PROJECT MANUAL

REID 119 TOILET RENOVATION

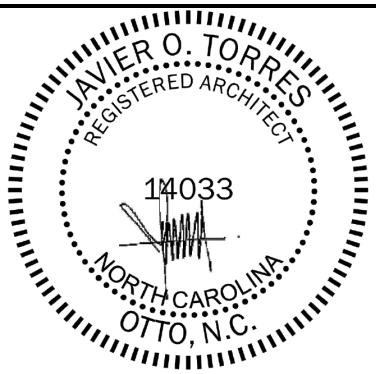
WESTERN CAROLINA UNIVERSITY
CULLOWHEE, NORTH CAROLINA

SCO ID NO.: 23-26576-01A

WESTERN CAROLINA UNIVERSITY – FACILITIES MANAGEMENT

November 29, 2023

VOLUME 1 OF 1

ARCHITECT	Javier O. Torres N.C. License # 14033 2140 Middle Creek Road Otto, NC 28763 Phone: (828) 332-8707	 11/29/23
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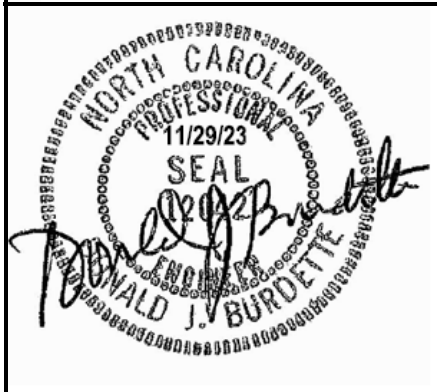
ELECTRICAL	Donald J. Burdette License # 12042 BURDETTE ENGINEERING, INC. 200 Regent Park Court Greenville, SC 29607 Phone: (864) 297-8717	

ADVERTISEMENT TO BID

Sealed bids for construction of the **REID GYMNASIUM – REID 119 TOILET ROOM RENOVATION**, will be received in person, via regular mail by U.S. Postal Service, or via special courier service at **Western Carolina University - Facilities Management, 3476 Old Cullowhee Road, Cullowhee, NC 28723 in the Facilities Management Conference Room** until but no later than **3:00 p.m.**, local prevailing time **February 1, 2024,** and then publicly opened and read immediately thereafter.

Each proposal shall be accompanied by a cash deposit or a certified check drawn on some bank or trust company, insured by the Federal Deposit Insurance Corporation, of an amount equal to not less than five percent (5%) of the proposal, or in lieu thereof a bidder may offer a bid bond of five percent (5%) of the bid executed by a surety company licensed under the laws of North Carolina to execute the contract in accordance with the bid bond. Said deposit shall be retained by the Owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten (10) days after the award or to give satisfactory surety as required by law.

Complete plans, specifications and contract documents may be obtained by visiting Western Carolina University's 'Project Solicitations' webpage found at:

https://www.wcu.edu/discover/campus-services-and-operations/facilities-management/facilities-planning-design-and-construction/project-solicitations.aspx

END OF ADVERTISEMENT TO BID

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STATE OF NORTH CAROLINA
STANDARD FORM OF INFORMAL CONTRACT
AND GENERAL CONDITIONS

FOR

REID GYMNASIUM - REID119 TOILET ROOM RENOVATION
Western Carolina University – Cullowhee, NC
SCO ID No.: 23-26576-01A

SCOPE OF WORK
Project consists of the renovation of existing Toilet Room located on the First-Floor Level of the REID Gymnasium located at 194 Memorial Dr, Cullowhee, NC 28723. Scope involves the removal and replacement of all interior finishes to include existing floor and wall tile and related transitions, plumbing and lighting fixtures. Two new thru-roof exhaust fans using existing roof penetrations are also required. Access to roof is available via exterior wall ladder on building's rear access road.

PRE-BID MEETING
A non-mandatory Pre-Bid meeting is scheduled for **Thursday, January 11th, 2024, at 3:00 pm** with a site tour immediately following. Meeting held at the location below:

Western Carolina University - Facilities Management
3476 Old Cullowhee Road
Cullowhee, NC 28723
Facilities Management Conference Room

NOTICE TO BIDDERS

Sealed bid for this work will be received by:

Javier Torres, AIA, NCARB, CDT, LEED AP
University Architect
Western Carolina University - Facilities Management
3476 Old Cullowhee Road
Cullowhee, NC 28723
Facilities Management Conference Room

up to **3:00 PM**, on **Thursday, February 1, 2024**, and immediately thereafter publicly opened and read aloud.

Complete plans and specification and contract documents may be obtained by visiting Western Carolina University's 'Project Solicitations' webpage found at:

https://www.wcu.edu/discover/campus-services-and-operations/facilities-management/facilities-planning-design-and-construction/project-solicitations.aspx

Addenda for the Project will be posted to the above listed website.

Submit the following information to WCU Facilities Management by email: jtorres@wcu.edu

ATTN: Javier Torres, AIA
Company Name:
Address:
Phone/ Fax Number:
Email Address:
Contact Person:

Refer to the Instructions to Bidders for bidding procedures and requirements. Any questions relating to the Bidding Documents shall be directed to the University Architect at jtorres@wcu.edu. Deadline to submit any questions to the University Architect is **Friday, January 26, 2024, by 5pm**. Responses will be issued as an Addendum 5 days prior to bid date.

Contractors are hereby notified that they must have proper license under the State laws governing their respective trades and that North Carolina General Statute 87 will be observed in receiving and awarding contracts. General Contractors must have general license classification for **GENERAL CONTRACTOR**.

No bid may be withdrawn after the opening of bids for a period of 30 days. The Owner reserves the right to reject any or all bids and waive informalities. Bids shall be made only on the BID/ACEPTANCE form provided herein with all blank spaces for bids properly filled in and all signatures properly executed.

Please note on the envelope:

Bid: Attn: Javier Torres, AIA, NCARB, CDT, LEED AP
University Architect
Western Carolina University
REID GYMNASIUM - REID119 TOILET ROOM RENOVATION
SCO ID No.: 23-26576-01A
February 1, 2024

BID/ACCEPTANCE FORM

for

REID GYMNASIUM - REID119 TOILET ROOM RENOVATION
Western Carolina University – Cullowhee, NC
SCO ID No.: 23-26576-01A

Project Description and Location: The renovation of existing Men's and Women's Toilet Rooms located on the First-Floor Level of the A.K. Hinds University Center located at 245 Memorial Dr, Cullowhee, NC 28723. Scope involves the removal and replacement (like-for-like) of all interior finishes to include existing floor and wall tile and related transitions; toilet compartments; toilet room accessories; ceiling grid and tile; plumbing fixtures; and light fixtures.

We are in receipt of Addendum _____1_____2 _____3 _____4

The undersigned, as bidder, proposes and agrees if this bid is accepted to contract with the State of North Carolina through WESTERN CAROLINA UNIVERSITY for the furnishing of all materials, equipment, and labor necessary to complete the construction of the work described in these documents in full and complete accordance with plans, specifications, and contract documents, and to the full and entire satisfaction of the State of North Carolina and WESTERN CAROLINA UNIVERSITY for the sum of:

BASE BID: Dollars $

Respectively submitted this _____ day of_____ 20_____

_____
(Contractor's Name)

Federal ID#:_____ By:_____

Witness:_____ Title:_____
(Owner, partner, corp. Pres. Or Vice President)
_____ Address:_____
(Proprietorship or Partnership)

Attest: (corporation) Email Address:_____

(**Corporate Seal**)

By:_____License #:_____

Title:_____
(Corporation, Secretary/Ass't Secretary.)

ACCEPTED by the STATE OF NORTH CAROLINA

through the

WESTERN CAROLINA UNIVERSITY

Total amount of accepted by the owner, included base bid and bid alternates: _____

BY:_____TITLE:_____

Date: _____

G E N E R A L C O N D I T I O N S

1. GENERAL

It is understood and agreed that by submitting a bid that the Contractor has examined these contract documents, drawings and specifications and has visited the site of the Work and has satisfied himself relative to the Work to be performed.

2. DEFINITIONS

Owner: "Owner" shall mean, The State of North Carolina through WESTERN CAROLINA UNIVERSITY

Contractor: "Contractor" shall mean the entity that will provide the services for the Owner.

Designer: The **designer(s)** are those referred to within this contract, or their authorized representatives. The Designer(s), as referred to herein, shall mean architect and/or engineer responsible for preparing the project plans and specifications. They will be referred to hereinafter as if each were of the singular number, masculine gender.

Contract Documents: "Contract Documents" shall consist of the Notice to Bidders; General Conditions of the Contract; special conditions if applicable; Supplementary General Conditions; the drawing and specifications, including all bulletins, addenda or other modifications of the drawings and specifications incorporated into the documents prior to their execution; the bid; the contract; the performance bond if applicable; and insurance certificates. All of these items together form the contract.

INTENT AND EXECUTION OF DOCUMENTS

The drawings and specifications are complementary, one to the other. That which is shown on the drawings or called for in the specifications shall be as binding as if it were both called for and shown. The intent of the drawings and specifications is to establish the scope of all labor, materials, transportation, equipment, and any and all other things necessary to provide a complete job. In case of discrepancy or disagreement in the Contract Documents, the order of precedence shall be: Form of Contract, specifications, large-scale detail drawings, small-scale drawings.

In such cases where the nature of the work requires clarification by the Designer/ Owner, the Designer/ Owner shall furnish such clarification. Clarifications and drawings shall be consistent with the intent of the Contract Documents and shall become a part thereof.

4. AS-BUILT MARKED-UP CONSTRUCTION DOCUMENTS

Contractor shall provide one complete set of legible "as-built" marked-up construction drawings and specifications recording any and all changes made to the original design during the course of construction. In the event no changes occurred, submit construction drawings and specifications set with notation "No Changes." The Designer/Owner must receive "As-built" marked-up construction drawings and specifications before the final pay request can be processed.

5. SUBMITTAL DATA

The Contractor awarded the contract shall submit all specified submittals to the Owner/Designer. A

minimum number of copies as specified by the owner, of all required submittal data pertaining to construction, performance and general dimensional criteria of the components listed in the technical specifications shall be submitted. No material or equipment shall be ordered or installed prior to written approval of the submittals by the Designer/Owner. Failure to provide submittal data for review on equipment listed in the technical specifications will result in removal of equipment by the Contractor at his expense if the equipment is not in compliance with the specifications.

6. SUBSTITUTIONS

In accordance with the provisions of G.S. 133-3, material, product, or equipment substitutions proposed by the bidders to those specified herein can only be considered during the bidding phase until five (5) days prior to the receipt of bids or by the date specified in the pre bid conference, when submitted to the Designer with sufficient data to confirm material, product, or equipment equality. Proposed substitutions submitted after this time will be considered only as potential change order.

Submittals for proposed substitutions shall include the following information:

a. Name, address, and telephone number of manufacturer and supplier as appropriate.

b. Trade name, model or catalog designation.

c. Product data including performance and test data, reference standards, and technical descriptions of material, product, or equipment. Include color samples and samples of available finishes as appropriate.

d. Detailed comparison with specified products including performance capabilities, warranties, and test results.

e. Other pertinent data including data requested by the Designer to confirm product equality.

If a proposed material, product, or equipment substitution is deemed equal by the Designer to those specified, all bidders of record will be notified by Addendum**.**

7. WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE

The contractor shall maintain, in readable condition at his job site one complete set of working drawings and specifications for his work including all shop drawings. Such drawings and specifications shall be available for use by the owner, designer or his authorized representative.

The contractor shall maintain at the job site, a day-to-day record of work-in-place that is at variance with the contract documents. Such variations shall be fully noted on project drawings by the contractor and submitted to the designer upon project completion and no later than 30 days after acceptance of the project.

8. MATERIALS, EQUIPMENT, EMPLOYEES

a. The contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, fuel, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of his work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the

plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.

b. All materials shall be new and of quality specified, except where reclaimed material is authorized herein and approved for use. Workmanship shall at all times be of a grade accepted as the best practice of the particular trade involved, and as stipulated in written standards of recognized organizations or institutes of the respective trades except as exceeded or qualified by the specifications.

c. Upon notice, the contractor shall furnish evidence as to quality of materials.

d. Products are generally specified by ASTM or other reference standard and/or by manufacturer's name and model number or trade name. When specified only by reference standard, the Contractor may select any product meeting this standard, by any manufacturer. When several products or manufacturers are specified as being equally acceptable, the Contractor has the option of using any product and manufacturer combination listed. However, the contractor shall be aware that the cited examples are used only to denote the quality standard of product desired and that they do not restrict bidders to a specific brand, make, manufacturer or specific name; that they are used only to set forth and convey to bidders the general style, type, character and quality of product desired; and that equivalent products will be acceptable. Request for substitution of materials, items, or equipment shall be submitted to the designer for approval or disapproval; the designer prior to the opening of bids shall make such approval or disapproval. Alternate materials may be requested after the award if it can clearly be demonstrated that it is an added benefit to the owner and the designer and owner approves.

e. The designer is the judge of equality for proposed substitution of products, materials or equipment.

f. If at any time during the construction and completion of the work covered by these contract documents, the language, conduct, or attire of any workman of the various crafts be adjudged a nuisance to the owner or designer, or if any workman be considered detrimental to the work, the contractor shall order such parties removed immediately from grounds.

g. The Contractor shall cooperate with the designer and the owner in coordinating construction activities.

h. The Contractor shall maintain qualified personnel and effective supervision at the site at all times during the project, and exercise the appropriate quality control program to ensure compliance with the project drawings and specifications. The designer is responsible for determining compliance with the drawings and specifications.

9. CODES, PERMITS AND INSPECTIONS

The Contractor shall obtain the required permits, if required, give all notices, and comply with all laws, ordinances, codes, rules and regulations bearing on the conduct of the work under this contract. If the Contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the Designer in writing. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules and regulations, and without such notice to the Owner, he shall bear all cost arising there from.

All work under this contract shall conform to the current North Carolina Building Code and other state and national codes as are applicable.

Projects constructed by the State of North Carolina or by any agency or institution of the State are not subject to county or municipal building codes and may* not be subject to inspection by county or municipal authorities. Where appropriate, the Contractor shall, cooperate with the county or municipal authorities by obtaining building permits. The contractor at no cost may obtain permits to the owner.

All fire alarm work shall be in accordance with the latest State Construction Office (SCO) Guidelines for Fire Alarm Installation (NFPA72). Where the contract documents are in conflict with the SCO guidelines, the SCO guidelines shall govern. The Contractor shall be responsible for all the costs for the correction of the work where he installs it in conflict with the latest edition of the SCO Guidelines for Fire Alarm Installation.

*Inspection and certification of compliance by local authorities is necessary if an architect or engineer was not employed on the project, or if the plans and specifications were not approved and the construction inspected by the State Construction Office.

10. PROTECTION OF WORK, PROPERTY, THE PUBLIC AND SAFETY

a. The contractors shall be jointly responsible for the entire site and the building or construction of the same and provide all the necessary protections, as required by the owner or designer, and by laws or ordinances governing such conditions. They shall be responsible for any damage to the owner's property or of that of others on the job, by them, their personnel, or their subcontractors, and shall make good such damages. They shall be responsible for and pay for any damages caused to the owner. All contractors shall have access to the project at all times, except as indicated in the Supplemental General Conditions.

b. The contractor shall provide cover and protect all portions of the structure when the work is not in progress, provide and set all temporary roofs, covers for doorways, sash and windows, and all other materials necessary to protect all the work on the building, whether set by him, or any of the subcontractors. Any work damaged through the lack of proper protection or from any other cause, shall be repaired or replaced without extra cost to the owner.

c. No fires of any kind will be allowed inside or around the operations during the course of construction without special permission from the designer and owner.

d. The contractor shall protect all trees and shrubs designated to remain in the vicinity of the operations by building substantial boxes around it. He shall barricade all walks, roads, etc., as directed by the designer to keep the public away from the construction. All trenches, excavations or other hazards in the vicinity of the work shall be well barricaded and properly lighted at night.

e. The contractor shall provide all necessary safety measures for the protection of all persons on the job, including the requirements of the A.G.C. Accident Prevention Manual in Construction, as amended, and shall fully comply with all state laws or regulations and North Carolina State Building Code requirements to prevent accident or injury to persons on or about the location of the work. He shall clearly mark or post signs warning of hazards existing, and shall barricade excavations, elevator shafts, stairwells and similar hazards. He shall protect against damage or injury resulting from falling materials and he shall maintain all protective

devices and signs throughout the progress of the work.

f. The contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, Code of Federal Regulations, Part 1926, published in Volume 39, Number 122, Part II, June 24, 1974, Federal Register), and revisions thereto as adopted by General Statutes of North Carolina 95-126 through 155.

i. In the event of emergency affecting the safety of life, the protection of work, or the safety of adjoining properties, the contractor is hereby authorized to act at his own discretion, without further authorization from anyone, to prevent such threatened injury or damage. Any compensation claimed by the contractor on account of such action shall be determined as provided for under Article 13(b).

j. Any and all costs associated with correcting damage caused to adjacent properties of the construction site or staging area shall be borne by the contractor. These costs shall include but not be limited to flooding, mud, sand, stone, debris, and discharging of waste products.

11. SUBCONTRACTS AND SUBCONTRACTORS

The Contractor is and remains fully responsible for his own acts or omissions as well as those of any subcontractor or of any employee of either. The Contractor agrees that no contractual relationship exists between the subcontractor and the Owner in regard to the contract, and that the subcontractor acts on this work as an agent or employee of the Contractor.

12. CONTRACTOR-SUBCONTRACTOR RELATIONSHIPS

The Contractor agrees that the terms of these Contract Documents shall apply equally to each Subcontractor as to the Contractor, and the Contractor agrees to take such action as may be necessary to bind each Subcontractor to these terms. The Contractor further agrees to conform to the Code of Ethical Conduct as adopted by the Associated General Contractors of America, Inc., with respect to Contractor-Subcontractor relationships. The Owner reserves the right to limit the amount of portions of work to be subcontracted as hereinafter specified.

13. CHANGES IN THE WORK AND CLAIMS FOR EXTRA COST

a. The owner may have changes made in the work covered by the contract. These changes will not invalidate and will not relieve or release the contractor from any guarantee given by him pertinent to the contract provisions. These changes will not affect the validity of the guarantee bond and will not relieve the surety or sureties of said bond. All extra work shall be executed under conditions of the original contract.

b. Except in an emergency endangering life or property, no change shall be made by the contractor except upon receipt of approved change order from the designer, countersigned by the owner authorizing such change. No claim for adjustments of the contract price shall be valid unless this procedure is followed. Should a claim for extra compensation by the contractor be denied by the designer or the owner, the contractor may pursue his claim in accordance with G.S. 143-135.3.

In the event of emergency endangering life or property, the contractor may be directed to proceed on a time and material basis whereupon the contractor shall proceed and keep

accurately on such form as specified by the designer or owner, a correct account of costs together with all proper invoices, payrolls and supporting data. Upon completion of the work the change order will be prepared as outlined under either Method "c(1)" or Method "c(2)" or both.

c. In determining the values of changes, either additive or deductive, contractors are restricted to the use of the following methods:

1. Where the extra work involved is covered by unit prices quoted in the proposal, or subsequently agreed to by the Contractor, Designer, Owner and State Construction Office the value of the change shall be computed by application of unit prices based on quantities, estimated or actual as agreed of the items involved, except is such cases where a quantity exceeds the estimated quantity allowance in the contract by one hundred percent (100%) or more. In such cases, either party may elect to proceed under subparagraph c (2) herein. If neither party elects to proceed under c (2), then unit prices shall apply.

