwin-Williams Company products indicated or comparable product from one of the following:

1. Duron, Inc.
2. Benjamin Moore & Company
3. Pratt & Lambert
4. PPG Pittsburg Paints

B. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 MATERIALS, GENERAL

A. Paints and Coatings:

1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturers product instructions.
2. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color. Or follow manufacturers product instructions for optimal color conformance.

B. Compatibility: 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. 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 the Architect from manufacturer's full range.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared; notify Architect of unsatisfactory conditions before proceeding. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

B. Ensure that moisture-retaining substrates to receive paint have moisture content within tolerances allowed by coating manufacturer.

C. Examine surfaces to receive coatings for surface imperfections and contaminants that could impair performance or appearance of coatings, including but not limited to, loose primer, rust, scale, oil, grease, mildew, algae, or fungus, stains or marks, cracks, indentations, or abrasions.

D. Correct conditions that could impair performance or appearance of coatings in accordance with specified surface preparation procedures before proceeding with coating application.

3.02 SURFACE PREPARATION

A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.

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. Cleaning: Before applying paint or surface treatments, 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 system indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity or surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Metals, Shop-Primed: 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.

F. Metal, Galvanized: Remove grease and oil residue from galvanized metal to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

G. Wood:

1. Seal knots, pitch streaks, and sap areas with sealer recommended by coating manufacturer, fill nail recesses and cracks with filler recommended by coating manufacturer; sand surfaces smooth.
2. Remove mill marks and ink stamped grade marks.
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.

3.03 APPLICATION

A. Apply each coat to a uniform coating thickness in accordance with manufacturer's instructions, not exceeding manufacturer's specified maximum spread rate for indicated surface; thins, brush marks, roller marks, orange-peel, or other application imperfections are not permitted.

B. Allow manufacturer's specified drying time, and ensure correct coating adhesion, for each coat before applying next coat.

C. Inspect each coat before applying next coat; touch-up surface imperfections with coating material, feathering, and sanding if required; touch-up areas to achieve flat, uniform surface without surface defects visible from 5-feet.

D. Remove dust and other foreign materials from substrate immediately prior to applying each coat.

E. Where paint application abuts other materials or other coating color, terminate coating with a clean sharp termination line without coating overlap.

F. Where color changes occur between adjoining spaces through framed openings that are of the same color as adjoining surfaces, change color at outside stop corner nearest to face of closed door.

G. Re-prepare and re-coat unsatisfactory finishes; refinish entire area to corners or other natural terminations.

3.04 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 undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced surfaces.

3.05 PAINTING AND COATING SCHEDULE

A. Exterior Painting:

1. Hollow Metal Door and Vent Shroud Components:

- Prime Coat: Primer, water-based, anti-corrosive for metal: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, 5.0 to 10.0 mils wet, 2.0 to 4.0 mils dry.
- Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
- Topcoat: Light industrial coating, exterior, water based, gloss: S-W Pro Industrial Acrylic Gloss Coating, B66-600 Series, at 2.5 to 4.0 mils dry, per coat.

B. Interior Painting:

1. Concrete Floors (High-Performance):

- First Coat: S-W ArmorSeal 33 Epoxy Primer/Sealer, 8.0 mils DFT, per coat.
- Second Coat: Epoxy, matching topcoat.
- Topcoat: S-W ArmorSeal 1000 HS Epoxy B67-2000 Series with anti-slip aggregate, at 3.0 to 5.0 mils DFT, per coat.

2. Interior of Concrete Vault and Underside of Vault Top (High-Performance):

a. First Coat: S-W Kem Cati-Coat HS Epoxy Filler/Sealer (as required to fill voids and provide a continuous substrate), 10.0 to 20.0 mils DFT
b. Second Coat: Epoxy, matching topcoat
c. Topcoat: S-W Dura-Plate 235 B67-235 Series, at 4.0 to 8.0 mils DFT, per coat.

3. Wood:

- Prime Coat: Primer sealer, latex, interior: S-W PrepRite ProBlock Primer Sealer, B51-620 Series, at 4.0 mils wet, 1.4 mils dry
- Intermediate Coat: Latex, interior, matching topcoat
- Topcoat: Latex, interior, semi-gloss: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils wet, 1.6 mils dry, per coat.

END OF PAINTING

SECTION 09 93 00

STAINING AND TRANSPARENT FINISHING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Staining and Transparent Finishing as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Interior and exterior stains and clear finishes.
   b. All necessary surface preparation

B. Related Work Specified Elsewhere:

1. SECTION 06 20 00: Finish Carpentry
2. SECTION 07 46 23: Wood Siding

1.02 DEFINITIONS

A. Stains are available in a wide range of opacities from transparent stain that allow all the grain and texture to show to solid colors which mask all the grain but allow the texture to show. The following terms are used to describe the different opacities.