2. The contracting parties shall negotiate and agree upon the equitable value of the change prior to issuance of the change order, and the change order shall stipulate the corresponding lump sum adjustment to the contract price.

d. Under Paragraph “b” and Methods "c(2)" above, the allowances for overhead and profit combined shall be as follows: all contractors (the single contracting entity (prime), his subcontractors(1st tier subs), or their sub-subcontractors (2nd tier subs, 3rd tier subs, etc.) shall be allowed a maximum of 10% on work they each self-perform; the prime contractor shall be allowed a maximum of 5% on contracted work of his 1st tier sub; 1st tier, 2nd tier, 3rd tier, etc. contractors shall be allowed a maximum of 2.5% on the contracted work of their subs. ; Under Method "c(1)", no additional allowances shall be made for overhead and profit. In the case of deductible change orders, under Method "c(2)" and Paragraph (b) above, the contractor shall include no less than five percent (5%**)** profit, but no allowances for overhead.

e. The term "net cost" as used herein shall mean the difference between all proper cost additions and deductions. The "cost" as used herein shall be limited to the following:

1. The actual costs of materials and supplies incorporated or consumed as part of the work;

2. The actual costs of labor expended on the project site; labor expended in coordination, change
order negotiation, record document maintenance, shop drawing revision or other tasks necessary to the administration of the project are considered overhead whether they take place in an office or on the project site.

3. The actual costs of labor burden, limited to the costs of social security (FICA) and Medicare/Medicaid taxes; unemployment insurance costs; health/dental/vision insurance premiums; paid employee leave for holidays, vacation, sick leave, and/or petty leave, not to exceed a total of 30 days per year; retirement contributions; worker’s compensation insurance premiums; and the costs of general liability

insurance when premiums are computed based on payroll amounts; the total of which shall not exceed thirty percent (30%) of the actual costs of labor;

4. The actual costs of rental for tools, excluding hand tools; equipment; machinery; and temporary facilities required for the work;

5. The actual costs of premiums for bonds, insurance, permit fees and sales or use taxes related to the work.

Overtime and extra pay for holidays and weekends may be a cost item only to the extent approved by the owner.

f. Should concealed conditions be encountered in the performance of the work below grade, or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the contract documents, the contract sum and time for completion may be equitably adjusted by change order upon claim by either party made within thirty (30) days after the condition has been identified. The cost of such change shall be arrived at by one of the foregoing methods. All change orders shall be supported by a unit cost breakdown showing method of arriving at net cost as defined above.

g. Change orders shall be submitted by the contractor in writing to the owner/designer for review and approval. The contractor will provide such proposal and supporting data in suitable format. The designer shall verify correctness. Delay in the processing of the change order due to lack of proper submittal by the contractor of all required supporting data shall not constitute grounds for a time extension or basis of a claim. Within fourteen (14) days after receipt of the contractor's accepted proposal including all supporting documentation required by the designer, the designer shall prepare the change order and forward to the contractor for his signature or otherwise respond, in writing, to the contractor's proposal. Within seven (7) days after receipt of the change order executed by the contractor, the designer shall, certify the change order by his signature, and forward the change order and all supporting data to the owner for the owner's signature. The owner shall execute the change order, within seven (7) days of receipt.

At the time of signing a change order, the contractor shall be required to certify as follows:

"I certify that my bonding company will be notified forthwith that my contract has been changed by the amount of this change order, and that a copy of the approved change order will be mailed upon receipt by me to my surety."

h. A change order, when issued, shall be full compensation, or credit, for the work included, omitted or substituted. It shall show on its face the adjustment in time for completion of the project as a result of the change in the work.

i. If, during the progress of the work, the owner requests a change order and the contractor's terms are unacceptable, the owner, may require the contractor to perform such work on a time and material basis whereupon the contractor shall proceed and keep accurately on such form as specified by the Designer or owner, a correct account of cost together with all proper invoices, payrolls and supporting data. Upon completion of the work a change order will be prepared with allowances for overhead and profit per paragraph d. above and "net cost" and "cost" per paragraph e. above. Without prejudice, nothing in this paragraph shall preclude the owner from performing or to have performed

that portion of the work requested in the change order.

14. ANNULMENT OF CONTRACT

If the contractor fails to begin the work under the contract within the time specified, or the progress of the work is not maintained on schedule, or the work is not completed within the time specified, or fails to perform the work with sufficient workmen and equipment or with sufficient materials to ensure the prompt completion of said work, or shall perform the work unsuitably or shall discontinue the prosecution of the work, or if the contractor shall become insolvent or be declared bankrupt or commit any act of bankruptcy or insolvency, or allow any final judgment to stand against him unsatisfied for a period of forty-eight (48) hours, or shall make an assignment for the benefit of creditors, or for any other cause whatsoever shall not carry on the work in an acceptable manner, the owner may give notice in writing, sent by certified mail, return receipt requested, to the contractor and his surety (if applicable) of such delay, neglect or default, specifying the same, and if the contractor within a period of seven (7) days after such notice shall not proceed in accordance therewith, then the owner shall, declare this contract in default, and, thereupon, the surety shall promptly take over the work and complete the performance of this contract in the manner and within the time frame specified. In the event the contractor, or the surety (if applicable) shall fail to take over the work to be done under this contract within seven (7) days after being so notified and notify the owner in writing, sent by certified mail, return receipt requested, that he is taking the same over and stating that he will diligently pursue and complete the same, the owner shall have full power and authority, without violating the contract, to take the prosecution of the work out of the hands of said contractor, to appropriate or use any or all contract materials and equipment on the grounds as may be suitable and acceptable and may enter into an agreement, either by public letting or negotiation, for the completion of said contract according to the terms and provisions thereof or use such other methods as in his opinion shall be required for the completion of said contract in an acceptable manner. All costs and charges incurred by the owner, together with the costs of completing the work under contract, shall be deducted from any monies due or which may become due said contractor and surety (if applicable). In case the expense so incurred by the owner shall be less than the sum which would have been payable under the contract, if it had been completed by said contractor, then the said contractor and surety (if applicable) shall be entitled to receive the difference, but in case such expense shall exceed the sum which would have been payable under the contract, then the contractor and the surety (if applicable) shall be liable and shall pay to the owner the amount of said excess.

15. TERMINATION FOR CONVENIENCE

a. Owner may at any time and for any reason terminate Contractor’s services and work at Owner's convenience, after notification to the contractor in writing via certified mail. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

b. Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by Contractor as approved by Owner; (3) plus ten percent (10%) of the cost of the balance of the work to be completed for overhead and profit. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. Contractor shall not be entitled to any claim or claim of lien against Owner for any additional compensation or damages in the event of such termination and payment.

16. OWNER'S RIGHT TO DO WORK

If, during the progress of the work or during the period of guarantee, the contractor fails to prosecute the work properly or to perform any provision of the contract, the owner, after seven (7) days' written notice sent by certified mail, return receipt requested, to the contractor from the designer, may perform or have performed that portion of the work. The cost of the work may be deducted from any amounts due or to become due to the contractor, such action and cost of same having been first approved by the designer. Should the cost of such action of the owner exceed the amount due or to become due the contractor, then the contractor or his surety, or both, shall be liable for and shall pay to the owner the amount of said excess.

17. REQUESTS FOR PAYMENT

Contractor shall refer to the Supplemental General Conditions for specific directions on payment schedule, procedures and the name and address where to send applications for payments for this project. It is imperative that invoices be sent only to the above address in order to assure proper and timely delivery and handling.

The Designer/Owner will process all Contractor pay requests as the project progresses. The Contractor shall receive payment within thirty (30) consecutive days after Designer/Owner's approval of each pay request. Payment will only be made for work performed as determined by the Designer/Owner.

Retainage:

a. Retainage withheld will not exceed 5% at any time.
b. The same terms apply to general contractor and subcontractors alike.
c. Following 50% completion of the project no further retainage will be withheld if the contractor/subcontractor has performed their work satisfactorily.
d. Exceptions:
    1. Owner/Contractor can reinstate retainage if the contractor/subcontractor does not continue to perform satisfactorily.
    2. Following 50% completion of the project, the owner is authorized to withhold additional retainage from a subsequent periodic payment if the amount of retainage withheld falls below 2.5%.

Final payment will be made within forty-five (45) consecutive days after acceptance of the work, receipt of marked-up "as-built" drawings and specifications and the submission both of notarized Contractor's affidavit and final pay request. All pay requests shall be submitted to the Designer/Owner for approval.

THE CONTRACTOR'S FINAL PAYMENT AFFIDAVIT SHALL STATE: "THIS IS TO CERTIFY THAT ALL COSTS OF MATERIALS, EQUIPMENT, LABOR, SUBCONTRACTED WORK, AND ALL ELSE ENTERING INTO THE ACCOMPLISHMENT OF THIS CONTRACT, INCLUDING PAYROLLS, HAVE BEEN PAID IN FULL."

18. PAYMENTS WITHHELD

The designer with the approval of the Owner may withhold payment for the following reasons:

a. Faulty work not corrected.

b. The unpaid balance on the contract is insufficient to complete the work in the judgment of the designer.

c. To provide for sufficient contract balance to cover liquidated damages that will be assessed.

d. The secretary of the Department of Administration may authorize the withholding of payment for the following reasons:

i. Claims filed against the contractor or evidence that a claim will be filed.

ii. Evidence that subcontractors have not been paid.

When grounds for withholding payments have been removed, payment will be released. Delay of payment due the contractor without cause will make owner liable for payment of interest to the contractor as provided in G.S. 143-134.**1.** As provided in G.S. 143-134.1(e), the owner shall not be liable for interest on payments withheld by the owner for unsatisfactory job progress, defective construction not remedied, disputed work, or third-party claims filed against the owner or reasonable evidence that a third-party claim will be filed.

19. MINIMUM INSURANCE REQUIREMENTS

The work under this contract shall not commence until the contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the owner. These certificates shall document that coverages afforded under the policies will not be cancelled, reduced in amount or coverages eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the owner of such alteration or cancellation. If endorsements are needed to comply with the notification or other requirements of this article copies of the endorsements shall be submitted with the certificates.

a. **Worker's Compensation and Employer's Liability**

The contractor shall provide and maintain, until final acceptance, workmen's compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of $100,000.

b. **Public Liability and Property Damage**

The contractor shall provide and maintain, until final acceptance, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily injury, including accidental death, as well as from claims for property damages which may arise from operations under this contract, whether such operations be by the contractor or by any subcontractor, or by anyone directly or indirectly employed by either of them and the minimum limits of such insurance shall be as follows:

Bodily Injury:	$500,000 per occurrence
Property Damage:	$100,000 per occurrence / $300,000 aggregate

In lieu of limits listed above, a $500,000 combined single limit shall satisfy both conditions.

Such coverage for completed operations must be maintained for at least two (2) years

following final acceptance of the work performed under the contract.

c. **Property Insurance (Builder's Risk/Installation Floater)**

The contractor shall purchase and maintain property insurance until final acceptance, upon the entire work at the site to the full insurable value thereof. This insurance shall include the interests of the owner, the contractor, the subcontractors and sub-subcontractors in the work and shall insure against the perils of fire, wind, rain, flood, extended coverage, and vandalism and malicious mischief. If the owner is damaged by failure of the contractor to purchase or maintain such insurance, then the contractor shall bear all reasonable costs properly attributable thereto; the contractor shall effect and maintain similar property insurance on portions of the work stored off the site when request for payment per articles so includes such portions.

d. **Deductible**

Any deductible, if applicable to loss covered by insurance provided, is to be borne by the contractor.

e. **Other Insurance**

The contractor shall obtain such additional insurance as may be required by the owner or by the General Statutes of North Carolina including motor vehicle insurance, in amounts not less than the statutory limits.

f. **Proof of Carriage**

The contractor shall furnish the owner with satisfactory proof of carriage of the insurance required before written approval is granted by the owner.

20. ASSIGNMENT

No assignment of the Contractor's obligations or the Contractor's right to receive payment hereunder shall be permitted. However, upon written request approved by the Owner and solely as a convenience to the Contractor, the Owner may: (1) forward the Contractor's payment check directly to any person or entity designated by the Contractor, and (2) include any person or entity designated by Contractor as a joint payee on the Contractor's payment check. In no event shall such approval and action obligate the Owner to anyone other than the Contractor, and the Contractor shall remain responsible for fulfillment of all contract obligations.

21. CLEANING UP AND RESTORATION OF SITE

The Contractor shall keep the sites and surrounding area reasonably free from rubbish at all times and shall remove debris from the site from time to time or when directed to do so by the Owner. Before final inspection and acceptance of the project, the Contractor shall thoroughly clean the sites, and completely prepare the project and site for use by the Owner.

At the end of construction, the contractor shall oversee and implement the restoration of the construction site to its original state. Restoration includes but not limited to walks, drives, lawns, trees and shrubs, corridors, stairs and other elements shall be repaired, cleaned, or otherwise restored to their original

state.

22. GUARANTEE

The contractor shall unconditionally guarantee materials and workmanship against patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve (12) months following the final acceptance of the work and shall replace such defective materials or workmanship without cost to the owner.

Where items of equipment or material carry a manufacturer's warranty for any period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that particular piece of equipment or material. The contractor shall replace such defective equipment or materials, without cost to the owner, within the manufacturer's warranty period.

Additionally, the owner may bring an action for latent defects caused by the negligence of the contractor, which is hidden or not readily apparent to the owner at the time of beneficial occupancy or final acceptance, whichever occurred first, in accordance with applicable law.

Guarantees for roofing workmanship and materials shall be stipulated in the specification sections governing such roof, equipment, materials, or supplies.

23. STANDARDS

All manufactured items and/or fabricated assemblies subject to operation under pressure, operation by connection to an electric source, or operation involving a connection to a manufactured, natural, or LP gas source shall be constructed and approved in a manner acceptable to the appropriate State inspector which customarily requires the label or re-examination listing or identification marking of appropriate safety standard organization, such as the American Society of Mechanical Engineers for pressure vessels; the Underwriters Laboratories and/or National Electrical Manufacturers Association for electrically operated assemblies; or the American Gas Association for gas operated assemblies, where such approvals of listings have been established for the type of device offered and furnished. Further, all items furnished shall meet all requirements of the Occupational Safety and Health Act (OSHA), and State and federal requirements relating to clean air and water pollution.

All equipment and products must be independent third party tested and labeled (UL, FM, or CTS) before final connections to Owner services or utilities.

24. TAXES

a. Federal excise taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3442(3)).

b. Federal transportation taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3475(b) as amended).

c. North Carolina sales tax and use tax, as required by law, do apply to materials entering into state work and such costs shall be included in the bid proposal and contract sum.

d. Local option sales and use taxes, as required by law, do apply to materials entering into state work as applicable and such costs shall be included in the bid proposal and contract sum.

e. **Accounting Procedures for Refund of County Sales & Use Tax**

Amount of county sales and use tax paid per contractor's statements:

Contractors performing contracts for state agencies shall give the state agency for whose project the property was purchased a signed statement containing the information listed in G.S. 105-164.14(e).

The Department of Revenue has agreed that in lieu of obtaining copies of sales receipts from contractors, an agency may obtain a certified statement as of April 1, 1991, from the contractor setting forth the date, the type of property and the cost of the property purchased from each vendor, the county in which the vendor made the sale and the amount of local sales and use taxes paid thereon. If the property was purchased out-of-state, the county in which the property was delivered should be listed. The contractor should also be notified that the certified statement may be subject to audit.

In the event the contractors make several purchases from the same vendor, such certified statement must indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices, the counties, and the county sales and use taxes paid thereon.

Name of taxing county: The position of a sale is the retailer's place of business located within a taxing county where the vendor becomes contractually obligated to make the sale. Therefore, it is important that the county tax be reported for the county of sale rather than the county of use.

When property is purchased from out-of-state vendors and the county tax is charged, the county should be identified where delivery is made when reporting the county tax.

Such statement must also include the cost of any tangible personal property withdrawn from the contractor's warehouse stock and the amount of county sales or use tax paid thereon by the contractor.

Similar certified statements by his subcontractors must be obtained by the general contractor and furnished to the claimant.

Contractors are not to include any tax paid on supplies, tools and equipment which they use to perform their contracts and should include only those building materials, supplies, fixtures and equipment which actually become a part of or annexed to the building or structure.

25. EQUAL OPPORTUNITY CLAUSE

The non-discrimination clause contained in Section 202 (Federal) Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex or national origin, and the implementing rules and regulations prescribed by the secretary of Labor, are incorporated herein.

The contractor(s) agree not to discriminate against any employee or applicant for employment because of physical or mental disabilities in regard to any position for which the employee or applicant is qualified. The contractor agrees to take affirmative action to employ, advance in employment and otherwise treat

qualified individuals with such disabilities without discrimination based upon their physical or mental disability in all employment practices.

26. MINORITY BUSINESS PARTICIPATION

GS 143-128.2 establishes a ten percent (10%) goal for participation by minority business in total value of work for each State building project.

For construction contracts with a value of less than $300,000, the Owner has the responsibility to make a good faith effort to solicit minority bids and to attain the goal. The contractor shall include with his bid a completed Identification of HUB Certified/Minority Business Participation form. Contractor shall submit completed Appendix E MBE Documentation for Contract Payments form with final payment request.

For construction contracts with a value of $300,000 or greater, the contractor shall comply with the document Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts including Identification of Minority Business Participation, Affidavits A, B, C, and D, and Appendix E. These forms provided herein are hereby incorporated and made a part of this contract.

27. ACCESS TO PERSONS AND RECORDS

The State Auditor shall have access to persons and records as a result of all contracts or grants entered into by the Owner in accordance with General Statute 147-64.7. The Owner's internal auditors shall also have the right to access and copy the Contractor's records relating to the Contract and Project during the term of the Contract and within two years following the completion of the Project/close-out of the Contract to verify accounts, accuracy, information, calculations and/or data affecting and/or relating to Contractor's requests for payment, requests for change orders, change orders, claims for extra work, requests for time extensions and related claims for delay/extended general conditions costs, claims for lost productivity, claims for lost efficiency, claims for idle equipment or labor, claims for price/cost escalation, pass-through claims of subcontractors and/or suppliers, and/or any other type of claim for payment or damages from Owner and/or its project representatives.

28. GOVERNING LAWS

This contract is made under and shall be governed by and construed in accordance with the laws of the State of North Carolina. The Contractor shall comply with all applicable federal, State and local laws, statutes, ordinances and regulations including, but not limited to, the Omnibus Transportation Act of 1991 and its implementing regulations.

29. CONTRACTOR EVALUATION

The contractor's overall work performance on the project shall be fairly evaluated in accordance with the State Building Commission policy and procedures, for determining qualifications to bid on future State projects. In addition to final evaluation, an interim evaluation may be prepared during the progress of project. The owner may request the contractor's comments to evaluate the designer.

SECTION 007300

SUPPLEMENTARY GENERAL CONDITIONS

PART 1 GENERAL

1.01 SUMMARY

A. The following Supplementary General Conditions of the Contract augment the State Construction Office, North Carolina Department of Administration Informal Contract "General Conditions".

B. Where any article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these supplementary general conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

C. Unless otherwise stated, the terms used in these Supplementary Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

1.02 ARTICLE 5 - SUBMITTAL DATA

A. ADD the following paragraph to Article 5:

a. The GC shall submit with initial approval of the design documents for compliance and accuracy, electronic copies in PDF format of all shop drawings and submittals. Physical samples shall be submitted for color and workmanship (mock-up) approval. All Shop Drawings, Samples and Submittals for approval shall be completed within 30 days of General Contractor's receipt of the "Letter of Intent to Award".

B. ADD the following paragraph to Article 5:

b. The GC shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions or modifications including those requested by the Designer on previous submittals. In the absence of such written notice, the Designer's approval of a resubmission shall not apply to such revisions.

1.03 ARTICLE 7 - WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE

A. MODIFY the second paragraph of Article 7 to read:

The contractor shall maintain at the job office, a day-to-day record of work-in-place that is at variance with the contract documents. Such variations shall be fully noted on project drawings by the contractor and submitted to the Designer **and Owner upon request and** at project completion and no later than 30 days after final acceptance of the project.

B. ADD the following paragraph to Article 7:

The GC shall submit to the Designer/Owner a copy of the daily field reports by its field supervision listing but not limited to personnel on site (including all subcontractors); weather conditions; major scopes of work under construction; material deliveries; safety incidents; progress photographs, and inspections.

1.04 ARTICLE 8 - MATERIALS, EQUIPMENT, EMPLOYEES

A. ADD the following paragraphs to Article 8:

i. The GC shall provide the Owner a complete list of addresses and emergency telephone numbers for the GC, his key personnel, and all subcontractors. This list shall be provided to the Owner prior to beginning the Work and shall be updated regularly with the updated provided to the Owner.

j. The GC acknowledges and agrees that, to the best of its knowledge, neither GC nor its employees, representatives or sub-contractors has at any time (1) been charged with personal or professional misconduct; (2) been convicted of any crime (other than traffic fines); (3) been required to register as a sex offender under Title I of the Sex Offender Registration and Notification Act of 2006 (SORNA). GC shall notify Owner immediately should any of the above conditions come into being.

k. The GC and subcontractors at its cost, agrees to perform criminal background checks, using services through companies such as 123nc.com, and screen all its employees, Consultants, and representatives prior to assigning them to perform any Service at Western Carolina University. Such background checks will be made available to Western Carolina University upon request.

l. The GC and subcontractors shall verify the work authorization of all employees that work on Western Carolina University property through E-Verify. Such authorization will be made available to Western Carolina University upon request.

m. Should an accident or disruption occur on the project work site, the GC shall notify Western Carolina University Safety Officer immediately.

n. The GC and each of its subcontractors shall be responsible for security to his/their equipment and the site-stored materials under his/their jurisdiction whether paid for by the Owner or not, until acceptance of the Project.

1.05 ARTICLE 9 – CODES, PERMITS AND INSPECTIONS

A. ADD the following paragraph to Article 9:

k. Minimum of (72) hours prior to any interruption in any minor utility or other services, and minimum 7 days for any interruption of major utility or service, the GC shall request and obtain permission from the Owner for such interruption. Failure of the GC to obtain Owner permission shall not be grounds for an extension of time.

l. Prior to performing any "hot work" or any work above ceiling in existing buildings (i.e., fire sprinkler relocation, brazing, soldering, cutting and grinding when such processes produce sparks capable of igniting combustible or flammable materials or transmitting heat to other similar materials, etc.) GC shall obtain a 'Hot Work Permit' permit for such from the Owner's Safety & Risk Management Office
https://www.wcu.edu/discover/campus-services-and-operations/facilities-management/safety-and-risk-management/occupational-safety-and-health/hot-work.aspx

m. The GC shall comply with Owner's Interim Life Safety Plan requirements to maintain egress from all occupied buildings.

n. **Upon completion of the Work, the Contractor shall deliver to the Owner original copies of all required certificates of inspection.**
o. **For SCO Electrical Inspections: The SCO Inspector assigned to Western Carolina University is on campus on Wednesdays ONLY and may be reached at the contact information as follows:**

David Souther
Engineering Technician III / Electrical Inspector
State Construction Office
NC Department of Administration

919 427 8589 Mobile
919 807 4100 Main
David.souther@doa.nc.gov
www.nc-sco.com

Physical Address:
301 N. Wilmington Street, Suite 450
Raleigh, NC 27601

Mailing Address:
1307 Mail Service Center
Raleigh, NC 27699-1307

1.06 ARTICLE 17 – REQUESTS FOR PAYMENT

A. ADD the following to the first paragraph, Article 17:

Contractor shall submit requests for payment to Designer/Owner monthly based on approved Schedule of Values.

B. ADD the following paragraph to the end of Article 17:

The application for payments shall be submitted on AIA Documents G702 and G702A. The GC shall include on each monthly Application for Payment, AIA Documents G702 and G702A, the following statement:

"We certify that the Surety for this Project has been duly notified of the amount of this request."

Unless exception to pay is made by the Surety to the Architect within four (4) calendar days following the date of request, it will be assumed that the Surety concurs in the payment of this application.

1.07 ARTICLE 19 MINIMUM INSURANCE REQUIREMENTS

A. MODIFY ARTICLE 19, Section ‘a’ under “Worker’s Compensation and Employer’s Liability” header to read:

a. The contractor shall provide and maintain, until final acceptance, workmen's compensation insurance, as required by law, as well as employer's liability coverage

for claims and all perils for errors, omissions, and damages of any kind or character which may arise out of or result from GC's performance under this Agreement with minimum limits of $100,000 **per occurrence.**

B. ADD the following paragraphs to ARTICLE 19:

g. Automobile Liability insurance (the "Auto Insurance") for claims and all perils for errors, omissions, and damages of any kind or character which may arise out of or result from GC's performance under this Agreement. The Auto Insurance shall cover owned, non-owned, and hired vehicles. The Auto Insurance shall be written in the amount of no less than $500,0000 Combined Single Limit (property and bodily injury) per occurrence.

h. Provide insurance certificate(s) to this office with language appropriately inserted in the insurance certificate block provided for Special Provisions, as follows:

1. "Not-withstanding the preprinted cancellation provisions on this form, coverages afforded under the policies will not be cancelled, reduced in amount nor will any coverages be eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the owner, of such alteration or cancellation."

1.08 ARTICLE 21 – CLEANING UP AND RESTORATION OF SITE

A. ADD the following paragraph to Article 21:

GC shall comply with Owner's requirements for Interim Life Safety Plan requirements.

1.09 ARTICLE 22 – GUARANTEE

A. ADD the following paragraph to Article 22:

Individual specifications requirements shall have warranties start at the date of Final Acceptance.

1.10 **ARTICLE 30 - TIME OF COMPLETION, DELAYS, EXTENSIONS OF TIME**

A. ADD Article 30 with the heading 'TIME OF COMPLETION, DELAYS, EXTENSIONS OF TIME' and the following language:

a. The GC shall commence work to be performed under this agreement on a date to be specified in a written order from the Designer and shall fully complete all work within ninety (90) consecutive calendar days from and including said date. For each day in excess of the above number of days, the Contractor shall pay to the Owner the sum of $300 (Three-hundred Dollars and 00/100) per day as liquidated damages reasonably estimated in advance to cover the losses to be incurred by the Owner by reason of failure of said GC to complete the work within the time specified, such time being in the essence of this contract and a material consideration thereof.

b. **The GC agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate or progress as will ensure full completion thereof within the time specified.**

c. **If the Contractor is delayed at any time in the progress of his work by any act or negligence of the Owner, his employees or his separate contractor, by changes ordered in the work; by abnormal weather conditions; by any causes beyond the Contractor's control or by other causes deemed justifiable by Owner, then the contract time may be reasonably extended in a written order from the Owner upon written request from the contractor within ten days following the cause for delay.**

d. **Time extensions for weather delays, acts of God, labor disputes, fire, delays in transportation, unavoidable casualties or other delays which are beyond the control of the Owner do not entitle the Contractor to compensable damages for delays.**

e. **Any contractor claim for compensable damages for delays is limited to delays caused solely by the owner or its agents.**

ARTICLE 32 - COPIES OF DRAWINGS AND SPECIFICATIONS

A. ADD Article 31 with the heading 'COPIES OF DRAWINGS AND SPECIFICATIONS' and the following language:

The Designer shall furnish free of charge to the General Contractor (GC) or Construction Manager (CM) an electronic copy in PDF format of the bid documents. Paper copies of drawing sets and specifications shall be furnished at cost, including mailing at the request of the General Contractor or Construction Manager. This cost shall be stated in the bidding documents.

END OF SECTION 007300

FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS THAT

_____as Principal,

and _____, as surety, who is duly licensed to act as surety in North Carolina, are held and firmly bound unto the State of North Carolina* through

_____

as obligee, in the penal sum of _____DOLLARS, lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this _____day of _____20_____

WHEREAS the said principal is herewith submitting proposal for and the principal desires to file this bid bond. Each proposal shall be accompanied by a cash deposit or a certified check drawn on some bank or trust company, insured by the Federal Deposit Insurance Corporation, of an amount equal to not less than five percent (5%) of the proposal, or in lieu thereof a bidder may offer a bid bond of five percent (5%) of the bid executed by a surety company licensed under the laws of North Carolina to execute the contract in accordance with the bid bond. Said deposit shall be retained by the Owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten (10) days after the award or to give satisfactory surety as required by law.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such, that if the principal shall be awarded the contract for which the bid is submitted and shall execute the contract and give bond for the faithful performance thereof within ten days after the award of same to the principal, then this obligation shall be null and void; but if the principal fails to so execute such contract and give performance bond as required by G.S. 143-129, the surety shall, upon demand, forthwith pay to the obligee the amount set forth in the first paragraph hereof. Provided further, that the bid may be withdrawn as provided by G.S. 143-129.1.

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

***(**Community college projects: Delete State of North Carolina as owner and replace with community college name.)

GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN STATE CONSTRUCTION CONTRACTS

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods, on State construction projects in the amount of $300,000 or more. The legislation provides that the State shall have a verifiable ten percent (10%) goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These requirements are published to accomplish that end.

SECTION A: INTENT

It is the intent of these guidelines that the State of North Carolina, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded shall cooperate and in good faith do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

SECTION B: DEFINITIONS

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
   a. Black, that is, a person having origins in any of the black racial groups in Africa;
   b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
   c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
   d. American Indian, that is, a person having origins in any of the original peoples of North America; or
   e. Female

2. Minority Business - means a business:
   a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
   b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.

3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".

4. Public Entity - means State and all public subdivisions and local governmental units.

5. Owner - The State of North Carolina, through the Agency/Institution named in the contract.

6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.

7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.

8. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.

9. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

SECTION C: RESPONSIBILITIES

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

   The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:
   a. Identify those areas of work for which there are minority businesses, as requested.
   b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
   c. Assist in the determination of technical assistance needed by minority business contractors.

   In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:
   (1) Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
   (2) Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the State Construction Office and other public entities.
   (3) Inform minority businesses of the contracting and subcontracting process for public construction building projects.
   (4) Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in the State construction projects.
   (5) The HUB Office also oversees the minority business program by:
      a. Monitoring compliance with the program requirements.
      b. Assisting in the implementation of training and technical assistance programs.
      c. Identifying and implementing outreach efforts to increase the utilization of minority businesses.
      d. Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General Assembly.

2. State Construction Office
   The State Construction Office will be responsible for the following:

   a. Furnish to the HUB Office a minimum of twenty-one days prior to the bid opening the following:
      (1) Project description and location;

(2) Locations where bidding documents may be reviewed;
(3) Name of a representative of the owner who can be contacted during the advertising period to advise who the prospective bidders are;
(4) Date, time and location of the bid opening.
(5) Date, time and location of prebid conference, if scheduled.

b. Attending scheduled prebid conference, if necessary, to clarify requirements of the general statutes regarding minority-business participation, including the bidders' responsibilities.
c. Reviewing the apparent low bidders' statutory compliance with the requirements listed in the proposal, that must be complied with, if the bid is to be considered as responsive, prior to award of contracts. The State reserves the right to reject any or all bids and to waive informalities.
d. Reviewing of minority business requirements at Preconstruction conference.
e. Monitoring of contractors' compliance with minority business requirements in the contract documents during construction.
f. Provide statistical data and required reports to the HUB Office.
g. Resolve any protest and disputes arising after implementation of the plan, in conjunction with the HUB Office.

3. Owner
Before awarding a contract, owner shall do the following:

a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and non-minority businesses.
b. Attend the scheduled prebid conference.
c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the public entity for public construction or repair work and minority businesses that otherwise indicated to the Office for Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
    1. A description of the work for which the bid is being solicited.
    2. The date, time, and location where bids are to be submitted.
    3. The name of the individual within the owner's organization who will be available to answer questions about the project.
    4. Where bid documents may be reviewed.
    5. Any special requirements that may exist.
d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.
e. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing good faith efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award to the State Construction Office.
g. Evaluate documentation to determine good faith effort has been achieved for minority business utilization prior to recommendation of award to State Construction Office.
h. Review prime contractors' pay applications for compliance with minority business utilization commitments prior to payment.
i. Make documentation showing evidence of implementation of Owner's responsibilities available for review by State Construction Office and HUB Office, upon request

4. Designer
Under the single-prime bidding, separate prime bidding, construction manager at risk, or alternative contracting method, the designer will:

a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.
e. During construction phase of the project, review "MBE Documentation for Contract Payment" – (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the owner and forward copies to the State Construction Office.
f. Make documentation showing evidence of implementation of Designer's responsibilities available for review by State Construction Office and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors
Under the single-prime bidding, the separate-prime biding, construction manager at risk and alternative contracting methods, contractor(s) will:

a. Attend the scheduled prebid conference.
b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
   (1) A description of the work for which the subbid is being solicited.
   (2) The date, time and location where subbids are to be submitted.
   (3) The name of the individual within the company who will be available to answer questions about the project.
   (4) Where bid documents may be reviewed.
   (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

   If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.
d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
e. Identify on the bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by State Construction Office and HUB Office, upon request.
g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an

affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.

h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), "MBE Documentation for Contract Payment" – (Appendix E), for designer's review.
j. During the construction of a project, at any time**,** if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, State Construction Office, and the Director of the HUB Office in writing**,** of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.
k. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit subbids from minority businesses.
l. It is the intent of these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on state projects.

6. Minority Business Responsibilities
While minority businesses are not required to become certified in order to participate in the State construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

SECTION 4: DISPUTE PROCEDURES
It is the policy of this state that disputes that involves a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

SECTION 5: These guidelines shall apply upon promulgation on state construction projects. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: www.nc-sco.com

SECTION 6: In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing minority business participation in the state construction program.

MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts** are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: http://www.nc-sco.com

MINORITY BUSINESS SUBCONTRACT GOALS:

The goals for participation by minority firms as subcontractors on this project have been set at 10%.

The bidder must identify on its bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts **or** affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal.

OR

Provide Affidavit D, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, **with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.**

OR

Provide Affidavit B, which includes sufficient information for the State to determine that the bidder does not customarily subcontract work on this type project.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

MINIMUM COMPLIANCE REQUIREMENTS:

All written statements, affidavits or intentions made by the Bidder shall become a part of the agreement between the Contractor and the State for performance of this contract. Failure to comply with any of these statements, affidavits or intentions, or with the minority business Guidelines shall constitute a breach of the contract. A finding by the State that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the State whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the State will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Good Faith Efforts include:

(1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.

(2) Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.

(3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.

(4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.

(5) Attending any prebid meetings scheduled by the public owner.

(6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.

(7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.

(8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.

(9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.

(10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* INDICATE TYPE OF MBE	AMOUNT PAID THIS MONTH	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Social and Economically Disadvantage (D)

Date: _____ Approved/Certified By: _____

Name

_____

Title

_____

Signature

SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT

(Revised on 3/14/2003)

Identification of HUB Certified/ Minority Business Participation

I,_____,
(Name of Bidder)

do hereby certify that on this project, we will use the following HUB Certified/ minority business as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work Type	*Minority Category	**HUB Certified (Y/N)

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

The total value of minority business contracting will be ($)_____.

State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

(Name of Bidder)

Affidavit of_____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- ❑ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ❑ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- ❑ **3** – **(15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ❑ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ❑ **5** – **(10 pts)** Attended prebid meetings scheduled by the public owner.
- ❑ **6** – **(20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ❑ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ❑ **8** – **(25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ❑ **9** – **(20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ❑ **10** - **(20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of_____, County of_____

Subscribed and sworn to before me this _____day of _____20_____

Notary Public_____

My commission expires _____

State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of _____

Affidavit of_____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date:_____Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of_____

Subscribed and sworn to before me this _____day of _____20____

Notary Public _____

My commission expires_____

State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by HUB Certified/Minority Businesses

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by HUB certified/minority businesses as defined in GS143-128.2(g) and 128.4(a),(b),(e) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit.
This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____day of _____20_
Notary Public_____
My commission expires_____

State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 10% participation by HUB Certified/ minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with HUB certified/ minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

B. Copies of quotes or responses received from each firm responding to the solicitation.

C. A telephone log of follow-up calls to each firm sent a solicitation.

D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible

and responsive bidder.

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____day of _____20_

Notary Public_____

My commission expires _____

010000

OWNER REQUIREMENTS

Items noted below are part of the Contract Documents

1. Project Identification:
   All correspondence, reports, schedules, applications of payment, fax documents, etc., must contain proper name of project, code and item number, and ID number if applicable.

2. Project Schedule:
   Provide graphic chart from beginning to end of construction.
   A. Schedule line items must directly relate to Pay Application line items.
   B. Each line item must include 2 lines:
      a. Planned Schedule through contract completion.
      b. Actual work completed, adjacent to Planned Schedule in contrasting color or gray tone.
   C. Note current completion percentage for each line item.

3. Pay Applications:
   Submit only two (2) signed and designer approved copies to WCU Project Manager.
   A. Sales Tax Forms:
      Submit with each Pay Application Invoices are not required, with the exception of invoices for stored materials.

   B. MBE/HUB Forms:
      MBE payment documentation is required with each pay application in order for payment to be processed.

4. Change Orders:
   Submittals should pay particular attention to 3 issues:
   A. Correct Project Title as given by SCO.

   B. Correct math.

   C. Complete backup info for all Change Order items with detailed cost breakdown including materials, labor, or unit cost, Subcontractor and Contractor overhead and profit.

   D. Cost will be rounded to the nearest whole dollar.

5. Project Coordination:
   General coordination will occur during design process, but during construction, date specific coordination by Contractor[s] may be required with WCU University Police, IT Services, and WCU phone system, Facilities Management [FM] for steam line work, domestic water, stormwater and electrical service. All of this coordination will be through FM Project Manager.

6. Work or Equipment by Owner:
   Construction Documents must identify which work or equipment will be provided by Owner for Contractor installation or provided and installed by Owner. Utility connection coordination is Contractor's responsibility. State of North Carolina procurement system may require equivalent equipment bidding, so exact model and corresponding exact utility connection dimensions may not be known until later into project. Contractor is responsible for adequate notification to Owner for scheduled installation of Owner supplied work or equipment. This is not limited to installation date but includes lead time required for ordering and delivery. Project Specifications must include "Work by Owner" or "Equipment by Owner" in Supplemental Conditions portion, even if to say "there is no work by Owner in this project" if there is none.

7. Campus Environment:
   A. Student, Faculty and Staff Contacts:
      Contractors and Contractor's personnel, Subcontractors and Subcontractor's personnel, material delivery personnel are on campus to perform contract work. Contact with students, faculty, staff or University visitors is not permitted. In these litigious times, "contact is defined as verbal, offensive gestures, discriminatory signs or clothes." Project personnel are expected to behave properly on campus. Indecent behavior, language or non-verbal communication will not be tolerated. Refer to University Policies issued by the Chancellor's office:
      www.wcu.edu/chancellor/index/universitypolicy/policy53.html

      For the purposes of Policy #53, Contractor's, Subcontractor's and material delivery personnel are considered to be "employees" during their time on campus performing construction related activities. Contractors, Subcontractors and material supply companies must agree to remove personnel or groups who violate this Policy.

   B. Radios, personal electronic music devices:
      For Safety purposes, portable or vehicular radios and electronic music devises are not permitted to be played while on campus.

   C. University Facilities:
      University Food Service facilities exist for the use of WCU students, faculty and staff. Contractors must either bring their own food to jobsite or use community food service establishments.

   D. WCU buildings are tobacco free. This includes smoke or chew tobacco forms. No smoking within 50 feet of building perimeter.

   E. It is illegal for any person to bring firearms, any type of alcoholic beverage, or drugs other than prescription pharmaceuticals onto campus property.