1. Transparent
2. Semi Transparent
3. Semi Solid
4. Solid Color

B. Varnishes and clear coats are available in a wide range of sheens or glosses, as measured by a gloss meter from a 60 degree angle from vertical, as a percentage of the amount of light that is reflected. The following terms are used to describe gloss levels.

1. Flat: 10 – 20 percent
2. Satin / Low Lustre: 20 – 35 percent
3. Semi-Gloss: 35 – 70 percent
4. Gloss: Over 70 percent

1.03 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 product indicated.

C. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.04 QUALITY ASSURANCE

A. Manufacturers Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years' experience.

B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum five years demonstrated experience in installing products of the same type and scope as specified.

1.05 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 degrees F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.06 PROJECT CONDITIONS

A. Apply finishes only when temperatures of surfaces to be finished and ambient air temperatures are between 50 and 95 degrees F.

B. Do not apply finishes when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.

C. Do not apply exterior finishes in snow, rain, fog, or mist.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide products from one of the following:

1. Benjamin Moore & Co.
2. Cabot
3. Minwax
4. PPG Architectural Coatings
5. Sherwin-Williams Company (The)

B. Products: Subject to compliance with requirements, provide product listed in wood finish systems schedule, or approved equal, for the product category indicated.

2.02 MATERIALS, GENERAL

A. Material Compatibility:

1. Provide materials for use within each finish 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 finish system, provide products recommended in writing by manufacturers of topcoat for use in finish system and on substrate indicated.

B. Stain Colors: As selected by Architect from manufacturer's full range.

2.03 MIXING AND TINTING

A. Except where specifically noted in this Section, all stain shall be ready-mixed and pre-tinted. Agitate all stain prior to and during application to ensure uniform color, gloss, and consistency.

B. Thinner addition shall not exceed manufacturer's printed recommendations. Do not use kerosene or other organic solvents to thin water-based paints.

PART 3 – EXECUTION

3.01 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 Wood Substrates: 15 percent, when measured with an electronic moisture meter.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with finish application only after unsatisfactory conditions have been corrected.

1. Beginning finish application constitutes Contractor's acceptance of substrates and conditions.

3.02 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.

1. After completing finishing operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Remove dust, dirt, oil, and grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.
2. Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer.

D. Exterior Wood Substrates:

1. Scrape and clean knots and apply coat of knot sealer before applying primer.
2. Prime edges, ends, faces, undersides, and backsides of wood.
   a. For solid hide stained wood, stain edges and ends after priming.
   b. For varnish coated stained wood, stain edges and ends and prime with varnish. Prime undersides and backsides with varnish.
3. Countersink steel nails, if used, and fill with putty or plastic wood filler tinted to final color. Sand smooth when dried.

E. Interior Wood Substrates:

1. Scrape and clean knots and apply coat of knot sealer before applying primer.
2. Apply wood filler paste to open-grain woods, as defined in "MPI Architectural Painting Specification Manual," to produce smooth glasslike finish.
3. Sand surfaces that will be exposed to view and dust off.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.03 APPLICATION

A. Apply finishes according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."

1. Use applicators and techniques suited for finish and substrate indicated.
2. Finish surfaces behind movable equipment and furniture same as similar exposed surfaces.
3. Do not apply finishes over labels or independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

3.04 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing finish application, clean spattered surfaces. Remove spattered materials by washing, scraping, or other methods. Do no scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from finish application. Correct damage 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 wood surfaces.

3.05 STAINING AND FINISHING SCHEDULE

A. Exterior Staining and Finishing:

1. Wood trim, casing, rakes, fascia, and siding:
   - Prime Coat: Primer, acrylic, exterior: Cabot Problem-Solver Acrylic primer #8022.
   - Intermediate Coat: Acrylic, exterior, matching topcoat.
   - Finish Coat: Acrylic, exterior: Cabot Solid Color Acrylic Siding Stain #800 Series.

B. Interior Staining and Finishing:

1. Clear Finish:
   - Prime Coat: Minwax, Helmsman Spar Urethane, Semi-gloss.
   - Intermediate Coat: Minwax, Helmsman Spar Urethane, Semi-gloss.
   - Topcoat: Minwax, Helmsman Spar Urethane, Semi-gloss.

END OF STAINING AND TRANSPARENT FINISHING

SECTION 10 14 00

SIGNAGE

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Signage as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
    a. Exterior Signage
    b. Accessories

1.02 ACTION SUBMITTALS

A. Product Data: Manufacturer's illustrated product literature and specifications to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

B. Shop Drawings: Submit shop drawings indicating sign style, lettering font, foreground and background colors, locations, and overall dimensions of each sign.

C. Selection Samples: For each finished product specified, a complete set of color chips representing manufacturer's full range of available colors and patterns.

D. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 QUALITY ASSURANCE

A. Manufacturers Qualifications: Company specializing in manufacturing Products specified in this Section with minimum three years documented experience.

B. ADA Accessibility Guidelines: Signage shall comply with the ADA Accessibility Guidelines where applicable. Characters and graphics, including but not limited to copy height, letter stroke, symbols, materials, and finishes indicated on the Drawings are intended as guidelines for compliance. Implement each applicable ADA Guideline. Should conflicts arise, notify the Architect before proceeding.

1.04 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Package signs, labeled in name groups.

1.05 WARRANTY

A. Manufacturer's Warranty: Signage is to be guaranteed for the life of the property against defects in materials and workmanship.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 THERMOFORM ACRYLIC SIGNS

A. Materials

1. 100% Post-Consumer Recycled ABS Plastic suitable for both interior and exterior applications.
2. Acrylic with a tensile strength that meets ASTM D638 and a flexural strength that meets ASTM D790. It shall have a self-ignition temperature that meets ASTM D1929 with a burn rate meeting ASTM D635 and measuring at D785 on the Rockwell Hardness scale. Suitable for both interior and exterior environments.
3. Decorative laminate and elements as requested.

B. Fabrication:

1. Thermoformed plate shall be laser or rotary cut for precise dimensions according to specifications.
2. Characters and pictograms shall be compression molded and raised 1/32" to meet ADA compliance regulations.
3. Raised text shall be in all capital letters and accompanied by corresponding Grade 2 Braille.

C. Signs:

1. Colors:
   a. Text and graphics as selected by Architect from manufacturer's standard range.
   b. Background as selected by Architect from manufacturer's standard range.
2. Sign sizes as shown on drawings for each sign type required.
3. Text Size: 5/8-inch minimum to 2-inch maximum based on a capital letter "I" spaced a minimum of 1/4-inch away from other lines.
4. Font to be selected by Architect from Manufacturer's standard styles.
5. Grade 2 Braille to accompany raised text. Braille to be a minimum of 3/8-inch away from all other raised elements and sign edges for ADA compliance.

6. Pictograms to be provided as required and accompanied by the International Symbol of Accessibility when necessary.
7. Back Plate Thickness: 1/8-inch minimum.
8. Corners: Radius
9. Edges: Straight
10. Texture: Smooth

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify walls are free of debris and ready for installation of signage prior to proceeding.

B. Notify Architect of unsatisfactory conditions before proceeding.

3.02 INSTALLATION

A. Signs to be installed 60-inches above finished floor to baseline of highest tactile copy maximum, and 48-inches above finished floor to baseline of lowest tactile copy minimum.

B. Signs shall be located on the latch side of doors. Center of signs to be located 9-inches minimum from side of door. Coordinate locations of signs with Architect. Where there is insufficient wall space, signs will be installed on nearest adjacent wall.

C. Signs to be installed level and plumb.

D. Exterior signs to be mounted using minimum 4 stainless steel screws, drilled, and countersunk at sign corners.

3.03 CLEANING AND PROTECTION

A. Clean signs in accordance with manufacturer's written instructions.

B. Protect installed products until completion of project.

C. Signs shall be free of glue, fingerprints, dirt, grease, and any other imperfections.

D. Touch-up, repair or replace damaged products before Substantial Completion.

3.04 SIGN SCHEDULE

A. Each pit toilet shall be provided with a uni-sex "Restroom" sign with the symbol of accessibility.

END OF SIGNAGE

SECTION 26 00 00

ELECTRICAL

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Electrical systems as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
    a. Delegated Design of a complete operational Electrical system
    b. Equipment Mounting and Support
    c. Grounding
    d. Panelboards
    e. Wiring in Conduit
    f. Conductors
    g. Wiring Devices
    h. Pull Boxes and Junction Boxes
    i. Nameplates
    j. Outlets
    k. Lighting Fixtures and Lamps

B. The information shown on the Drawings is diagrammatic and is intended to convey the scope of work and general arrangements of systems and equipment. It is the intent of contract documents to call for complete, finished work, fully tested and ready for continuous operation. Basic design concepts must be followed or bettered. The Contractor shall be responsible for coordinating and designing a complete and functional system.

C. Any apparatus, appliance, material or work not shown on the drawings by mention or reference in the specifications, or incidental accessories necessary to make the work complete and acceptable in all respects and ready for operation shall be furnished, delivered, and installed under this section of the specifications without additional expense to the Owner.

D. Coordinate utility service work with local utility companies, general contractor, building conditions and site conditions prior to installation. Provide advance coordination as required for timely connections of temporary and permanent services. Contact utility companies prior to submission of bid. Include all utility fees and costs related to this project in bid.

1.02 ACTION SUBMITTALS

A. Product Data: For all products, equipment, and materials.

B. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 QUALITY ASSURANCE

A. All material and equipment shall bear a certification of a national certifying organization such as Underwriters Laboratory or Factory Mutual and be installed according to the National Electric Code, local rules and regulations and all other codes and standards listed elsewhere in these Specifications or on the Drawings.