   F. Working Hours: Work hours 7:00 am – 7:00 pm Coordinate work outside those hours with WCU Project Manager. Emergency repair work can be performed at any hour, by coordinating with WCU Project Manager.

8. Protection of existing materials:
   All existing materials to remain must be adequately protected throughout construction period. If damage occurs, the Contractor shall repair damage to original condition to the Owner's satisfaction or replace damaged materials.

9. Transportation:
   A. Parking
      i. Contractor may park limited number of vehicles within construction fence. This is typically limited to one (1) truck per Subcontractor. Parking for additional personnel is to be coordinated with WCU Project Manager. Contractor's personnel who park outside construction fence in student, faculty or staff parking areas will be subject to fines and or towing.

   A. Deliveries:
      i. Contractors are responsible for ensuring that material deliveries arrive safely at jobsite. At a minimum Supplier transportation drivers should know the name of Contractor, name of Project and driving directions. It is astounding the number of jobsite deliveries where this basic information is unknown by drivers. Contractor representatives are to be available to

receive deliveries. WCU will not receive deliveries on behalf of the contractor. Contractor deliveries to WCU Warehouse will be rejected.

B. Speed Limit:
   i. Note that campus wide speed limit is 20 miles per hour or per displayed speed limit. Construction personnel must obey speed limit. Crosswalks throughout campus establish areas where pedestrians have right-of-way. Vehicular traffic must yield at crosswalks. This includes students, faculty and staff when contractor's personnel are using cross- walks. Keep in mind that pedestrians occasionally are distracted and may not be attentive to task at hand, i.e., driving. Exercise caution.

C. Parking Permits:
   i. Parking permits can be obtained from the Office of Facilities Management.
   ii. Parking permits not required for company vehicles parked within fenced staging area (are required if ever parked outside of staging area).

10. Material Storage:
    A. Construction fencing is required for most projects to protect WCU students, faculty and staff from injury and personal property from damage. Comply with all OSHA rules and regulations. No signage is permitted on fence unless approved by WCU.
    B. Jobsite storage within project Construction Fence: Coordinate "lay down" material storage area required within construction fence with Designer and WCU PM. When project is complete and materials removed, repair any damage to asphalt or striping.
    C. Remote Storage Trailer Storage:
    Containerized or enclosed trailer storage that exceeds project fence area must be located at area designated by WCU Project Manager. Trailers must be coordinated with other project trailers and location approved by FM Director of Design and Construction. If miss-located, trailer[s] will be relocated to approved location at Contractor or Subcontractor's expense. No open trailers or flatbed trailers are permitted, unless otherwise authorized.

    Each trailer must be identified with two 8" x 8" wood or metal signs painted yellow, 1 mounted on rear door and 1 mounted on side of trailer. Signage lettering must be contrasting color and minimum 1" high. Signage must identify Contractor or Subcontractor, with phone number and Project title. If more than 1 trailer is used, trailers must be numbered on sign. Company logos may be used, but lettering height should not be reduced for larger logo.

    D. Remote Palletized Storage:
    Note that this staging area is not the equivalent of a "bonded warehouse". Loose stored materials are still the property and responsibility of the Contractor or Subcontractor. Layout of palletized storage area must be approved by FM Director of Design and Construction. Coordinate storage for this project with other WCU projects storage.

    E. Storage Containers are to be removed from campus prior to completion of construction contract. Final Payment will be withheld until container(s) are removed from campus.

11. Utilities:
    A. Utilities provided by Owner for Contractor's project use:
    All interruption of campus services for service connections will be coordinated through the WCU Project Manager. Contractor will not interrupt existing services without prior approval from Owner. The Contractor, under the supervision of the Owner, will throw switches, turn valves, etc. WCU requires seven (7) day notice minimum for major utility outages. WCU requires a forty-eight (48) hour notice minimum in minor outages such as sprinkler, fire alarm, water, etc.
    i. Electric power for construction use:

Electricity source at temporary electrical service location. Voltage and amperage meters as required for project. WCU is the Electric Utility Company on campus and a portion of surrounding area. Coordinate with WCU Resale Electric Power.

ii. Water source:
Contractor is responsible to extend water from source to project location[s] where needed.

iii. Permanent steam heat.

B. Utilities paid for by Contractor:

i. Telephone; local land line company: Verizon

ii. Temporary heat required for concrete curing, drywall joint compound, plaster, paint, etc. Exercise caution that heating device matches use and is compatible with surrounding finishes. Prevent excess heat danger of ignition of wood or flammable finishes.

iii. Sanitary facilities:
Small scope projects may allow contractor's personnel to use existing toilet room facilities within existing building[s]. Contractor is responsible for keeping clean and repairs to damage incurred during use. Refer to project Specifications or Preconstruction meeting. For exterior or significant renovations projects, Contractor must provide and maintain Port-A-John type units.

12. Site Management:

A. Contractor is responsible for maintaining a safe site. Well organized sites are usually safer sites. Grass must be mowed or trimmed to keep height below 6" maximum length for entire project period. Cutting is Contractor's responsibility within construction fence and 24" outside construction limits. When project is completed and project fence is removed, cut grass height to match adjacent grass height.

B. Storm water runoff cannot adversely affect adjacent areas throughout length of project. Install NCDENR required erosion protection measures before beginning earth moving or trenching operations. NCDENR permits must be secured by designer before start of construction. Erosion control measures must be maintained throughout duration of project until final ground cover is established. If silt fence or hay bales have retained silt materials as a resulting from rainstorm, contractor must ensure that erosion control measures have adequate capacity for next rainstorm.

C. No construction or directional signage is allowed on campus. No project signs are required. WCU Printshop will produce and erect any project banner signage on jobsite. Jobsite trailer may display Contractor's logo sign 4' x 6' maximum size.

13. Construction Debris:

A. Debris must be removed from campus. All debris must be transported off campus to regulated landfill or recycling center. Secure debris in trucks so that material cannot fall or be blown from trucks during transportation through campus.

B. Demolition debris is not to remain on project site. Contractors or Subcontractors must provide their own dumpsters and for periodic emptying. WCU dumpsters shall not be used for any construction debris.

C. Stockpiling of excess material is not permitted. Materials such as topsoil may be stockpiled in an organized manner for later use. If material will not be reused in finished work, it is expected to be removed from the site.

D. Adjacent roadways must be cleaned daily if required to prevent mud or dust from coating existing roadway.

E. In the rare event that another project site can use excess soil material, WCU will transmit corresponding contractor's contact information.

14. Earthwork:
    A. Control any air pollution caused by dust and dirt. Comply with governing regulations.
    B. Any fill materials shall be free of organic material.
    C. Protect existing trees and vegetation to remain against unnecessary cutting, breaking, skinning of roots or bark, smothering trees by stockpiling building materials or soil materials within drip line.
    D. Utility Lines:
        i. Trenching or any fill materials under utility lines are frequently subjected to subsidence from inadequate compaction. Fully compact any subgrade materials to provide adequate utility line bearing.
        ii. Fill lifts depth: 8" maximum depth for fill lifts performed by heavy equipment. 4" maximum depth for hand operated tamper compaction.
        iii. Refer to Contract Documents for specific compaction requirements.
        iv. No frozen material or frozen subgrade may be used under utility lines.

15. Landscape Bed Prep:
    A. Planting Bed depth of 12" required. Organic topsoil, free of roots, stones larger than ½", debris and weeds.

16. Building Demolition:
    A. Structure:
        i. No demolition is to be performed until Contractor has a perfect understanding of existing building structural system. Install any temporary bracing required to prevent movement of existing building elements scheduled to remain.
    B. Protection of materials or finishes to remain:
        i. Contractor is responsible to provide adequate protection for any material to remain.
    C. Dust Protection:
        i. Contractor must erect Dust Curtains before beginning demolition work at areas where dust will enter existing spaces or rooms. Curtains must prevent dust from billowing into adjacent spaces. Seal curtains against finishes. Curtains shall be minimum 0.004" [4 mils.] thick sheets. Maintain throughout demolition work. Construction personnel shall not track dust or dirt into any occupied portion of building.
    D. Salvage Materials:
        i. Contractors must coordinate salvage schedule in advance with WCU Project Manager.

END OF SECTION 010000

SECTION 011000
SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: REID GYMNASIUM – REID 119 Toilet Room Renovation.

B. Owner's Name: Western Carolina University.

C. Architect's Name: Javier Torres, AIA. N.C. License # 14033

D. North Carolina State Construction Office (SCO) ID #: 23-26576-01

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price (Fixed Sum) as described in the Bidding and Contractual Requirements (Division 00) included in this Project Manual.

1.03 PROFESSIONAL SEALS

A. Use of Professional Seals on Bidding, Procurement, and Contract Documents: For the purposes of this paragraph, the term “Regulant” refers to the individual who signs and seals parts of the Contract Documents (e.g. the Drawings and Specifications). Certain information has been excerpted verbatim from a source or sources (e.g., UL assemblies, SMACNA details, applicable state/jurisdiction building code) which was considered or used by Regulant in preparing parts of the Contract Documents, as follows:

1. The excerpted information was neither prepared under the direct control nor personal supervision nor created by the Regulant, as it was prepared by the source and owner of the excerpted information.
2. For purposes of bidding, procuring, and performance of the Work, and in any event of conflicts or ambiguities between the excerpted information in the Contract Documents and the requirements of applicable codes and standards, provide the better quality or greater quantity of Work which, at a minimum, complies with the requirements of the applicable codes and standards.
3. Advise Architect immediately upon becoming aware of requirements of the Work which are not consistent with the requirements of the excerpted information.
4. Attribution is acknowledged for information obtained and included herein verbatim from other source or sources.
5. Regulant has taken into consideration and used certain excerpted information from other sources which are applicable to the Contract Documents, and the Regulant indicates by its seal that it is assuming responsibility for its services in use and application of the excerpted information to the requirements of Work, but not for the excerpted information itself which was prepared by others. Regulant does not indicate by its seal that it is responsible for use or application of other information in such source or sources which was not included herein.

1.04 OWNER OCCUPANCY

A. Owner intends to continue to occupy adjacent portions of the existing building by the date stated in the Agreement as the contract completion date (date of Owner's Final Acceptance).

B. Owner intends to occupy the Project upon Owner's Final Acceptance.

C. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

D. Schedule the Work to accommodate Owner occupancy.
   1. Maintain routes of egress and life safety systems for Owner and occupants at all times.

1.05 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.
   1. Locate and conduct construction activities in ways that will limit disturbance to site.

B. Provide access to and from site as required by law and by Owner:
   1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit.

C. Existing building spaces may not be used for storage.

D. Existing building shall be maintained weathertight. Do not modify elements of the existing building except as indicated on the Construction Documents. Repair damage to the existing building due to construction activity.

E. Time Restrictions:
   1. Comply with local regulations for hours of work, noise ordinances, and similar requirements.
   2. Limit conduct of especially noisy, malodorous, and dusty work to times outside of normal business hours (normal business hours defined as 8 AM to 5 PM).

F. Utility Outages and Shutdown:
   1. Limit disruption of utility services to hours the building is unoccupied.
   2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days' notice to Owner and authorities having jurisdiction.
   3. Prevent accidental disruption of utility services to other facilities.

G. Controlled Substances: The use of alcohol and drugs is not permitted on the Project site. Provide a designated outdoor smoking area for construction personnel that is at least 50 feet away from the building.

1.06 SPECIFICATION SECTIONS APPLICABLE TO ALL WORK

A. The provisions of the Owner/Contractor agreement, General Conditions of the Contract, Supplementary Conditions, and all Division 01 sections shall apply to all sections of the Project Manual.

1.07 SECURITY PROVISIONS

A. Background Check: The Owner requires that a background check be performed on all personnel working on the site. Comply with Owner's requirements for screening service to be used. Maintain a list of all accredited persons, submit a copy to Owner on request.

B. Identification Badges: Provide identification badges to each person authorized to enter premises. Badge shall include personal photograph, name, employer, expiration date, and an assigned number. Have personnel return badges to Contractor after completion of their portion of the Work.

1.08 MISCELLANEOUS PROVISIONS

A. Campus Environment: Student, Facility and Staff Contacts
   1. Contractors and Contractor's personnel, Subcontractors and Subcontractor's personnel, material delivery personnel are on campus to perform contract work. Contact with

students, faculty, staff or University visitors is not permitted. In these litigious times, "contact is defined as verbal, offensive gestures, discriminatory signs or clothes." Project personnel are expected to behave properly on campus. Indecent behavior, language or non-verbal communication will not be tolerated. Refer to University Policies issued by the Chancellor's office: **www.wcu.edu/chancellor/index/universitypolicy/policy53.html**

a. For the purposes of Policy #53, Contractor's, Subcontractor's and material delivery personnel are considered to be "employees" during their time on campus performing construction related activities. Contractors, Subcontractors and material supply companies must agree to remove personnel or groups who violate this Policy.

b. Radios, personal electronic music devices: For Safety purposes, portable or vehicular radios and electronic music devises are not permitted to be played while on campus.

c. University Facilities: University Food Service facilities exist for the use of WCU students, faculty and staff. Contractors must either bring their own food to jobsite or use community food service establishments.

d. WCU buildings are tobacco free. This includes smoke or chew tobacco forms. No smoking within 50 feet of building perimeter.

e. It is illegal for any person to bring firearms, any type of alcoholic beverage, or drugs other than prescription pharmaceuticals onto campus property.

f. Deliveries: Contractors are responsible for ensuring that material deliveries arrive safely at jobsite. At a minimum Supplier transportation drivers should know the name of Contractor, name of Project and driving directions. It is astounding the number of jobsite deliveries where this basic information is unknown by drivers. Contractor representatives are to be available to receive deliveries. WCU will not receive deliveries on behalf of the contractor. Contractor deliveries to WCU Warehouse will be rejected.

2. Transportation

a. Parking:

1) Contractor may park limited number of vehicles within construction fence. This is typically limited to one (1) truck per Subcontractor.

2) Parking for additional personnel is to be coordinated with WCU Project Manager. Contractor's personnel who park outside construction fence in student, faculty or staff parking areas will be subject to fines and or towing.

b. Deliveries: Contractors are responsible for ensuring that material deliveries arrive safely at jobsite. At a minimum Supplier transportation drivers should know the name of Contractor, name of Project and driving directions. It is astounding the number of jobsite deliveries where this basic information is unknown by drivers. Contractor representatives are to be available to receive deliveries. WCU will not receive deliveries on behalf of the contractor. Contractor deliveries to WCU Warehouse will be rejected.

c. Speed Limit: Note that campus wide speed limit is 20 miles per hour or per displayed speed limit. Construction personnel must obey speed limit. Crosswalks throughout campus establish areas where pedestrians have right-of-way. Vehicular traffic must yield at cross-walks. This includes students, faculty, and staff when contractor's personnel are using cross- walks. Keep in mind that pedestrians occasionally are distracted and may not be attentive to task at hand, i.e. driving. Exercise caution.

d. Parking Permits:

1) Parking permits can be obtained from the Office of Facilities Management

2) Parking permits not required for company vehicles parked within fenced staging area (are required if ever parked outside of staging area).

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 011000

SECTION 012000

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

1.02 SCHEDULE OF VALUES

A. Use Schedule of Values Form: AIA G703, unless otherwise agreed to by Owner in writing.

B. Forms filled out by hand will not be accepted.

C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification section. Identify site mobilization.

D. Include in each line item, the amount of Allowances specified in this section. For Quantity Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.

E. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.

F. Revise schedule to list approved Change Orders, with each Application For Payment.

1. When a Change Order includes multiple PCOs, break down the total Change Order to include each PCO as an individual line item.

1.03 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Use Form AIA G702 and Form AIA G703.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

D. Forms filled out by hand will not be accepted.

E. For each item, provide a column for listing each of the following:

1. Item Number.
2. Description of work.
3. Scheduled Values.
4. Previous Applications.
5. Work in Place and Stored Materials under this Application.
6. Authorized Change Orders.
7. Total Completed and Stored to Date of Application.
8. Balance to Finish.
9. Retainage.

F. Execute certification by signature of authorized officer.

G. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.

1. When a Change Order includes multiple PCOs, break down the total Change Order to include each PCO as an individual line item.

I. Submit one electronic color copy of each Application for Payment.

J. Include the following with the application:
1. Transmittal letter as specified for submittals in Section 013000.
2. Sales Tax Forms: North Carolina State and County Sales Tax Statement and Certification form. Submit with each pay application. Invoices are not required with the exception of invoices for stored materials.
3. MBE/HUB forms: MBE payment documentation is required with each payment application in order for payment to be processed. If there is no items for the month, a form is still required to be submitted and indicate "None" with the applicable dates.
4. Construction progress schedule, revised and current as specified in Section 013000.
5. Partial release of liens from major subcontractors and vendors.
6. Affidavits attesting to off-site stored products.

1.04 MODIFICATION PROCEDURES

A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.

B. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 14 days, unless otherwise indicated in Proposal Request.

C. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation.

D. For other required changes, Architect will issue a Construction Change Directive, signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
2. Promptly execute the change.

E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.
3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.
4. Cost will be rounded to the nearest whole dollar.
5. Correct project title assigned by SCO to be indicated.

F. Substantiation of Costs: Provide full information required for evaluation.
1. Provide the following data:
a. Complete breakdown quantities of products, labor, and equipment.

b. Taxes, insurance, and bonds.
c. Overhead and profit.
d. Justification for any change in Contract Time.
e. Credit for deletions from Contract, similarly documented.

2. Support each claim for additional costs with additional information:
   a. Origin and date of claim.
   b. Dates and times work was performed, and by whom.
   c. Time records and wage rates paid.
   d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

G. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

H. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

I. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

1.05 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 017000.

C. Provide evidence and supporting data for the following, as attachments to the Application for Final Payment:
   1. AIA G706, "Contractor's Affidavit of Payment of Debts and Claims."
   2. AIA G707, "Consent of Surety to Final Payment."
   3. Settlement of all debts and claims, including liquidated damages, taxes, and fees.
   4. Utility meter readings, fuel levels, and similar measurements, as of the date of turn over to the Owner.
   5. Certificates for insured products.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 012000

SECTION 012500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
   1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control, such as unavailability, regulatory changes, or unobtainable warranty terms.
   2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
   2. Agrees to provide the same warranty for the substitution as for the specified product.
   3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
   4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
   5. Waives claims for additional costs or time extension that may subsequently become apparent.
   6. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
   1. Note explicitly any non-compliant characteristics.

C. Substitutions shall be submitted directly by a General Contractor/prime bidder. Substitutions submitted by a subcontractor, manufacturer, supplier or other entity other than General Contractor are not acceptable and shall be rejected.

D. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
   1. A copy of the Substitution Request Form that shall be used is included at the end of this Section for informational purposes. Request a Word or editable PDF version of the form from the Architect and complete the form digitally; do not complete the form by hand.
   2. Contractor's Substitution Request documentation must include the following:
      a. Substitution Request Information:
         1) Indication of whether the substitution is for cause or convenience.
         2) Issue date.

3) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
4) Description of Substitution.
5) Reason why the specified item cannot be provided.
6) Description of how proposed substitution affects other parts of work.

b. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
1) Physical characteristics.
2) In-service performance.
3) Expected durability.
4) Visual effect.
5) Sustainable design features.
6) Warranties.
7) Other salient features and requirements.
8) Include, as appropriate or requested, the following types of documentation:
(a) Product Data:
(b) Samples.
(c) Certificates, test, reports or similar qualification data.
(d) Drawings, when required to show impact on adjacent construction elements.

c. Impact of Substitution: Provide data indicating cost savings to Owner and change in Contract Time due to accepting substitution.

E. Limit each request to a single proposed substitution item.
1. Submit an electronic document, combining the request form with supporting data into single document.