B. Execute work in a neat and workmanlike manner in conformance with best modern trade practice, (i.e., IEEE, NEC, ANSI, NFPA, NEMA) by competent, experienced, licensed electricians, presenting a neat appearance when completed. Replace work not approved by Owner's Representative without additional charge.

1.04 DELIVERY, STORAGE AND HANDLING

A. All materials and related accessories shall be delivered and stored in strict compliance with the manufacturer's instructions.

B. Materials shall be delivered to the site in the original sealed containers or packages bearing the manufacturer's name and brand designation. All materials shall be stored in a clean, well-ventilated, warm area. Care shall be exercised in handling materials during delivery, storage, and installation.

1.05 CODES AND STANDARDS

A. The complete installation shall comply with the New Hampshire State Building Code, NFPA and other applicable rules and regulations prescribed by the authority having jurisdiction.

PART 2 – PRODUCTS

2.01 MATERIALS, GENERAL

A. Unless otherwise indicated, the materials to be furnished under this Section shall be the standard products of manufacturers regularly engaged in the production of such equipment and shall be the manufacturers latest standard design that complies with the Specification requirements.

B. Source Limitation: Obtain products from a single source from a single manufacturer.

2.02 EQUIPMENT MOUNTING AND SUPPORTS

A. Provide all supports including supplementary steel channels, chains, rods, and guys required for the proper installation, mounting and support of all equipment.

B. Supports shall be firmly attached to building structural elements and constructed in an approved manner. Continuously threaded rods less than 3/8-inch in diameter, tie wire, or metal straps are not approved.

C. Except as otherwise required by the Contract Documents the type and size of supports shall be as determined by the Contractor and shall be of sufficient strength and size to allow only a

minimum deflection as required by codes or standards and support the manufacturer's requirements for loading.

D. Inform all parties as to the location, size, details, and method of attachment of supports and the weight which support is to carry, so that the installation may be coordinated.

E. Supports shall be installed in a neat and workmanlike manner, perpendicular or parallel to walls, floor, columns, beams, or ceiling.

2.03 GROUNDING

A. Furnish and install grounding systems conforming to IEEE std. 142 and 241. Comply with requirements of NEC, Article 250 pertaining to electrical grounding system. Comply with applicable requirements of U.L. Standards numbers 467 and 869 pertaining to electrical grounding and bonding. Provide grounding products which are U.L. listed and labeled.

B. Provide electrical grounding systems required including but not limited to cables, wires, connectors, terminals (solderless lugs), grounding rods/electrodes, plate electrodes, bonding jumper braid, surge arrestors, and additional accessories needed for complete installation.

C. Provide electrical bonding plates, connectors, terminals, lugs, and clamps as recommended by manufacturer for required applications.

D. Ground rods shall be solid copper 5/8-inch diameter and 10-feet long.

E. Upon completion of installation of electrical grounding systems, test ground resistance. Where tests show resistance to ground is over 3 ohms take appropriate action to reduce resistance to 3 ohms or less by driving additional ground rods and/or by chemically treating soil encircling ground rod. Then retest to demonstrate compliance.

F. All feeders, sub-feeders, lighting branch circuits and all receptacle circuits shall contain a grounding conductor of minimum No. 12 copper with green insulation.

G. Grounding terminal on receptacles shall be bonded to outlet box with grounding conductor to establish grounding continuity.

H. Flexible conduit and electric metallic tubing feeder raceways shall include grounding conductor.

I. Grounding conductors shall be stranded copper wire with THHN green insulation.

J. Grounding bushings shall be provided for all raceways.

2.04 PANELBOARDS

A. Panelboard cabinets shall be of the dead-front or safety type, provided with the size and number of single, double, or triple pole branches required. Cabinets shall be constructed of zinc coated steel and shall conform to Underwriters Laboratories, Inc. Standard for Cabinets and Boxes. Cabinet height shall not exceed 72-inches and shall be mounted so that the distance from the floor to center of the top circuit breaker will not exceed 72-inches. Cabinets shall be provided

with trims having adjustable trim clamps. Trims shall be fitted with hinged doors. A typed directory shall be mounted in each frame.

B. Panelboards shall be surface mounted with branch circuit breakers and main breaker as required.

C. Panel with main breaker shall be Cutler Hammer, “BR Load Center” or approved equal. Panel shall accommodate a single phase, 100 amp service and have space for minimum 20 circuits.

D. All branch circuit breakers installed in the panels shall have a minimum short circuit rating as indicated on the panel diagram. Provide factory-assembled molded case circuit breakers of frame size required. Provide breakers with permanent thermal and instantaneous magnetic trips in each pole and with 10,000 AIC minimum fault current limiting protection and ampere rating as required. Construct with over center, trip free, toggle type operating mechanisms with quick make, quick break actions and positive handle trip indication. Provide breaker with mechanical screw type removable connector lugs, AL/CU rated.

E. At indicated circuits provide circuit breaker with integral ground fault interrupter with 5 milliamperes ground fault trip level.

2.05 WIRING IN CONDUIT

A. Type MC (metal clad cable) shall be used for branch circuits including power, lighting, and control per NEC.

B. Electrical metallic tubing (EMT) shall be used for all feeders and empty conduit systems. EMT may be used for branch circuits including power, lighting, and control per NEC. EMT shall not be used where subject to water or moisture conditions. Threadless couplings and connectors used with EMT shall be made up tight. Minimum size of conduit to be 3/4-inch.

C. Connections to portable equipment from junction boxes and conduit termination to motors shall be made with liquid-tight flexible metal conduit, finished black or grey to match equipment. Flexible connections shall be maximum of 18-inches long with grounding conductor.

2.06 CONDUCTORS

A. All conductors installed in raceway shall be insulated, type THW or THWN, 600-volt service, within building and for secondaries. All such wiring shall be color coded. Conductors with higher insulation temperature ratings shall be provided as required.

B. Conductor and conduit sizes shown on the drawings are based on copper conductors with THW insulation, unless otherwise noted.

C. Joints and splices shall be made in a manner equivalent electrically and mechanically to the conductor itself. Connections shall be of the compression type.

D. Where receptacles or convenience outlets are specified to serve equipment, furnish, install, and connect approved flexible cable and cap to equipment.

E. Make all final connections, flexible or fixed as required, to all equipment shown requiring final electrical connections.

F. Wire, conductors, and cable shall be as manufactured by General Electric Company, Southwire, General Cable Corporation or approved equal.

2.07 WIRING DEVICES

A. Switches, receptacles, and other utilization devices shall be as manufacture by Leviton, General Electric, Hubbell or approved equal. Symbols and nomenclature are that of Leviton. Switches shall have a minimum rating of 20 amperes.

B. All receptacles and switches shall have a grounding pole and grounding terminal, which shall be connected to the outlet box with grounding conductor to establish grounding continuity.

C. Verify mounting height of all devices prior to roughing.

D. Provide heavy-duty duplex receptacles, 2 pole, 3 wire grounding, 20 amperes, 125 volts, with metal plaster ears, back and side wiring, NEMA configuration 5-20R.

E. Provide device plates for all devices, switches, and receptacles and miscellaneous outlets. Plates shall be stainless steel with ganging and cut-outs appropriate to the indicated circuiting.

2.08 PULL BOXES AND JUNCTION BOXES

A. Pull boxes and junction boxes shall be of code gauge galvanized steel with screw covers to match, as required and shall be as shown on the Drawings.

B. Conductors passing through pull boxes shall be identified to indicate their origin and termination.

C. Pull and junction boxes and covers shall be for indoor use, except provide other types as required because of location.

D. Covers shall not be installed until installation has been observed. Provide nameplate on cover.

2.09 NAMEPLATES

A. Provide nameplates for panelboards, switch panels, relays, empty raceways, contactors, pull boxes, junction boxes, motor disconnect switches, and remote switches designating equipment controlled and function.

2.10 OUTLETS

A. Outlets shall be centered in panels and the spaces provided therefore.

B. Where outlets of any system occur, provide suitable boxes and conduit so that they may be built in as the work progresses. Box offsets shall be made at all outlets to provide proper adjustment to structural finish.

C. Receptacle outlet boxes shall have factory installed grounding conductor which shall be connected to receptacle grounding terminal.

D. Fixture outlet boxes shall have 3/8-inch solid male fixture studs.

E. Raised covers in open frame construction where no other finish is to be applied, shall have 90-degree corners and edges. Boxes in wall panel finish shall have raised stainless steel covers with rounded edges and corners.

F. Exposed outlet boxes shall have threaded conduit hubs.

2.11 LIGHTING FIXTURES AND LAMPS

A. Fixtures shall be complete with all accessories, such as close nipples, extension couplings, connecting straps, screws, locknuts, hickies and plaster rings, to provide complete fixture installation for use with any type of standard outlet or switch box. Special fittings required to support fixtures shall be supplied.

B. Fixture Schedule: As indicated on Drawings.

PART 3 – EXECUTION

3.01 OUTLETS

A. Each outlet in a wiring or raceway system shall be provided with an outlet box to suit the conditions encountered. Each box shall have sufficient volume to accommodate the number of conductors entering the box in accordance with the requirements of the National Electric Code. Boxes shall not be less than 1-1/2 inches deep unless shallower boxes are required by structural conditions and are specifically approved.