3.02 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A. GC to refer to General Conditions “Article 6 Substitutions” of the Informal Contract.
1. In accordance with the provisions of G.S. 133-3, material, product, or equipment substitutions proposed by the bidders to those specified herein can only be considered during the bidding phase until five (5) days prior to the receipt of bids or by the date specified in the pre bid conference, when submitted to the Designer with sufficient data to confirm material, product, or equipment equality. Proposed substitutions submitted after this time will be considered only as potential change order.

B. Submit request for Substitution for Cause immediately upon discovery of need for substitution.

C. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project.
1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
3. Bear the costs engendered by proposed substitution of:
a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
b. Other unanticipated project considerations.

D.

Substitutions will not be considered under one or more of the following circumstances:

1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
2. Without a separate written request.

3.03 RESOLUTION

A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

B. Architect will notify Contractor in writing of decision to accept or reject request.

3.04 ACCEPTANCE

A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.05 CLOSEOUT ACTIVITIES

A. See Section 017800 - Closeout Submittals, for closeout submittals.

END OF SECTION 012500

Substitution Request Form – Prior to Receipt of Bids

General Information				
Project Name	REID GYMNASIUM - REID119 TOILET ROOM RENOVATION Western Carolina University – Cullowhee, NC			
SCO Project ID Number	23-26576-01A			
Specified Product/Item Information				
Specification Title				
Section				
Page				
Article / Paragraph				
Description				
Proposed Substitution Information				
Proposed Substitution				
Reason for not providing specified product/item				
Comparative Data	Attach a point-by-point comparative data list. Include all differences between the proposed substitution and the specified product/item. If not provided, this Request will be rejected.			
Manufacturer				
Manufacturer Address				
Manufacturer Phone				
Manufacturer Representative Email address				
Trade / Model Name				
Model Number				
Installer (if known)				
Installer Address				
Installer Phone				
History	☐ New product	☐ 2-5 years	☐ 5-10 yrs	☐ 10 yrs or longer
Proposed substitution affects other parts of the Work	☐ Yes		☐ No	
If yes, explain				
Proposed Substitution Similar Installation				
Have you used this product/item on any other projects	☐ Yes		☐ No	
Project				
Project Address				
Architect/Engineer				
A/E Phone				

Owner	
Owner Phone	
Date installed	

Attached Supporting Data

☐ Drawings	☐ Product Data/Specs	☐ Samples	☐ Tests	☐ Reports	☐

Entity submitting this Substitution Request certifies all of the following:

- Proposed substitution has been fully investigated and determined to be equivalent or superior in all respects to the specified product, except as may otherwise be specifically and clearly indicated herein.
- If applicable, proposed substitution shall not adversely affect LEED requirements nor shall it prevent achieving the relative number of applicable LEED point[s] the specified product would have received.
- Proposed substitution's function, appearance, and quality are equal or superior in all respects to the specified product, except as may otherwise be specifically and clearly indicated herein.
- Same or superior warranty and/or guarantees shall be furnished for proposed substitution as is required for the specified product/item.
- Same maintenance service and source replacement parts, as applicable, are available; including local availability.
- Proposed substitution shall have no adverse effect on other trades.
- Proposed substitution shall not affect dimensions and functional clearances.
- Coordination, installation, and changes to the Work as necessary for the accepted proposed substitution shall be complete in all respects.

Entity's Information

Submitted by	
Signed By	
Date	
Email address of Signee above	
Company Name	
Address	
Phone	

Architect / Engineer Review and Action

If this Substitution request is acceptable, it shall be included in an Addendum. If the proposed substitution is not included in an Addendum, then the proposed substitution was rejected; was not submitted in accordance with the Bidding/Procurement Documents; and/or this Form was not complete. This Form shall be completely filled in to be considered for acceptance.

Acceptance of this Substitution request is an acceptance of the manufacturer and product/item only for general conformance with the design concept reflected in the Bidding/Procurement Documents. The A/E has made no attempt to verify specific performance data, or to check details of the proposed substitution as to special features, capacities, physical dimensions, or code and/or regulatory compliance – all of which remain the responsibility of the submitting entity and the Contractor (if not the submitting entity).

END OF SUBSTITUTION REQUEST FORM

SECTION 013000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements: General product requirements.

1.02 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 017000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

B. Electronic File Distribution: Upon request, Contractor may be provided electronic files for use in coordination of the Work and preparation of submittals. Contractor shall submit a signed Request Form for Electronic Files, provided by the Architect.

1. Electronic files do not contain all of the information of the Bid Documents or Contract Documents for construction of the Project, and the Architect shall not be responsible for differences between electronic files, Bid Documents, and Contract Documents.

C. Project Identification: All correspondence, reports, schedules, applications of payment etc., must contain proper name of project, code and item number, specification number if necessary and SCO ID and/or Architect's project number if applicable.

1.03 SUBMITTALS

A. General Contractor Personnel: Within 15 days after award of Contract, provide a summary of General Contractor's on site personnel. Identify each individual, beginning with project superintendent. List project responsibilities, cell phone number, and email address.

B. Subcontractors: Within 15 days after award of Contract, provide a summary of all companies and individuals engaged as subcontractors for any part of the Project. Include a contact name, company address, phone number, and email address, and identify what part of the Work shall be completed by each subcontractor.

C. Coordination Drawings: Submit completed Coordination Drawings for Architect's information.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.

1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
2. It is Contractor's responsibility to submit documents in allowable format.

3. Subcontractors, suppliers, and Architect's consultants will be permitted to use the service at no extra charge.
4. Paper document transmittals will not be reviewed unless previously approved; emailed electronic documents will not be reviewed.
5. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

B. Submittal Service: Coordinate method for exchanging files no later than the Preconstruction Meeting. The Architect's Procore service and procedures can be used at no charge. If the Contractor chooses to use a different platform and methodology:
1. The Architect may reject the methodology or platform proposed and:
a. use the Architect's Procore service, or
b. the project team will revert to traditional hard-copy exchange;
2. or the Contractor shall bear the cost of software, licensing, training, etc., for the project team to participate.

C. Project Closeout: Architect will determine when to terminate the service for the project and is responsible for obtaining archive/record copies of files for Owner. If the Project Team uses an alternate platform preferred by the Contractor, the Contractor shall be responsible for distributing archive/record copies of files to Owner and Architect.

3.02 PRECONSTRUCTION MEETING

A. Architect will schedule a meeting after Notice of Award.

B. Attendance Required:
1. Owner.
2. Architect.
3. Contractor.
4. Owner's Commissioning Agent.
5. Major subcontractors, consultants, and others as necessary and appropriate.

C. Agenda:
1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
5. Designation of personnel representing the parties to Contract and Architect.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.
8. Site mobilization and utilization.
9. Other project-specific items on pre-distributed agenda.

D. Architect shall record minutes and distribute digital copies to Owner, Contractor, and other attendees. Contractor shall be responsible for distribution to subcontractors and other personnel affected by decisions made.

3.03 INDOOR AIR QUALITY (IAQ) MANAGEMENT PLAN DEVELOPMENT SESSION

A. Architect will schedule a meeting after Notice of Award.

B. Attendance Required:
   1. Owner.
   2. Owner's Commissioning Agent.
   3. Architect.
   4. Mechanical engineer.
   5. Contractor.
   6. HVAC subcontractor.
   7. Other major subcontractors, consultants, and others as necessary and appropriate.

C. Agenda:
   1. Protection of Materials: Discussion of how and where materials that could impact IAQ will be stored, including but not limited to, the following:
      a. Insulation.
      b. Gypsum board.
      c. Flooring materials.
      d. Ceiling panels.
      e. Furnishings.
      f. Odorous chemicals.
   2. Protection of HVAC: Discussion of how HVAC equipment will be stored installed, and operated during construction.
   3. Pathway Interruption: Discussion of how airflow between construction zones will be limited to prevent the spreading of pollutants from one part of the building to another.
   4. Housekeeping: Discussion of how the building will be kept clean and dry.
   5. Materials Installation Scheduling: Discussion of what wet (odor emitting) materials will be used on the project, in order to schedule their installation before fuzzy (odor absorbing) materials.

3.04 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section. Do not allow installation of affected work to proceed until preinstallation meeting can be held.
   1. Include all preinstallation meetings on the Project Schedule.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect and Owner in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with copies to Architect, Owner, participants, and those affected by decisions made.

3.05 PROGRESS MEETINGS

A. Architect will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

B. Attendance Required:
   1. Owner.
   2. Architect.

3. Contractor's superintendent.
4. Other subcontractors or consultants as required for the specific parts of the Work to be discussed.

C. Agenda:
1. Review minutes of previous meetings.
2. Review of work progress.
3. Field observations, problems, and decisions.
4. Identification of problems that impede, or will impede, planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of RFIs log and status of responses.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Maintenance of quality and work standards.
11. Effect of proposed changes on progress schedule and coordination.
12. Other business relating to the work.

D. Architect shall record minutes and distribute copies to the Owner, Contractor, and other consultants, Owner's representatives, or other third party attendees. The Contractor shall be responsible for distributing to any affected subcontractors and other personnel.

3.06 CLOSEOUT MEETING

A. Schedule and administer closeout meeting no later than 30 days before the scheduled Date of Architect's Final Inspection.

B. Make arrangements for the meeting, prepare agenda with copies for participants, and preside at the meeting.

C. Attendance Required:
1. Owner.
2. Architect.
3. Contractor's superintendent.
4. Major subcontractors.
5. Other subcontractors or consultants as required.

D. Agenda:
1. Review closeout requirements and procedures in Division 1 Section "Execution and Closeout Requirements."
2. Review startup, testing, and adjusting of all systems, including testing/adjusting/balancing and Commissioning,
3. Coordination of inspections by local authorities having jurisdiction and third party Special Inspectors as required to obtain Certificate of Occupancy.
4. Coordination of Owner's occupancy and changeover of utilities, insurance, and building keying/lock system.
5. Procedures for Contractor's Correction Punch List, Architect's Final Inspection, and Final Correction Punch List.
6. Delivery, turnover, and storage of maintenance materials, attic stock, special tools, and other non-installed materials.

7. Coordination of closeout documentation, including demonstration and training materials and videos, as built/record documents, operation and maintenance binders, and warranty binders.
8. Removal of temporary facilities, construction equipment, and tools.
9. Final cleaning, touchup, restoration, and preventive maintenance.
10. Coordination of final Applications for Payment.

E. Record minutes and distribute copies within two days after meeting to participants, with copies to Architect, Owner, participants, and those affected by decisions made.

3.07 DAILY CONSTRUCTION REPORTS

A. Include only factual information. Do not include personal remarks or opinions regarding operations and/or personnel.

B. Prepare a daily construction report recording the following information concerning events at Project site and project progress:
1. Date.
2. High and low temperatures, and general weather conditions.
3. List of subcontractors at Project site.
4. Approximate count of personnel at Project site.
5. Major equipment at Project site.
6. Material deliveries.
7. Safety, environmental, or industrial relations incidents.
8. Meetings and significant decisions.
9. Unusual events (submit a separate special report).
10. Stoppages, delays, shortages, and losses. Include comparison between scheduled work activities (in Contractor's most recently updated and published schedule) and actual activities. Explain differences, if any. Note days or periods when no work was in progress and explain the reasons why.
11. Directives and requests of Authority(s) Having Jurisdiction (AHJ).
12. Testing and/or inspections performed.
13. Signature of Contractor's authorized representative.

3.08 COORDINATION DRAWINGS AND COORDINATION CONFERENCE

A. Coordination Drawings: The Contractor shall prepare coordination drawings of all spaces where utilities, systems, and other components converge or intersect and efficient installation is required to accommodate all components.
1. Prepare coordination drawings of the following spaces, at minimum. Supplement with additional spaces as required by project-specific conditions.
   a. Above ceilings.
   b. Vertical chases, shafts, and wall cavities.
   c. Mechanical and electrical rooms, fire pump room, and other major utility spaces.
2. Provide accurate overall dimensions of components (for example, outside diameters of pipe and conduit, or overall ductwork dimensions including insulation and enclosure thickness).
3. Include accessory components of systems that could cause potential conflicts, such as bracing, slotted channel framing, hangers, and other supports, valve handles, flanges, fittings, cable/wire management trays, and other similar components.

4. Include sequence of installation of all components, materials, and systems.
5. Include means of access to each component, material, or system, for maintenance and repairs.
6. Provide additional coordination drawings as required by individual specification sections.
7. Prepare Coordination Drawings using project-specific information. Do not use photocopies or reproductions of Contract Documents, and do not use standard details or data from manufacturers, suppliers, or other outside parties.
8. Drawing Files: The Contractor may develop coordination drawings using 2D CAD software or with 3D BIM software with clash-detection functionality.
   a. The Architect will furnish original 3D BIM model or 2D DWG files for Contractor's use upon receipt of Architect's "Request Form for Electronic Files". A copy of this form shall be provided to the Contractor upon request.
      1) The Architect makes no guarantee to the accuracy of components in electronic files. The Contractor shall coordinate electronic data with the Contract Documents in order to provide final Coordination Drawings.
      2) If using 2D files, the Contractor shall prepare drawings in multiple views (for example, RCP and section) to fully represent 3D space, for example plenum heights, wall assembly thicknesses, etc.
9. Submittal: Submit Coordination Drawings as a "Submittal for Information." Architect will not approve Coordination Drawings, but will keep on file for use in subsequent coordination and conflict resolution.

B. Coordination Conference: Schedule and conduct a Coordination Conference prior to beginning construction or rough-in of affected work. Require attendance by all affected trades and installers.
   1. Identify the Coordination Conference as a "milestone" date on the Construction Progress Schedule.
   2. Advise the Architect of all potential conflicts identified in the Coordination Drawings and at the Coordination Conference.
   3. Do not proceed with construction or installation of components, materials, or systems until potential conflicts have been resolved and affected parties have agreed to a remedy.
   4. Remedies to address conflicts not identified in the Coordination Drawings, at the Coordination Conference, or otherwise addressed prior to construction or installation of affected components, materials, and systems, or discovery of a non-workable situation not identified or addressed, will not be considered as a basis for delay, time extension, or additional cost to the Contract.

3.09 REQUESTS FOR INFORMATION (RFI)

A. Definition: A request seeking one of the following:
   1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
   2. A resolution to an issue which has arisen due to field conditions and affects design intent.

B. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
   1. Prepare a separate RFI for each specific item.
      a. Review, coordinate, and comment on requests originating with subcontractors and/or

materials suppliers.

b. Do not forward requests which solely require internal coordination between subcontractors.

2. Prepare in a format and with content acceptable to Owner.
3. Prepare using software provided by the Electronic Document Submittal Service.
4. Combine RFI and its attachments into a single electronic file. PDF format is preferred.

C. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is not included.

1. Include in each request Contractor's signature attesting to good faith effort to determine from Contract Documents information requiring interpretation.
2. Unacceptable Uses for RFIs: Do not use RFIs to request the following:
   a. Approval of submittals (use procedures specified elsewhere in this section).
   b. Approval of substitutions (see Section - 016000 - Product Requirements)
   c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
   d. Different methods of performing work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Conditions of the Contract).
3. Improper RFIs: Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response.
4. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, Contract Documents, with no additional input required to clarify the question. They will be returned without a response.
   a. The Owner reserves the right to assess the Contractor for the costs (on time-and-materials basis) incurred by the Architect, and any of its consultants, due to processing of such RFIs.

D. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.

1. Official Project name and number, and any additional required identifiers established in Contract Documents.
2. Owner's, Architect's, and Contractor's names.
3. Discrete and consecutive RFI number, and descriptive subject/title.
4. Issue date and requested reply date.
5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.

E. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

F. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.

1. Indicate current status of every RFI. Update log promptly and on a regular basis.

2. Note dates of when each request is made, and when a response is received.

G. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
   1. Response period may be shortened or lengthened for specific items, subject to mutual agreement.

H. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
   1. When the Architect provides a response to an RFI, that RFI shall be closed. If there is additional information required, or a question about the response itself, then another RFI with a new number shall be generated by the Contractor. At no time shall an RFI be "re-opened" or remain open after the Architect has formally responded.
   2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
   3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
   4. Notify Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

3.10 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.
   1. Coordinate with Contractor's construction schedule and schedule of values.
   2. Format schedule to allow tracking of status of submittals throughout duration of construction.
   3. Arrange information to include scheduled date for initial submittal, specification number and title, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.
   4. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.
      a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.
      b. Account for a reasonable duration of time to allow for final color selections, approvals, and preparation of final finish schedules (one finish schedule for interior color selections, and one for exterior color selections). This period shall begin upon receipt of all submittals requiring color selection.

3.11 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Design data.
   3. Shop drawings.
   4. Samples for selection.
   5. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. Color Selection: In individual specification sections, specific items are identified which require color/finish selections to be made by the Architect from color chart or sample submittals. The Submittal Schedule, prepared according to “Submittal Schedule” paragraph above, shall identify these required color/finish submittals.

1. Submittals requiring color selection must be submitted by Contractor and approved by Architect for conformance with Contract Documents prior to the start of the color selection process. When the submittals have been approved for conformance with Contract Documents, the process for color selection, presentation of color concepts, Owner approval, and Color Schedule preparation will begin.
2. Interior Color Selections: The Architect will make coordinated selections of colors/finishes for the building interior, present the resulting color concepts to the Owner for approval, and prepare the actual Interior Color Schedule for the Work.
3. Exterior Color Selections: The Architect will make coordinated selections of colors/finishes for the building exterior and prepare Exterior Color Schedule.

E. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below.

3.12 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:

1. Certificates.
2. Test reports.
3. Inspection reports.
4. Manufacturer's instructions.
5. Manufacturer's field reports.
6. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner.

3.13 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Architect's Final Inspection.

B. Submit Final Correction Punch List at least two weeks before date of Owner's Final Acceptance inspection.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 017800 - Closeout Submittals:

1. Project record documents.
2. Operation and maintenance data.
   a. Maintenance Materials/Attic Stock
3. Warranties.
4. Bonds.
5. Other types as indicated.

3.14 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Selection Samples: Submit one set of manufacturer's charts indicating full range of available colors, textures, patterns, and other aesthetic qualities.

C. Verification Samples: Submit three sets of physical samples. Two sets will be retained by Architect, the third will be returned to the Contractor. Maintain approved sample at the Project site for use in comparing to installed Work.

1. Where a full-size assembly of multiple components is required as a sample (for example, railing section or full-size cabinet), only one sample is required for those items.

3.15 SUBMITTAL PROCEDURES

A. General Requirements:

1. Use a single transmittal for all submittals required by each individual specification section, unless otherwise indicated.
   a. Verification samples and large shop drawing submittals may be submitted under separate cover when approved by Architect.
2. Transmit using AIA G810 or other approved form.
3. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
4. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
5. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
   a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
6. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
   a. Upload submittals in electronic form to Electronic Document Submittal Service website.
7. Schedule submittals to expedite the Project, and coordinate submission of related items.
   a. Allow sufficient time for administrative processing, Architect's initial review, and potential resubmittals.
      1) Large submittals may require longer review durations. Large or multi-part submittals (such as structural steel or aluminum storefront and curtainwall) may be submitted by building area, building level, or otherwise subdivided "packages" with the approval of the Architect. Subdivided "packages" will be reviewed one at a time in the order received. If large submittals are submitted in their entirety as a single package, the Architect may elect to review and return portions of the submittal individually, and will coordinate the schedule for return of these partial reviews with the Contractor for sequencing in the Work.
   b. Allow additional time for submittals requiring sequential reviews involving Architect's consultants, Owner, or another affected party.
   c. Allow additional time for submittals requiring sequential reviews involving approval from authorities having jurisdiction (AHJ), in addition to Architect's approval.
   d. No extensions to the project schedule shall be granted due to delays that can be attributed to submittal processing or failure to allow for sequential reviews or resubmittals.
8. Identify variations from Contract Documents and product or system limitations that may be

detrimental to successful performance of the completed work.