B. Ceiling and bracket outlet boxes shall be not less than 4-inches except smaller boxes may be used where required by the particular fixture to be installed. Boxes shall be installed in a rigid and satisfactory manner and shall be fastened directly with wood screws on wood; bolts and expansion shield on concrete or brick; toggle bolts on hollow masonry units and machine screws or welded threaded studs on steel work. Threaded studs driven in by a powder charge and provided with lock washers and nuts are acceptable in lieu of wood screws, expansion shields or machine screws if permitted by local authorities.

3.02 FIXTURES

A. All fixtures shall be supported by building structural elements independent of furred or suspended ceilings.

B. The minimum number of supports for surface mounted or suspended fixtures shall equal one for each 48-inches of length plus one additional support. Additional supports shall be provided if required.

END OF ELECTRICAL

SECTION 31 10 00

SITE CLEARING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Site Clearing as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
    a. Protecting existing vegetation to remain.
    b. Removing existing vegetation.
    c. Clearing and grubbing.
    d. Stripping and stockpiling topsoil.
    e. Temporary erosion and sedimentation-control measures.

1.02 DEFINITIONS

A. Subsoil: All soil beneath the topsoil layer of the soil profile and typified by the lack of organic matter and soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2-inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other non-soil materials.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.

E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.

F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.03 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner’s property, cleared materials shall become Contractor’s property and shall be removed from project site.

1.04 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify Dig Safe System for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion and sedimentation-control measures are in place.

D. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

E. Do not direct vehicle or equipment exhaust towards protection zones.

F. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

G. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 31 20 00 “Earth Moving.”

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 – EXECUTION

3.01 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain. Flag each tree trunk at 54-inches above the ground.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.02 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.03 TREE AND PLANT PROTECTION

A. General: Protect trees and plants remaining on-site.

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.04 EXISTING UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed.

1. Owner will arrange to shut off indicated utilities when requested by Contractor.

C. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

D. Excavate for and remove underground utilities indicated to be removed.

E. Removal of underground utilities is included in earthwork sections and with applicable fire suppression, plumbing, HVAC, electrical, communications, electronic safety and security and utilities sections.

3.05 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Remove stumps.
3. Use only hand methods for grubbing within protection zones.
4. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8-inches and compact each layer to a density equal to adjacent original ground.

3.06 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6-inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and non-soil materials from topsoil, including clay lumps, gravel, and other objects more than 2-inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 72-inches.
2. Do not stockpile topsoil within protection zone.
3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled and reused.
4. Stockpile surplus topsoil to allow for re-spreading deeper topsoil.

3.07 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner’s property.

B. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SITE CLEARING

SECTION 31 20 00

EARTH MOVING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Earth Moving as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Preparing subgrades for walks, pavements, turf and grasses and plants.
   b. Excavating and backfilling for structures.
   c. Subbase course and base course for asphalt paving.

B. Related Work Specified Elsewhere:

1. SECTION 31 10 00: Site Clearing
2. SECTION 32 92 00: Turf and Grasses

1.02 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in Work.

2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders or rock material that exceed 1 cu. yd. for footing, trench and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Excavation of Footings, Trenches, and Pits: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch wide, maximum, short-tip-radius rock bucket; rated at not less than 138-hp flywheel power with bucket-curling force of not less than 28,700 lbf and stick-crowd force of not less than 18,400 lbf with extra-long reach boom; measured according to SAE J-1179.

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

J. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between subgrade and a concrete pavement or a concrete or hot-mix asphalt walk.

K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.03 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.
2. Laboratory compaction curve according to ASTM D 1557.

1.04 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.

1.05 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify “Dig Safe System” for area where Project is located before beginning earth moving operations.

C. Do not commence earth moving operations until temporary erosion and sedimentation-control measures, specified in Section 31 10 00 “Site Clearing,” are in place.

D. Do not commence earth moving operations until plant-protection measures specified, are in place.

E. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

F. Do not direct vehicle or equipment exhaust towards protection zones.

G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 – PRODUCTS

2.01 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups A-1, A-2-4, A-2-5, and A-3 according to AASHTO M 145, or a combination of these groups; free of rock or gravel larger than 3-inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: NHDOT Item 304.2.

E. Base Course: NHDOT Item 304.3.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2 inch sieve and not more than 12 percent passing a No. 200 sieve.

G. Drainage Course: Narrowly graded mixture of crushed stone or crushed and uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2 inch sieve and 0 to 5 percent passing a No. 8 sieve.

H. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.

I. Sand: ASTM C 33; fine aggregate.

J. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

PART 3 – EXECUTION

3.01 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Protect and maintain erosion and sedimentation controls during earth moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.02 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.03 EXCAVATION, GENERAL

A. Unclassified Excavations: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil

materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:
    a. 24-inches outside of concrete forms other than at footings.
    b. 12-inches outside of concrete forms at footings.
    c. 6-inches outside of minimum required dimensions of concrete cast against grade.
    d. 6-inches beneath bottom of concrete slabs-on-grade.
    e. 6-inches beneath pipe in trenches, and the greater of 24-inches wider than pipe or 42-inches.

3.04 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1-inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

3.05 EXCAVATION FOR PAVEMENTS

A. Excavate surfaces under pavements to indicated lines, cross sections, elevations, and subgrades.

3.06 SUBGRADE INSPECTION

A. Notify Architect when excavations have reached required subgrade.

B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below pavements with a pneumatic-tired and loaded 10-wheel, tandem axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 30 mph.
2. Excavate soft spots, unsatisfactory soils, and areas of excessive bumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

D. Authorize additional excavation and replacement material that will be paid for according to Contract provisions for changes in the Work.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.07 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.08 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for record Documents.
3. Testing and inspecting of underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.09 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.10 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.11 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8-inches in loose depth for material compacted by heavy compaction equipment, and not more than 4-inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to AASHTO T 191, AASHTO T 310:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12-inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under turf or unpaved areas, scarify and recompact top 6-inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.

3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Turf or Unpaved Areas: Plus or minus 1-inch.
2. Walks: Plus or minus 1-inch.
3. Pavements: Plus or minus 1/2-inch.

3.13 SUBBASE AND BASE COURSES UNDER PAVEMENTS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements as follows:

1. Place base course material over subbase course under hot-mix asphalt pavement.
2. Shape subbase course and base course to required crown elevations and cross-slope grades.
3. Place subbase course and base course 6-inches or less in compacted thickness in a single layer.
4. Place subbase and base course that exceeds 6-inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6-inches thick or less than 3-inches thick.
5. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to AASHTO T 191, AASHTO T 310.

C. Pavement Shoulders: Place shoulders along edges of subbase course and base course to prevent lateral movement. Construct shoulders, at least 12-inches wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to AASHTO T 191, AASHTO T 310.

3.14 FIELD QUALITY CONTROL

A. Special Inspections: Engage a qualified special inspector to perform the following special inspections:

1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
2. Determine that fill material and maximum lift thickness comply with requirements.
3. Determine, at the required frequency, that in-place density of compacted fill complies with requirements.

B. Testing Agency: Engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

D. Testing agency will test compaction of soils in place according to AASHTO T 191, AASHTO T 310, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify, and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.15 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Architect.

1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF EARTH MOVING

SECTION 32 12 16

ASPHALT PAVING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Asphalt Paving as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Hot-mix asphalt paving

B. Related Work Specified Elsewhere:

1. SECTION 31 10 00: Site Clearing
2. SECTION 31 20 00: Earth Moving

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include technical data and tested physical and performance properties.
2. Job-Mix Designs: For each job mix proposed for the Work.

B. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each paving material. Include statement that mixes containing recycled materials will perform equal to mixes produced from all new materials.

B. Material Test Reports: For each paving material, by a qualified testing agency.

1.04 QUALITY ASSURANCE

A. Manufacturers Qualifications: A paving-mix manufacturer registered with and approved by NHDOT.

B. Test Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.

C. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of NHDOT for asphalt paving work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.05 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:

1. Prime Coat: Minimum surface temperature of 60 deg F.
2. Tack Coat: Minimum surface temperature of 60 deg F.
3. Slurry Coat: Comply with weather limitations in ASTM D 3910.
4. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
5. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

PART 2 – PRODUCTS

2.01 AGGREGATES

A. General: Use materials and gradations that have performed satisfactorily in previous installations.

B. Coarse Aggregate: NHDOT 3/4 inch Binder Mix, per Section 401, Table 2; crushed stone or crushed gravel and shall have a percentage of wear per AASHTO T96 of not more than 45%.

C. Fine Aggregate: NHDOT 1/2 inch Wearing Mix, per Section 401, Table 2; sound durable particles of sand, crushed stone, or a combination thereof. Fine aggregate shall be free from clay balls and injurious amounts of organic matter.

1. For hot-mix asphalt, limit natural sand to a maximum of 10 percent by weight of the total aggregate mass.

D. Mineral Filler: AASHTO M 17, except that 100% shall pass the No. 16 sieve, waiving the requirement for the No. 30 sieve.

2.02 ASPHALT MATERIALS

A. Asphalt Binder: AASHTO M 320, PG 64-22.

B. Tack Coat: AASHTO M 140 emulsified asphalt, or AASHTO M 208 cationic emulsified asphalt, slow setting, diluted water, or suitable grade and consistency for application.

C. Water: Potable.

2.03 AUXILIARY MATERIALS

A. Sand: AASHTO M 29, Grade No. 2 or No. 3.

2.04 MIXES

A. Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes; approved by NHDOT and complying with the following requirements:

1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
2. Base Course: 3/4 inch binder mix (NHDOT section 401, Table 2).
3. Surface Course: 1/2 inch wearing mix (NHDOT section 401, Table 2).