9. When revised for resubmission, identify all changes made since previous submission.
10. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
11. Incomplete submittals may not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
12. Submittals not requested will be recognized, and will be returned "Not Reviewed".

B. Product Data Procedures:
1. Submit only information required by individual specification sections.
2. Collect required information into a single submittal.
3. Submit concurrently with related shop drawing submittal.
4. Do not submit (Material) Safety Data Sheets for materials or products.

C. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
2. Do not reproduce Contract Documents to create shop drawings.
3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

D. Samples Procedures:
1. Transmit related items together as single package.
2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.
3. Selection Samples: Provide color charts that accurately relay color, pattern, and texture information. Photographs or photocopies of color charts are unacceptable and subject to rejection.
4. Verification Samples: Provide physical samples of each color selected by Architect from Selection Samples. Verification samples shall be manufactured and prepared identically to the material that shall be used in the installed Work. Label each sample clearly with manufacturer, product name, and color, texture, and/or pattern name as applicable. Photographs of physical samples are unacceptable and subject to rejection.

3.16 SUBMITTAL REVIEW

A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.

B. Submittals for Information: Architect will acknowledge receipt, but will take no other action.

C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.

D. Architect's actions on items submitted for review:
1. Authorizing purchasing, fabrication, delivery, and installation:
a. "Approved as Noted":
1) Where review notations indicate revisions are necessary, submit corrected item, with review notations acknowledged and incorporated.
2. Not Authorizing fabrication, delivery, and installation:
a. "Revise and Resubmit":

1) Resubmit revised item, with review notations acknowledged and incorporated.

b. "Rejected/Resubmit":

1) New submittal required, with item complying with requirements of Contract Documents.

c. "Color Selection Required":

1) Color selections for the entire project, or portion thereof, will be provided after receipt of all color charts and samples required for the Project.

d. "Not Submitted":

1) Additional submittal items are required that were not provided in the original submittal.

E. Architect's actions on items submitted for information:

1. Items for which no action was taken:

a. "Not Reviewed": To notify the Contractor that the submittal has been received for record only.

END OF SECTION 013000

SECTION 013216
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SUBMITTALS

A. Within 10 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.

1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

F. Submit in PDF format.

1.02 QUALITY ASSURANCE

A. Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

1.03 SCHEDULE FORMAT

A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

B. Identify work of separate phases and other logically grouped activities.

C. Identify all major milestone dates, including, but not limited to, Notice to Proceed and Owner's Final Acceptance dates.

D. Identify duration of each activity, in maximum 15 day intervals.

E. Incorporate work restrictions indicated in Section 011000 - Summary, if any.

F. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

G. Provide separate schedule of submittal dates for shop drawings, product data, and samples, owner-furnished products, and dates reviewed submittals will be required from Architect . Indicate decision dates for selection of finishes.

H. Indicate procurement duration and delivery dates for long-lead time items.

I. Coordinate submittal approval process with procurement and delivery requirements. Submittals requiring resubmission or revision for approval will not be allowed as a basis for schedule impacts.

J. Indicate delivery dates for owner-furnished products.

K. Indicate the time period for color selection activity and approval by Owner and Architect, as required per Section 013000 - Administrative Requirements.

L. Indicate date of changeover from temporary to permanent utilities.

M. Indicate time periods for equipment startup, and testing and balancing.

N. Provide a reasonable time period prior to the date of Owner's Final Acceptance inspection for administrative activities and procedures.

O. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

A. Include a separate bar for each major portion of Work or operation.

B. Identify critical path activities.

C. Identify the first work day of each week.

3.04 REVIEW AND EVALUATION OF SCHEDULE

A. Participate in joint review and evaluation of schedule with Architect at each submittal.

B. Evaluate project status to determine work behind schedule and work ahead of schedule.

C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.05 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

C. Annotate diagrams to graphically depict current status of Work.

D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

E. Indicate changes required to maintain Date of Owner's Final Acceptance.

F. Schedule revisions shall not modify any Contract Dates or the Contract Sum, unless specifically approved and documented via Change Order.

G. Submit reports required to support recommended changes.

H. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect.

I. Recovery Schedule: If the Contractor is 14 or more days behind schedule, in the opinion of the Owner, the Contractor shall prepare a Recovery Schedule, incorporating a reasonable, mutually agreed upon length of time to return the Work to the approved Schedule. The Recovery Schedule shall be prepared to the same level of detail as the original construction

progress schedule. Submit the recovery schedule for Owner review; do not proceed until the Owner has approved.

1. At the end of the recovery period, Owner shall reevaluate construction progress and determine if the Recovery Schedule has been successfully completed. If completed, Owner shall direct the Contractor to proceed with the latest approved Construction Schedule.
   a. If the Contractor is still behind schedule at the end of the recovery period, the Owner shall direct the Contractor to provide additional schedule revisions to complete the recovery, or may at its option pursue other means of resolution as provided for by the Contract Documents.
2. Need for and preparation of a Recovery Plan shall not be the basis of additional cost to the Owner or extension of Project Schedule, unless the Contractor can demonstrate that the reason for being behind schedule is no fault of their own.

3.06 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Architect, Owner, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

END OF SECTION 013216

SECTION 014000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 014200 - Definitions and Reference Standards.

1.02 DEFINITIONS

A. Contractor's Quality Control Plan: Contractor's management plan for executing the Contract for Construction.

B. Contractor's Professional Design Services/Delegated Design: Design of some aspect or portion of the project by party other than the design professional of record. Provide these services as part of the Contract for Construction.

1. Design Services Types Required:

a. Construction-Related: Services Contractor needs to provide in order to carry out the Contractor’s sole responsibilities for construction means, methods, techniques, sequences, and procedures.

b. Design-Related: Design services explicitly required to be performed by another design professional due to highly-technical and/or specialized nature of a portion of the project. Services primarily involve engineering analysis, calculations, and design, and are not intended to alter the aesthetic aspects of the design.

C. Design Data: Design-related, signed and sealed drawings, calculations, specifications, certifications, shop drawings and other submittals provided by Contractor, and prepared directly by, or under direct supervision of, appropriately licensed design professional.

1.03 CONTRACTOR'S CONSTRUCTION-RELATED PROFESSIONAL DESIGN SERVICES

A. Coordination: Contractor's professional design services are subject to requirements of project's Conditions for Construction Contract.

B. Provide such engineering design services as may be necessary to plan and safely conduct certain construction operations, pertaining to, but not limited to the following:

1. Temporary sheeting, shoring, or supports.
2. Temporary scaffolding.
3. Temporary bracing.
4. Temporary falsework for support of spanning or arched structures.
5. Temporary foundation underpinning.
6. Temporary stairs or steps required for construction access only.
7. Temporary hoist(s) and rigging.
8. Investigation of soil conditions and design of temporary foundations to support construction equipment.
9. Additional temporary controls as required.

1.04 CONTRACTOR'S DESIGN-RELATED PROFESSIONAL DESIGN SERVICES

A. Coordination: Contractor's professional design services are subject to requirements of project's Conditions for Construction Contract.

B. Base design on performance and/or design criteria indicated in individual specification sections.

1. Submit a Request for Information to Architect if the criteria indicated are not sufficient to perform required design services.

C. Scope of Design Services/Delegated Design: As required by individual specification sections.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Designer's Qualification Statement: Submit for Architect's knowledge as contract administrator, or for Owner's information.
   1. Include information for each individual professional responsible for producing, or supervising production of, design-related professional services provided by Contractor.
      a. Full name.
      b. Professional licensure information.
      c. Statement addressing extent and depth of experience specifically relevant to design of items assigned to Contractor.

C. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
   1. Include calculations that have been used to demonstrate compliance to performance and regulatory criteria provided, and to determine design solutions.
   2. Include required product data and shop drawings.
   3. Include a statement or certification attesting that design data complies with criteria indicated, such as building codes, loads, functional, and similar engineering requirements.
   4. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.

D. Test Reports: After each test/inspection, require testing agency to promptly distribute digital copy of report to Architect, Owner, Contractor, and others as required.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test/inspection.
      h. Date of test/inspection.
      i. Results of test/inspection.
      j. Compliance with Contract Documents.
      k. When requested by Architect, provide interpretation of results.

E. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor to Architect, in quantities specified for Product Data.
   1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
   2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

F. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

G. Manufacturer's Field Reports:
   1. Submit report promptly to Architect for information.
   2. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

1.06 QUALITY ASSURANCE

A. Testing Agency Qualifications:
   1. Prior to start of work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
   3. Qualification Statement: Provide documentation showing testing laboratory is accredited under OSHA's Nationally Recognized Testing Laboratory (NRTL) program or through the National Institute of Standards and Technology's (NIST's) National Voluntary Laboratory Accreditation Program (NVLAP).

B. Designer Qualifications: Where professional engineering design services and design data submittals are specifically required of Contractor by Contract Documents, provide services of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

C. Contractor's Quality Control (CQC) Plan:
   1. Prior to start of work, submit a comprehensive plan describing how contract deliverables will be produced. Tailor CQC plan to specific requirements of the project. Include the following information:
      a. Management Structure: Identify personnel responsible for quality. Include a chart showing lines of authority.
         1) Include qualifications (in resume form), duties, responsibilities of each person assigned to CQC function.
      b. Management Approach: Define, describe, and include in the plan specific methodologies used in executing the work.
         1) Management and control of documents and records relating to quality.
         2) Communications.
         3) Coordination procedures.
         4) Resource management.
         5) Process control.
         6) Inspection and testing procedures and scheduling, including inspections by authorities having jurisdiction and special inspections.
         7) Control of noncomplying work.
         8) Tracking deficiencies from identification, through acceptable corrective action, and verification.
         9) Control of testing and measuring equipment.
         10) Project materials certification.
         11) Managerial continuity and flexibility.

c. Acceptance of the plan is required prior to start of construction activities not including mobilization work. Owner's acceptance of the plan will be conditional and predicated on continuing satisfactory adherence to the plan. Owner reserves the right to require Contractor to make changes to the plan and operations, including removal of personnel, as necessary, to obtain specified quality of work results.

1.07 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Owner's Final Acceptance.

E. Should specified reference standards conflict with Contract Documents, comply with the higher quality or quantity, and provide documentation of the conflict to the Architect.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

1.08 TESTING AND INSPECTION AGENCIES AND SERVICES

A. Owner will employ and pay for services of an independent testing agency to perform Special Inspections and other specified testing indicated in individual specification sections.

B. Where indicated in individual specification sections, Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.

C. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

D. Contractor Employed Agency: Testing agency shall comply with requirements of ASTM E 329, and shall be certified through OSHA's Nationally Recognized Testing Laboratory (NRTL) program or through the National Institute of Standards and Technology's (NIST's) National Voluntary Laboratory Accreditation Program (NVLAP).

1. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.03 TESTING AND INSPECTION

A. See individual specification sections for testing and inspection required.

B. Testing Agency Duties for Contractor-Employed Testing and Inspection Agencies:
   1. Test samples of mixes submitted by Contractor.
   2. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   3. Perform specified sampling and testing of products in accordance with specified standards.
   4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   5. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
   6. Perform additional tests and inspections required by Architect.
   7. Attend preconstruction meetings and progress meetings.
   8. Submit reports of all tests/inspections specified.

C. Limits on Testing/Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the Work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the Work.

D. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.

c. To facilitate tests/inspections.
d. To provide storage and curing of test samples.

4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
7. Coordinate repairs where testing and inspection has damaged the Work.

E. Re-testing and/or re-inspections required because of non-compliance with specified requirements shall be performed by the same agency. Do not proceed with construction activities that would conceal or cover work needing re-testing or re-inspection.

F. Re-testing and/or re-inspections required because of non-compliance with specified requirements shall be paid for by Contractor.

3.04 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, and field quality control requirements as applicable, and to initiate instructions when necessary.

B. Provide a written report of observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions or Contract Documents. Obtain Owner's approval prior to proceeding with any modifications.

3.05 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with specified requirements.

B. Contractor may request to restore defective Work or portions of the Work to comply with specified requirements in lieu of replacement. Obtain Owner's approval prior to proceeding with restoration.

C. If, in the opinion of Owner, it is not practical to restore or remove and replace the work, Owner will direct an appropriate remedy or adjust payment.

END OF SECTION 014000

SECTION 014200

DEFINITIONS AND REFERENCE STANDARDS

PART 1 GENERAL

1.01 SUMMARY

A. The definitions include in this section supplement, but do not replace, the definitions contained in the General Conditions. In the event of duplication, the General Conditions shall govern.

B. Other definitions are included in individual specification sections.

1.02 DEFINITIONS

A. Furnish: To supply, deliver, unload, and inspect for damage.

B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.

C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.

D. Provide: To furnish and install.

E. Supply: Same as Furnish.

F. Installer: A Contractor or other entity engaged by Contractor, as an employee, subcontractor, or contractor of lower tier, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that specified requirements apply exclusively to tradespeople of the corresponding generic name.

G. Experienced: When used with the term "Installer," this term means having successfully completed previous work similar in size and scope to this Project; being familiar with the special requirements indicated; and having complied with the requirements of local authorities having jurisdiction.

H. Replace: Provide an acceptable like product or material in place of a missing or unacceptable (rejected) product or material. To "replace" an unacceptable product or material includes its removal and disposal.

I. Punch List: A written list of unfinished Work and defective Work resulting from inspection and testing to determine whether corrections from Architect's Final Inspection have been completed. The unfinished Work and defective Work must be finished and corrected to obtain Owner's Final Acceptance, in accordance with the General Conditions.

J. Written or Printed: When used in conjunction with manufacturer's product data or installation requirements, either of these terms may be used to require compliance with manufacturer's current printed and published information.

1.03 REFERENCE STANDARDS

A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified, or are required by applicable

codes or local authorities having jurisdiction.

B. Should specified reference standards conflict with Contract Documents, request clarification from the Architect before proceeding.

C. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect shall be altered by Contract Documents by mention or inference otherwise in any reference document.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 014200

SECTION 015000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 TEMPORARY UTILITIES

A. Owner will provide the following:
   1. Electrical power, consisting of connection to existing facilities.
   2. Water supply, consisting of connection to existing facilities.

B. New permanent facilities may be used, with prior Owner authorization.
   1. Use of permanent facilities shall not impact specified warranties. Equipment shall be maintained during temporary usage.

C. Temporary Lighting: Provide temporary lighting of type and producing lighting levels necessary for proper installation of the Work.

D. Temporary Heating, Cooling, and Ventilation: Provide temporary measures and equipment as required for curing, drying, and humidity control. Comply with manufacturer's installation instructions for specific product requirements.
   1. Provide measures and equipment to meet warranty requirements of interior woodwork specified in Division 6 and/or Division 12 sections.
   2. Use of Permanent HVAC Facilities and Equipment: Use of HVAC equipment shall be subject to Owner approval.
      a. Protect new and existing HVAC equipment from intrusion of dust, silica, dirt and debris during construction operations.
      b. Cover all openings in new and existing inactive ductwork during construction operation with minimum 6 mil polyethylene sheet.
      c. Where use of existing HVAC equipment is approved by Owner, provide temporary filters with a minimum MERV of 8. Change the filters every two weeks while construction is ongoing. Provide new filters prior to Owner's Final Acceptance inspection; do not change out temporary filter until approved by Architect.
      d. Do not perform testing and balancing of HVAC equipment until dust, silica, dirt and debris producing activities are complete.

E. Temporary Water: For the duration of construction or until permanent water service is available at the site, the Contractor shall provide a temporary water source, as part of the Contract Price.

F. Temporary Electric Service: Until electric utility provides permanent service at the site, the Contractor shall provide temporary electrical power, as part of the Contract Price.

1.02 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Telecommunications services shall include:
   1. Telephone Service: Contractor shall ensure that all of its forces, including on-site managers/supervisors of each Subcontractor, have mobile devices and adequate voice and data coverage for on-site operations
   2. Internet Connections: Minimum of one; DSL modem or faster.
   3. Video Conferencing and Video Site Visit/Walkthrough Infrastructure: Maintain personal computer/laptop with large format display screen and video conferencing software in the

4. common-use field office.
    a. Maintain equipment in common-use field office for site visits and walkthroughs, including a portable, high quality digital video camera, audio headset with microphone for walkthrough commentary/narration, and accessories including connection cables and battery packs.

1.03 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
    1. Provide temporary unisex toilet units and all required disposable supplies.
    2. Provide handwash stations and hand sanitizer at each toilet unit.
    3. Provide regular servicing of portable facilities by professional servicing company; including draining, cleaning, and disinfecting.

B. New permanent facilities may not be used during construction operations.

C. Maintain daily in clean and sanitary condition.

1.04 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building, and for emergency egress.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect vehicular traffic, stored materials, site, and structures from damage.

1.05 INTERIOR ENCLOSURES

A. Provide temporary partitions to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Construction: Framing and gypsum board sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1.06 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.
    1. Contractor shall repair damage to existing facilities caused by Construction operations.

B. Coordinate with Owner's security program.

C. Environmental Protection: Comply with EPA, OSHA and other regulatory requirements to prevent contamination of site, air, and public sewer/runoff.
    1. Provide additional work restrictions and protective measures as indicated on Civil/Site Drawings and as specified in Section 011000 - Summary.

1.07 VEHICULAR ACCESS AND PARKING

A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

B. Parking: Contractor may park limited number of vehicles within construction fence. This is

C. typically limited to one (1) truck per Subcontractor. Parking for additional personnel is to be coordinated with WCU Project Manager. Contractor's personnel who park outside construction fence in student, faculty or staff parking areas will be subject to fines and/or towing.

D. Coordinate access and haul routes with governing authorities and Owner.

E. Provide and maintain access to fire hydrants, free of obstructions.

F. Provide means of removing mud from vehicle wheels before entering streets.

G. Designated existing on-site roads may be used for construction traffic.

1.08 WASTE REMOVAL

A. See Section 017419 - Construction Waste Management and Disposal, for additional requirements.

B. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

C. Provide containers with lids. Remove trash from site periodically.

D. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.09 PROJECT IDENTIFICATION

A. Provide project identification sign of design and construction indicated on drawings.
   1. Obtain and pay for any permits required for temporary signage by local authority having jurisdiction.

B. Erect on site at location(s) established by Architect.

C. Provide temporary directional signage as directed to facilitate site access for visitors and other construction personnel.

D. No other signs are allowed without Owner permission except those required by law.

1.10 FIELD OFFICES

A. Field Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture and drawing display table.
   1. Provide space for Project meetings, with table and chairs to accommodate 10 persons.
   2. Provide drinking water/water cooler and a private bathroom.
   3. Maintain the following materials in the field office, available to Architect and Owner's representative at all times:
      a. A complete, up-to-date set of all Contract Documents, including FCs, RFIs, PCOs, and COs.
      b. A complete, up-to-date set of all reviewed final shop drawings.
      c. The most recent, up-to-date version of Contractor's Progress Schedule.

B. Locate offices a minimum distance of 30 feet from other structures.

1.11 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Owner's Final Acceptance inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities used during construction to original condition.

D. Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS

2.01 MATERIALS

A. Rough Carpentry: 2x lumber, in length and depth required for floor to ceiling partitions. Partitions shall not be fastened to existing ceilings or flooring to remain. Provide additional bracing and concealed attachments to building structure.

B. Gypsum Board: 1/2-inch gypsum wallboard; ASTM C 1396.

C. Insulation: Mineral-wool fiber blankets; with maximum flame-spread and smoke-developed ratings of 25 and 50 when tested per ASTM E 84.

D. Polyethylene Sheet: Minimum 10 mil reinforced sheeting; achieving a passing rating when tested per NFPA 701, and a maximum flame-spread rating of 15 when tested per ASTM E 84.

E. Walk-Off Mats: Dust-, dirt- and silica-control walk-off mats at each entrance into the enclosed construction area and each entrance through temporary partitions.

F. Hardware: Provide temporary hinges, latch, and lock at doors in temporary partitions. Where doors in temporary partitions are also indicated to serve as egress, provide ADA-compliant exit device and closer.

2.02 EQUIPMENT

A. Fire Extinguishers: Provide portable UL rated extinguishers. Provide extinguisher types rated for potential classes of fire expected for construction work indicated.

PART 3 EXECUTION

3.01 ELEVATOR AND STAIR USAGE

A. Use of new or existing elevator(s) is not permitted.

B. Use of existing stairs is permitted. Cover existing finishes and maintain stairs without damage. Clean and restore stairs prior to Owner's Final Acceptance inspection.

3.02 PEST CONTROL

A. Provide pest-control services at regular intervals, performed in compliance with regulations of state regulations, and by a pest-control firm licensed in the state where the project is located. Any chemicals and pesticides used shall be approved by EPA and local authority having jurisdiction. Contractor's pest control plan shall ensure the facility is free of termites, roaches, rodents, and other pests at time of Owner's Final Acceptance.

1. Coordinate with Owner's Integrated Pest Management (IPM) plan where applicable.
2. Provide Owner with a minimum 72 hours pre-notification for pest-control treatments.

3.03 TEMPORARY FIRE PROTECTION

A. Comply with International Fire Code, Chapter 33 "Fire Safety During Construction and Demolition" for preventing damage to structures under construction.

1. Comply with NFPA 241 "Standard for Safeguarding Construction, Alteration, and Demolition Operations" for additional provisions and conditions that are not covered by Chapter 33 of the International Fire Code.

B. Provide a fire-prevention program, review with all personnel on site, and post fire-prevention information in clearly visible area. Coordinate fire-prevention program with local fire department.

C. Provide clearly labeled portable fire extinguishers.

D. Provide fire watch in compliance with OSHA requirements during and after use of all potential ignition sources, including but not limited to, welders, grinders, cutting torches, heating and electrical equipment, and lighting.

E. Do not allow smoking in areas under construction.

3.04 MOISTURE CONTROL

A. Prevent the absorption of moisture and humidity by:
   1. Sequencing the delivery of such materials so that they are not present in the building until wet work is completed and dry.
   2. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.
   3. Provide sufficient ventilation for drying within reasonable time frame.

B. Provide continuous monitoring of installed materials. Remove gypsum board, wood products, and other mold-supporting products, if they become and remain wet for 48 hours. Remove and replace any materials showing visible signs of mold or mildew.

3.05 TEMPORARY FACILITY USAGE AND REMOVAL

A. Maintenance and Usage: Keep temporary facilities clean and in well-maintained condition for the duration of the Project. Prevent misuse of or damage to facilities by construction personnel. Make repairs to temporary facilities or replace facilities as required to keep them in good operating condition and in compliance with applicable OSHA, local permitting, and other applicable regulations.

B. Changeover: Coordinate changeover from temporary facilities to permanent facilities at Owner's Final Acceptance inspection, unless an alternate arrangement for changeover has been agreed upon in writing by Owner.
   1. Contractor shall be responsible for repair, restoration, and cleaning of permanent facilities that are used for construction purposes after changeover.

C. Removal: Unless otherwise indicated, temporary facilities and controls are the property of the Contractor, and shall be removed upon Architect's approval when Contractor can demonstrate that they are no longer needed.
   1. Comply with construction waste management and recycling requirements for temporary facilities and materials that are not able to be reused.
   2. After removal of temporary facilities and controls, complete all permanent construction that was not accessible due to the presence of temporary facilities.
   3. Remove materials that have become soiled or contaminated due to construction vehicle traffic, parking, temporary field offices, oil or other chemical spillage, and other temporary usage, and replace with clean material. Complete grading, landscaping, paving, and other site improvements, and repair or restore all damage to existing or previously completed site improvements.

3.06 MISCELLANEOUS PROVISIONS

A. Material Storage:
   1. Construction fencing is required for most projects to protect WCU students, faculty and staff from injury and personal property from damage. Comply with all OSHA rules and regulations. No signage is permitted on fence unless approved by WCU.

2. Jobsite storage within project Construction Fence: Coordinate “lay down” material storage area required within construction fence with Designer and WCU PM. When project is complete and materials removed, repair any damage to asphalt or striping.
3. Remote Storage Trailer Storage: Containerized or enclosed trailer storage that exceeds project fence area must be located at area designated by WCU Project Manager. Trailers must be coordinated with other project trailers and location approved by FM Director of Design and Construction. If miss- located, trailer[s] will be relocated to approved location at Contractor or Subcontractor’s expense. No open trailers or flatbed trailers are permitted, unless otherwise authorized.
4. Each trailer must be identified with two 8” x 8” wood or metal signs painted yellow, 1 mounted on rear door and 1 mounted on side of trailer. Signage lettering must be contrasting color and minimum 1” high. Signage must identify Contractor or Subcontractor, with phone number and Project title. If more than 1 trailer is used, trailers must be numbered on sign. Company logos may be used, but lettering height should not be reduced for larger logo.
5. Remote Palletized Storage: Note that this staging area is not the equivalent of a “bonded warehouse”.Loose stored materials are still the property and responsibility of the Contractor or Subcontractor. Layout of palletized storage area must be approved by FM Director of Design and Construction. Coordinate storage for this project with other WCU projects storage.
6. Storage Containers are to be removed from campus prior to completion of construction contract. Final Payment will be withheld until container(s) are removed from campus.

END OF SECTION 015000

SECTION 016000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 011000 - Summary: Identification of Owner-supplied products.

B. Section 012500 - Substitution Procedures: Substitutions made during procurement and/or construction phases.

C. Section 014000 - Quality Requirements: Product quality monitoring.

D. Section 017419 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging, and substitutions.

1.02 DEFINITIONS

A. Comparable Product: An unnamed product that is similar in quality and performance to named product(s).

B. Basis-of-Design Product: A specific product selected by the Architect for use in the design process; based on certain performance characteristics, physical qualities or details, a specialized finish type, pattern, or color, or other indicated characteristics.

1.03 WARRANTIES

A. Product warranties shall be provided in addition to and run concurrently to Contractor's general warranty/guarantee.

1. Unless otherwise indicated, all warranty terms shall start on the date of Owner's Final Acceptance.

B. Manufacturer's Warranty: A standard warranty issued by the product manufacturer, covering production and material defects.

C. Special Warranties: Warranties in addition to standard manufacturer's warranty, covering fabrication, installation, or specific performance items such as weathertightness.

D. Warranty Form: Warranty shall be provided on either manufacturer's standard form or on specified form. When a sample warranty form is not included in the Project Manual, the warranty shall be on mutually agreed form.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

B. See Section 014000 - Quality Requirements, for additional source quality control requirements.

C. Use of products having any of the following characteristics is not permitted:
   1. Made using or containing CFC's or HCFC's.
   2. Containing lead, cadmium, or asbestos.

2.03 PRODUCT OPTIONS

A. Products Specified with a Single Named Product: Where required by Owner due to facility standards, provide the named product; no options or substitutions allowed.

B. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

C. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

D. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

E. Products Specified by Naming One or More Manufacturers with a Provision for Comparable Products: Unnamed comparable product may be submitted after award of Contract. Comply with requirements in "Comparable Products" article below.

2.04 BASIS-OF-DESIGN PRODUCTS

A. Where a product is specified by naming a Basis-of-Design, comply with the following:
   1. Where a list of additional manufacturers is provided, provide the Basis-of-Design product or a comparable product by one of the listed manufacturers, in compliance with "Comparable Products" article below.
   2. Where a list of additional manufacturers is not provided, provide the Basis-of-Design product, or submit a substitution request in compliance with Section 012500 - Substitution Procedures.
   3. Basis-of-Design characteristics shall include requirements in the Specifications and on the Drawings.
   4. Where the Basis-of-Design lists a specific finish, manufacturers wishing to submit as a Comparable Product or as a substitution shall certify that they are able to provide an exact match to the specified finish, or that they will provide a custom finish to match.

2.05 COMPARABLE PRODUCTS

A. Where a product is specified with a provision for comparable products, Contractors submitting a Comparable Product shall comply with the following:
   1. The submitted product shall not require changes to the Work, unless specifically approved by Architect. If changes are required, the Contractor shall resubmit the product as a substitution request, and the Contractor shall bear the cost of the changes, coordinate with other impacted contractors, and provide appropriate notations on record documents.
   2. Contractor shall provide, with the submittal, a detailed breakdown comparing the submitted product to at least one of the other listed products; list specified performance qualities, test results, dimensions, finish, and other critical properties.
   3. Contractor shall provide warranty data indicating that submitted Comparable Product complies with indicated warranty term(s).

B. Comparable product submittals are subject to Architect's final approval. If a proposed product is found to be unacceptable, Contractor shall revert to one of the named products.

2.06 COLOR/FINISH OPTIONS

A. Preselected Color/Finish: Where a specific manufacturer's premium or custom finish or color is indicated as the basis-of-design, other listed manufacturers shall certify that they can provide an exact match, or that they will provide pricing under the assumption that a custom finish or color will be required.

B. Color/Finish Selection: Unless specifically indicated to either be a custom color or to be selected from manufacturer's standard range, color and finish selections shall be made from manufacturer's full range of options, including premiums, metallics, wood grains, etc.

2.07 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to location designated by Owner; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. See Section 012500 - Substitution Procedures.

3.02 OWNER-SUPPLIED PRODUCTS

A. See Section 011000 - Summary for identification of Owner-supplied products.

B. Owner's Responsibilities:
   1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
   2. Arrange and pay for product delivery to site.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   5. Arrange for manufacturers' warranties, inspections, and service.

C. Contractor's Responsibilities:
   1. Review Owner reviewed shop drawings, product data, and samples.
   2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
   3. Handle, store, install and finish products.
   4. Repair or replace items damaged after receipt.

3.03 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

A. Provide protection of stored materials and products against theft, casualty, or deterioration.

B. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 017419.

1. Structural Loading Limitations: Handle and store products and materials so as not to exceed static and dynamic load-bearing capacities of project floor and roof areas.

C. Store and protect products in accordance with manufacturers' instructions.

D. Store with seals and labels intact and legible.

E. Arrange storage of materials and products to allow for visual inspection for the purpose of determination of quantities, amounts, and unit counts.

F. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

G. For exterior storage of fabricated products, place on sloped supports above ground.

H. Provide off-site storage and protection when site does not permit on-site storage or protection.

I. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

J. Comply with manufacturer's warranty conditions, if any.

K. Do not store products directly on the ground.

L. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

M. Prevent contact with material that may cause corrosion, discoloration, or staining.

N. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

O. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION 016000

SECTION 017000

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 011000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 012000 - Price and Payment Procedures: Final application for payment.

C. Section 015000 - Temporary Facilities and Controls: Temporary exterior enclosures.

D. Section 015000 - Temporary Facilities and Controls: Temporary interior partitions.

E. Section 017900 - Demonstration and Training: Demonstration of products and systems to be commissioned and where indicated in specific specification sections

1.02 SUBMITTALS

A. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.

1. On request, submit documentation verifying accuracy of survey work.

B. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.03 QUALIFICATIONS

A. For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

B. For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.04 PROJECT CONDITIONS

A. Use of explosives is not permitted.

B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

C. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

D. Perform dewatering activities, as required, for the duration of the project.

E. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

F. Dust and Silica Control: Execute work by methods to minimize raising dust and silica from construction operations. Provide positive means to prevent air-borne dust and silica from dispersing into atmosphere and over adjacent property.

1. Provide dust-proof enclosures to prevent entry of dust and silica that is generated outdoors.
2. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.

G. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

H. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

I. Hazardous Materials: Do not use materials or products that contain hazardous substances, for permanently installed products and materials, installation materials, or for cleaning or other construction use.

1.05 COORDINATION

A. See Section 011000 for occupancy-related requirements.

B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

C. Notify affected utility companies and comply with their requirements.

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

E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

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

G. Coordinate completion and clean-up of work of separate sections.

H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

E. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

G. Utilize recognized engineering survey practices.

H. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.

I. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, ground floor elevations.

J. Periodically verify layouts by same means.

K. Maintain a complete and accurate log of control and survey work as it progresses.

3.04 GENERAL INSTALLATION REQUIREMENTS

A. Fire Safety: Comply with provisions of 2018 International Fire Code, Chapter 33; "Fire Safety During Construction and Demolition" for preventing damage to structures under construction.
   1. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.

B. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

D. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

E. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

F. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 015000.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
   1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
   2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.
   2. Relocate items indicated on drawings.
   3. Remove miscellaneous hangers, exposed nails not serving as fasteners, and similar protrusions; remove adhesive residue and tape; fill anchorage holes; and otherwise patch and restore surface to be a uniform substrate.
   4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; prepare substrate per manufacturer's requirements for successful application of new finish.
   5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
      a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
      b. See Section 011000 for other limitations on outages and required notifications.
      c. Provide temporary connections as required to maintain existing systems in service.

3. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

F. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
      a. Use cutting methods such as sawing, drilling, and grinding that do not create impact stresses on existing construction. Do not use striking methods such as chopping or hammering.
   3. Repair adjacent construction and finishes damaged during removal work.

G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
   1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
   2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.

H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

I. Refinish existing surfaces as indicated:
   1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.

J. Clean existing systems and equipment in all spaces impacted by alteration work.

K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

L. Do not begin new construction in alterations areas before demolition is complete.

3.06 CUTTING AND PATCHING

A. Refer to Alterations article above for additional requirements related to cutting and patching of existing construction.

B. Perform cutting and patching to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-complying work.

C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to specified condition.

D. Employ skilled and experienced installer to perform cutting and patching.

E. Restore work with new products in accordance with requirements of Contract Documents.

F. Fit work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

G. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material to maintain existing fire ratings, to full thickness of the penetrated element.

H. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.07 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust and silica.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Protect work from spilled liquids. If work is exposed to spilled liquids, immediately remove protective coverings, dry out work, and replace protective coverings.

G. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

H. Prohibit traffic from landscaped areas.

I. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.09 SYSTEM STARTUP AND ADJUSTING

A. Coordinate with requirements of Section 019113 - General Commissioning Requirements.

B. Coordinate schedule for start-up of various equipment and systems.

C. Notify Architect and Owner seven days prior to start-up of each item.

D. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

E. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

F. Verify that wiring and support components for equipment are complete and tested.

G. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

H. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

I. Adjust operating products and equipment to ensure smooth and unhindered operation.

J. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.10 DEMONSTRATION AND INSTRUCTION

A. See Section 017900 - Demonstration and Training.

3.11 FINAL CLEANING

A. Execute final cleaning prior to Owner's Final Acceptance inspection.
   1. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.

B. Use cleaning materials that are nonhazardous.

C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

F. Replace filters of operating equipment.

G. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.

H. Clean site; sweep paved areas, rake clean landscaped surfaces.

I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.12 CLOSEOUT PROCEDURES

A. Prior to Architect's Final inspection, complete the following:
   1. Provide startup, testing, and adjusting of all systems and equipment.
      a. Demonstrate that air and water systems are balanced and that automatic temperature control system is in control of all equipment. This may require separate demonstrations if controls cannot be tested for applicable seasons of the year.
      b. Submit written certification that testing/adjusting/balancing operations have been completed, and that systems are operation and under control in conformance with applicable specification section(s).
      c. Submit written certification that all Building Commissioning has been completed.

2. Provide all inspections required by local authorities having jurisdiction to obtain Certificate of Occupancy, and provide written certification of completion of Special Inspections.
3. Provide preventive maintenance services for all equipment used prior to Owner's Final Acceptance inspection, and provide initial maintenance servicing for all products and equipment that will be subject to ongoing maintenance/service contracts.
4. Provide final cleaning of all products, materials, and equipment, and provide touch up and restoration of exposed materials and finishes.
5. Provide fresh batteries in all battery-powered products and equipment.
6. Provide demonstration and training for Owner's personnel on all required systems and equipment.
7. Coordinate a walkthrough with the Owner and the local fire department and other emergency services.
8. To the maximum extent possible, remove temporary facilities and controls, construction equipment and tools, and similar items that are not part of the finished Work.
9. Coordinate changeover with the Owner of permanent utilities, insurance requirements, and building's permanent keying and lock system.

B. Notify Architect when work is considered ready for Architect's Final inspection.

C. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Final Completion inspection.

D. Conduct Architect's Final Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.
   1. At the Architect's sole discretion, based on the amount of outstanding work, the Architect may elect to decline to issue a Certificate of Final Completion and will provide a list of outstanding items that are required to obtain Substantial Completion. The Contractor shall request reinspection after the indicated items have been completed.

E. Upon approval, the Architect shall prepare and distribute Certificate of Final Completion, and will include a list of outstanding items and Final Correction Punch List.

F. The Owner will occupy the building after the Owner's Final Acceptance inspection.

G. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

H. Notify Architect when work is considered finally complete and ready for Architect's final inspection.

I. Prior to final completion, complete the following:
   1. Ensure that the Owner's Final Acceptance is fully executed by all required parties.
   2. Complete items of work determined by Architect listed in executed Owner's Final Acceptance.
   3. Provide final pest and rodent control treatments and inspections.
   4. Remove any remaining construction equipment, tools, and materials; perform additional cleaning required due to construction activities following Owner's Final Acceptance inspection, and leave the site prepared for Owner occupancy.
   5. Submit final demonstration and training materials and videos, as built/record documents, operation and maintenance binders, and warranty binders.
   6. Submit final application for payment.

3.13 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

1. Contractor's maintenance responsibility shall be through Owner's Final Acceptance, unless a longer term is required by individual specification section.

B. Maintenance service shall not be assigned or transferred to any agent or third party without prior written consent of the Owner.

END OF SECTION 017000

SECTION 017419

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Contractor Reporting Responsibilities: Submit Waste Disposal Reports; report landfill disposal, incineration, recycling, salvage, and reuse regardless of to whom the cost or savings accrues; use the same units of measure on required reports. The required forms are in Owner supplied Appendix J with full details. The reports are to be submitted with each pay application.

E. Methods of trash/waste disposal that are not acceptable are:
   1. Burning on the project site.
   2. Burying on the project site.
   3. Dumping or burying on other property, public or private.
   4. Other illegal dumping or burying.

F. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.
   1. Fire Safety: Comply with International Fire Code, Chapter 33 "Fire Safety During Construction and Demolition" and with NFPA 241 for provisions relating to accumulation and removal of combustible debris and waste.

1.02 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include

burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.

1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
2. Submit Report on a WCU's Contractor Waste Management Forms found in paragraph 2.03, this section.
3. Landfill Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.
   c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
4. Incinerator Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards, of trash/waste material from the project delivered to incinerators.
   c. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
5. Recycled and Salvaged Materials: Include the following information for each:
   a. Identification of material, including those retrieved by installer for use on other projects.
   b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
   c. Transportation cost, amount paid or received for the material, and the net total cost or

savings of salvage or recycling each material.

d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.

e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.

6. Material Reused on Project: Include the following information for each:
   a. Identification of material and how it was used in the project.
   b. Amount, in tons or cubic yards.
   c. Include weight tickets as evidence of quantity.
7. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

PART 3 EXECUTION

2.01 WASTE MANAGEMENT PROCEDURES

A. See Section 013000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. See Section 015000 for additional requirements related to trash/waste collection and removal facilities and services.

C. See Section 016000 for waste prevention requirements related to delivery, storage, and handling.

D. See Section 017000 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

2.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to Contractor's site superintendent, each subcontractor, Owner, and Architect.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.
   1. Prebid meeting.
   2. Preconstruction meeting.
   3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
   1. Provide containers as required.
   2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
   3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified

materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

2.03 MISCELLANEOUS PROVISIONS

A. Owner Provided Appendix J

END OF SECTION 017419

Appendix J (REV. 09/25/2019)

WASTE MANAGEMENT PLAN

General

Wastes from construction, renovation, demolition, abatement, decommissioning, and other projects with environmental consequences warrant waste management plans to ensure proper waste management practices and recognition of responsibilities. Many of these types of projects involve contracted services, for which the University and its contractor(s) assume liabilities.