PART 3 – EXECUTION

3.01 SURFACE PREPARATION

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction. Limit vehicle speed to 3 mph.
2. Proof roll with a loaded 10-wheel, tandem axle dump truck weighing not less than 15 tons.
3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

C. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.02 PLACING HOT-MIX ASPHALT

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
2. Place hot-mix asphalt course in a single lift.
3. Spread mix at a minimum temperature of 260 deg F.
4. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips or a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches from strip to strip to ensure proper compaction of mix along longitudinal joints.
2. Complete a section of asphalt base course before placing asphalt surface course.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.03 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."
5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
6. Compact asphalt joints to a density within 2 percent of specified course density.

3.04 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F.

B. Breakdown Rolling: Complete breakdown rolling or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent or greater than 96 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges or pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.05 INSTALLATION TOLERANCES

A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Base Course: Plus or minus 1/4 inch.
2. Surface Course: Plus 1/4 inch, no minus.

B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

1. Base Course: 1/4 inch.
2. Surface Course: 1/8 inch.
3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

END OF ASPHALT PAVING

SECTION 32 17 23

PAVEMENT MARKINGS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Pavement Markings as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Painted markings applied to asphalt pavement

B. Related Work Specified Elsewhere:

1. SECTION 32 12 16: Asphalt Paving

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include technical data and tested physical and performance properties.

B. Build America, Buy America Certification: Made on manufacturers' standard compliance form or on the Product/Material Compliance Form in Section 00 73 13 "Build America, Buy America Requirements," certifying that all iron and steel, manufactured products, and construction materials specified in this section meet the requirements of the Build America, Buy America Act.

1.03 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of the NHDOT Standard Specifications for Road and Bridge Construction for pavement-marking work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.04 PROJECT CONDITIONS

A. Environmental Limitations: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 55 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 – PRODUCTS

2.01 PAVEMENT-MARKING PAINT

A. Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952, Type II, with drying time of less than three minutes.

1. Color: As selected by Architect.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that pavement is dry and in suitable condition to begin pavement marking according to manufacturer's written instructions.

B. Proceed with pavement marking only after unsatisfactory conditions have been corrected.

3.02 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

B. Allow paving to age for a minimum of 3 days before starting pavement marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to pavement. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.

3.03 PROTECTING AND CLEANING

A. Protect pavement markings from damage and wear during remainder of construction period.

B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF PAVEMENT MARKINGS

SECTION 32 92 00

TURF AND GRASSES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment, services, etc. required to furnish and install all Turf and Grasses as indicated on the Drawings, Specified herein, or otherwise required for a complete and proper job.

1. The Work shall include, but shall not necessarily be limited to:
   a. Hydroseeding
   b. Erosion-control materials

B. Related Work Specified Elsewhere:

1. SECTION 31 20 00: Earth Moving

1.02 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.03 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer.

B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

C. Product Certificates: For fertilizers, from manufacturer.

D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.

1.05 DELIVERY, STORAGE AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with State and Federal laws, as applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways, and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

1.06 PROJECT CONDITIONS

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

1. Spring Planting
2. Fall Planting

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 – PRODUCTS

2.01 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species:

1. Quality: Seed of grass species as listed below for solar exposure, with not less than 85 percent germination, not less than 95 percent pure seed and not more than 1 percent weed seed:

C. Grass-Seed Mix: Proprietary seed mix as follows:

1. Creeping red fescue: 175 lbs./acre
2. Kentucky bluegrass: 25 lbs./acre
3. Perennial ryegrass: 50 lbs./acre

2.02 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium.

2.03 MULCHES

A. Hay Mulch: Provide air-dry, clean, mildew and seed-free, hay.

B. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

2.04 EROSION-CONTROL MATERIALS

A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6-inches long.

B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb./sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6-inches long.

C. Erosion-Control Mats: Cellular, nonbiodegradable slope-stabilization mats designed to isolate and contain small areas of soil over steeply sloped surface, or 3-inch nominal mat thickness. Include manufacturer's recommended anchorage system for slope conditions.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
3. Uniformly moisten excessively dry soil that is not workable, or which is dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.02 PREPARATION

A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.03 PREPARATION FOR EROSION-CONTROL MATERIALS

A. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.

B. Fill cells of erosion-control mat with planting soil and compact before planting.

C. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.

D. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.04 HYDROSEEDING

A. Hydroseeding: Mix specified seed, commercial fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with fiber-mulch manufacturer’s recommended tackifier.
2. Spray-apply slurry uniformly in all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500 lb./acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

3.05 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Architect:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5-inches.

B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

3.06 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

D. Remove nondegradable erosion-control measures after grass establishment period.

END OF TURF AND GRASSES