Waste management plans, as developed by WCU, are intended to identify potential wastes to be managed, proper management practices, responsible parties, and needed services in simple and concise forms. Two forms have been developed for this purpose, the first for project design and the second for project implementation (demolition/construction).

Waste management must be addressed as part of project design and should be incorporated in project and/or bid documents. Project design may include site preparation and/or construction. Site preparation may include land clearing, relocation of utilities, decontamination of existing structures, and demolition of existing structures. As the project progresses, some adjustments may be necessary for waste management activities, including relocation of waste areas and managing newly discovered waste materials.

Completion of the Designer Waste Information Form allows WCU to identify wastes of concern and prepare for any necessary services to ensure compliance with environmental regulations. The contractor's Waste Management Plan enables WCU to efficiently plan regulated waste disposal and control costs.

Waste management plans will vary depending on the scale and scope of the project. In the most general terms, the plan should identify the general types of wastes that may be encountered for each phase of the project, the collection and accumulation strategy, marking and identification requirements, and procedures for appropriate removal of wastes from the site.

The forms should be completed by the designer prior to contract award, preferably as part of the bid process. The contractor will submit a waste management plan to the University for approval prior to implementing any work. The approved plan will serve as the basis for project-specific plans. The Plan will specify procedures for all aspects of waste management.

Assignment of Waste Responsibilities

Waste generated by demolition, decontamination, decommissioning, abatement, maintenance of fixed facilities, and most site preparation wastes will be attributable to both the contractor and the University as co-generated waste (University waste materials removed under contract, including lamp replacement and remediation). Accumulation and initial management of waste generated by project activities will be the responsibility of the contractor(s). The University may provide oversight to ensure protection of properties and liabilities. The contractor will prepare waste for collection by

the University or shipment to facilities identified in the waste management plan. Hazardous or universal waste generated as a direct result of project activities (e.g., decontamination or demolition of structures, removal of batteries or mercury- containing articles) will leave the University under the University's signature.

> NOTE: Wastes derived solely from materials that the contractor brought to the site, such as construction materials and cleaning of contractor equipment, will be the responsibility of the contractor, and may be included in the waste management plan. The University

Project Manager shall receive copies of disposal certifications and shipping papers for all wastes shipped.

Designer Waste Information Form

The Designer Waste Management Form contains preliminary information beneficial to identifying the types of wastes expected to be removed by the project. Once the designer completes the form, it can be submitted to the WCU Project Manager.

Basic sections of the form that require completion are as follows:

- Project Name.
- Project Designer.
- Waste Types: The types of wastes listed are those that are often subject to environmental regulation due to potential hazards. Indicate if wastes are present within the project area and scope using Y (yes) or N (no). If there are additional wastes on-site, add them next to "Other" and indicate their presence.
- Comment
- Signature (designer)

Contractor Waste Management Form

The Contractor Waste Management Form contains updated and more detailed information for managing wastes of concern for WCU. Once the contract has been awarded, the primary contractor completes the form which identifies the WCU Project Manager, the principal contractor, and any responsible subcontractors. After completing the form, the contractor can submit the form via email to the WCU Project Manager. The contractor is responsible for implementing the plans prepared by the project designer and managing site activities.

- Project Name:
- Contact Information:
    - WCU Project Manager
    - Contractor name, address, phone, and e-mail: Consider this to be the primary contractor.
    - Onsite contact and phone number
    - Emergency contact and phone number: The contractor is generally held accountable for accidents that may occur on a project site. The role of WCU in the event of an emergency is to protect University personnel and property beyond the project boundaries or scope.
    - Subcontractor name, address, phone, and e-mail: Consider this to be the subcontractor(s) responsible for managing project "wastes of concern."
    - Subcontractor's emergency contact and phone number requires information regarding facilities that may recycle, treat, or dispose of "wastes of concern" if disposed by the contractor.

    - Wastes of Concern: Common wastes identified by WCU as posing environmental or regulatory concerns have been listed, and additional wastes may be added by WCU based on project design information. The contractor shall identify container types and specific storage locations for each type of waste listed.
    - Areas where hazardous wastes are accumulated are required to be inspected at least weekly to ensure spills and other releases are minimized and controlled, and wastes are secured.
    - The "wastes of concern" include materials that would be hazardous wastes if not managed properly. The contractor will comply with WCU requirements to document the inspection of waste areas on a weekly basis while "wastes of concern" are present. A weekly inspection log has been provided as a template for minimum inspection requirements.

- Inspection criteria are presented with a simple description of concerns. The inspector's legible signature, date, and time are required. The "Corrective Actions" should indicate the unacceptable condition, date corrected, and signature.
- Waste removal: The WCU Project Manager shall contact WCU Recycling Coordinator or Safety Office for removal of wastes in accordance with the pre- determined disposal designations.

MANAGEMENT OF REGULATED DEMOLITION DEBRIS

DESIGNER WASTE INFORMATION FORM

Project Name: **REID GYMNASIUM - REID119 TOILET ROOM RENOVATION** **Western Carolina University – Cullowhee, NC** **SCO ID No.: 23-26576-01A**		**Date:** **September 5, 2023**
Project Designer: Javier Torres, AIA		
Waste Type	**Present At Site (Y/N)**	**Comments**
Asbestos	n/a	
Decontamination/Cleaning Liquids	n/a	
Lead Paint	n/a	
Fluorescent Lamps	Y	
Ballast (PCB & Non-PCB)	Y	
Electrical Equipment	N	
Mercury Containing Equipment	N	
Batteries	N	
Contaminated Benches, Cabinets, Floors, and Walls	N	
Caulking	Y	
Ducts	Y	Refer to Mechanical DWGs – Demo.
Fume Hoods	n/a	
Metal Piping	Y	Demo'd plumbing/fittings
Hazardous Materials Storage and Gas Cabinets	n/a	
Refrigeration Equipment	n/a	
Roofing Materials	Y	
Sink Traps (laboratories only)	n/a	
Smoke Detectors	Y	
Emergency Exit Signs	n/a	No signs in Toilet Room
Oil	N	
Fuel Tanks	N	
Salvageable Equipment, Fixtures, and Materials	N	
Other: Ceramic floor and wall tile	Y	
Other: Concrete	Y	
Other: Cement Block	Y	
Other:		
Other:		
Other:		
Other:		
Other:		
Other:		
Other:		
Email completed form to WCU Program Manager		

MANAGEMENT OF REGULATED DEMOLITION DEBRIS

Contractor Waste Management Form			
Project Name:	REID GYMNASIUM - REID119 TOILET ROOM RENOVATION Western Carolina University – Cullowhee, NC SCO ID No.: 23-26576-01A		
Contact Information			
WCU Project Manager:	Javier Torres, AIA, NCARB, CDT, LEED AP University Architect - Western Carolina University Facilities Management 3476 Old Cullowhee Road | Cullowhee, NC 28723 Office 828.227.2345 | Mobile 828.332.8707		
Contractor Name:		Subcontractor Name:	
Address:		Address:	
Phone Number:		Phone Number:	
Onsite Contact:		Emergency Contact:	
Phone Number:		Phone Number:	
Emergency Contact:			
Phone Number:			
Recycling/Reclamation Facility:		Phone Number:	
Treatment/Disposal Facility:		Phone Number:	
Wastes of Concern			
Type	Container Type*	Storage Location	Comments
Asbestos			
Decontamination/ Cleaning Liquids			
Lead Paint			
Fluorescent Lamps			
Ballast (PCB or Non-PCB)			
Mercury Containing Equipment			
Batteries			
Sink Traps (labs only)			
Oil			
Scrap Tires			
White Goods			
Other:			
Other:			
Other:			
*Container Type – Roll-off, Tank, Drum (specify size), Boxes, Other (specify)			
Signature		Date	
Please complete this form and e-mail to the Project Manager			

WCU – TRACKING OF CONSTRUCTION AND DEMOLITION MATERIALS RECYCLED OR LANDFILLED

Project Name:
REID GYMNASIUM - REID119 TOILET ROOM RENOVATION
Western Carolina University – Cullowhee, NC
SCO ID No.: 23-26576-01

Project ID: SCO ID No.: 23-26576-01A

Javier Torres, AIA, NCARB, CDT, LEED AP
University Architect - Western Carolina University Facilities Management
3476 Old Cullowhee Road | Cullowhee, NC 28723
Office 828.227.2345 | Mobile 828.332.8707

Name/Company/Phone Number of person completing report

Include weight tickets or invoices when submitting log sheet. If not available provide written explanation

DATE	WASTE HAULER CONTRACTOR NAME	MATERIAL DESCRIPTION	WEIGHT LBS OR TONS	ESTIMATED WEIGHT IF NO TICKET	COST POER LBS OR TONS	OTHER COSTS	TECYCLING OR LANDFILL FACILITY
DATE	**Prepared By:**	**Project Totals:**	**Weight LBS or TONS**	**Estimated LBS or TONS**	**Cost per LBS or TON**	**Other Costs (Handling Fees)**	**Total Landfill:**
							Total Recycled:

WESTERN CAROLINA UNIVERSITY
REUSE OF CONSTRUCTION AND DEMOLTION MATERIALS

DATE	
Location/Job Name:	**REID GYMNASIUM - REID119 TOILET ROOM RENOVATION** **Western Carolina University – Cullowhee, NC** **SCO ID No.: 23-26576-01A**
Project Manager:	Javier Torres, AIA, NCARB, CDT, LEED AP University Architect - Western Carolina University Facilities Management 3476 Old Cullowhee Road | Cullowhee, NC 28723 Office 828.227.2345 | Mobile 828.332.8707
Released To:	
Phone #	
Material Description:	
Quantity Each Item:	
Estimated Weight Each Item:	
Estimate $ Donation Value:	
Released By (WCU):	

SECTION 017800
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project record documents.

B. Operation and maintenance data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 013000 - Administrative Requirements: Submittal procedures, shop drawings, product data, and samples.

B. Individual Product Sections: Specific requirements for operation and maintenance data.

C. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect within 15 days after the date of Owner's Final Acceptance.

B. Operation and Maintenance Data:

1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within 15 days after acceptance.
2. Submit one PDF draft copy of completed documents within 15 days after the Closeout Conference. This copy will be reviewed and returned, with Architect comments. Revise content of all document sets as required prior to final submission.
3. After revisions are complete, submit one bound hard copy and PDF electronic file of revised final documents in final form within 15 days after Owner's Final Acceptance.

C. Warranties and Bonds:

1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 15 days after acceptance.
2. Make other submittals within 15 days after Date of Owner's Final Acceptance, prior to final Application for Payment.
3. For items of Work for which acceptance is delayed beyond Date of Owner's Final Acceptance, submit within 15 days after acceptance, listing the date of acceptance as the beginning of the warranty period.
4. All warranties shall list the date of Owner's Final Acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:

1. Drawings.
2. Addenda.

3. Change Orders and other modifications to the Contract.
4. Miscellaneous record submittals.

B. Ensure entries are complete and accurate, enabling future reference by Owner.
1. Include revised Drawings reissued during Bidding and Construction.

C. Store record documents separate from documents used for construction.
1. Keep record documents in a location accessible to Architect for periodic review and reference.
2. Maintain in legible condition. If record document set becomes damaged or excessively dirty, transfer comments to clean set prior to submittal to Architect.

D. Record information concurrent with construction progress.

E. Record Drawings: Legibly mark each item to record actual construction including:
1. Measured depths of foundations in relation to finish first floor datum.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
4. Field changes of dimension and detail.
5. Details not on original Contract drawings.

F. Miscellaneous Record Submittals: Where other specification sections require completion certifications, or closeout or record submittals, submit in a single binder organized by specification section.

3.02 ASSEMBLY OF RECORD DOCUMENTS

A. Submittal for Architect's Review:
1. Submit PDF scanned copy of marked up prints.
2. Architect shall review and provide comment on completeness.

B. Submittal for Distribution to Owner:
1. After Architect has approved for content and completeness, submit PDF scanned copy of final marked up prints, and submit hard copy originals.
2. Submit full set of Drawings, regardless of whether any modification or markings are on each sheet.

3.03 OPERATION AND MAINTENANCE DATA

A. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

B. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

C. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.04 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
1. Product data, with catalog number, size, composition, and color and texture designations.
2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional information as specified in individual product specification sections.

E. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.05 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

D. Include color coded wiring diagrams as installed.

E. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

F. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

G. Provide servicing and lubrication schedule, and list of lubricants required.

H. Include manufacturer's printed operation and maintenance instructions.

I. Include sequence of operation by controls manufacturer.

J. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

K. Provide control diagrams by controls manufacturer as installed.

L. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.

M. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

N. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

O. Include test and balancing reports.

P. Additional Requirements: As specified in individual product specification sections.

3.06 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder on front and spine with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

J. Arrangement of Contents: Organize each volume in parts as follows:
   1. Project Directory.
   2. Table of Contents, of all volumes, and of this volume.
   3. Operation and Maintenance Data: Arranged by system, then by product category.
      a. Source data.
      b. Product data.
      c. Operation and maintenance data.
      d. Field quality control data.
      e. Photocopies of warranties and bonds.

3.07 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 15 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Owner's Final Acceptance is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Retain warranties and bonds until time specified for submittal.

D. Manual: Bind in commercial quality 8-1/2 by 11 inch three D side ring binders with durable plastic covers.

E. Cover: Identify each binder on front and spine with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

F. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

G. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

H. Provide photocopy of each warranty in operation and maintenance manuals; locate each warranty with applicable O&M data for product or equipment.

END OF SECTION 017800

SECTION 017900
DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

A. Demonstration of products, systems, equipment, and other items where indicated in specific specification sections.

B. Training of Owner personnel in operation and maintenance of products, systems, equipment, and as otherwise indicated in specific specification sections.

1.02 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Draft Training Plans: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
   1. Submit not less than four weeks prior to start of training.
   2. Revise and resubmit until acceptable.
   3. Provide an overall schedule showing all training sessions.
   4. Include at least the following for each training session:
      a. Identification, date, time, and duration.
      b. Description of products and/or systems to be covered.
      c. Name of firm and person conducting training; include qualifications.
      d. Intended audience, such as job description.
      e. Objectives of training and suggested methods of ensuring adequate training.
      f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
      g. Media to be used, such as slides, hand-outs, etc.
      h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.

C. Training Manuals: Provide training manual for each attendee.
   1. Include applicable portion of O&M manuals.
   2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
   3. Provide one extra copy of each training manual to be included with operation and maintenance data.

D. Training Reports:
   1. Identification of each training session, date, time, and duration.
   2. Sign-in sheet showing names and job titles of attendees.
   3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.

E. Video Recordings: Submit digital video recording of each demonstration and training session for Owner's subsequent use.
   1. Format: DVD Disc.
   2. Label each disc and container with session identification and date.

3. Where available, provide manufacturer's pre-produced training videos in conjunction with live demonstration and training video.

1.03 QUALITY ASSURANCE

A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
   1. Instructor shall be certified by the manufacturer or fabricator of system.
   2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DEMONSTRATION - GENERAL

A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.

B. Demonstrations conducted during Functional Testing need not be repeated unless Owner personnel training is specified.

C. Demonstration may be combined with Owner personnel training if applicable, and if acceptable to Owner.

D. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
   1. Complete demonstrations within two weeks after the date of Owner's Final Acceptance.
   2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

E. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
   1. Complete demonstrations within two weeks after the date of Owner's Final Acceptance.

3.02 TRAINING - GENERAL

A. Conduct training on-site, utilizing installed products and equipment, unless otherwise indicated.

B. Provide training in minimum two-hour segments.

C. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.

D. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
   1. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
   2. Typical uses of the O&M manuals.

E. Product- and System-Specific Training:
   1. Review the applicable O&M manuals.
   2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.

3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
4. Discuss cleaning products and procedures, including recommended cleaning products and products that are detrimental to equipment operation or finishes.
5. Provide hands-on training on all operational modes possible and preventive maintenance.
6. Emphasize safe and proper operating requirements; discuss relevant health and safety issues, warning or error indications, and emergency procedures and shutdown.
7. Discuss common troubleshooting problems and solutions. Include minor adjustments for resolving noise, vibration, and improving system efficiency.
8. Discuss any peculiarities of equipment installation or operation.
9. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage. Include discussion of continuing maintenance agreements and procedures.
10. Review recommended tools and spare parts inventory suggestions of manufacturers.
11. Review spare parts and tools required to be furnished by Contractor.
12. Review spare parts suppliers and sources and procurement procedures.

F. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION 017900

SECTION 018119

INDOOR AIR QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Provide Indoor Air Quality (IAQ) Management Plan to remain in force during the construction period.

B. Chapter 3 of the Sheet Metal and Air Conditioning National Contractors' Association (SMACNA) IAQ Guideline for Occupied Buildings Under Construction, 2nd Edition 2007, available from SMACNA (703-803-2980 or www.smacna.org).

1.02 SUBMITTAL

A. Construction Indoor Air Quality Management Plan (CIAQM Plan).

PART 2 OBJECTIVES DURING CONSTRUCTION

2.01 PROTECTION

A. Store all materials and equipment in a protected area (inside warehouse or storage trailer). Protect materials and equipment that are too large or heavy to store in a trailer from water and dirt/dust/debris.

1. OPTION: When stored outside, provide two layers of minimum 8-mil poly on the ground and elevate equipment or material a minimum of 4 inches to allow water to run off. Secure top and sides with two layers of 8-mil poly to prevent water penetration and dust/dirt accumulation.

B. Protect HVAC equipment from dust and odors. Do not store equipment in areas near painting, pressure washing, or excavation. Do not operate equipment during cutting or grinding of masonry or concrete.

1. Refer to Division 23 for construction filter requirements for protection of mechanical duct systems during construction.
2. Clean ductwork when installed. Cap ends with poly during construction to prevent contamination.
3. Do not operate HVAC system until the exterior walls, roof, glass, doors and building filters are properly installed.
4. If air handlers must be used during construction, provide filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 at each air-handling unit. Provide specified prefilters and final filters for operation during construction or install temporary 4-inch MERV 8 filters at each return air grille for operation during construction.
5. Replace all filtration media immediately prior to Owner's Final Acceptance.
   a. Filtration media installed in air-handling units shall have a Minimum Efficiency Reporting Value (MERV) of 8.
6. Do not perform Testing and Balancing until dust or odor generating activities are completed.

2.02 SOURCE CONTROL

A. Minimize IAQ contaminants introduced by construction materials.

B. Store waste construction materials a minimum of 30 feet away from the building.

C. Do not smoke within 30 feet of the exterior building perimeter.

2.03 PATHWAY INTERRUPTION

A. Provide barriers to contain construction areas to allow a portion of the building to be cleaned and then operate the HVAC system in that cleaned area. Acceptable barriers include dust curtains and temporary walls.
   1. Protect areas of the building in which HVAC is operational by physical barriers from areas of the building not acceptable for operation of the HVAC system.

B. Maintain areas within 30 feet of outdoor air intakes free of dust, dirt, debris, and volatile materials while the HVAC system is in operation.

2.04 HOUSEKEEPING

A. As dust accumulates at the Site, it can become airborne when disturbed by nearby activity. Similarly, spills or excess applications of products containing solvents will increase odors at the Site. Leaving the Site wet or damp for more than a day could result in the growth of mold and bacteria. Therefore, Site cleanup and maintenance is important to maintaining good IAQ during construction.

B. Perform the following to control contaminants at the Site:
   1. Suppress dust with wetting agents or sweeping compounds.
   2. Provide an efficient dust collection method (e.g. a damp rag, wet mop, or vacuum equipped with a high efficiency particulate arrester (HEPA) filter or wet scrubber).
   3. Remove spills or excess applications of solvent-containing products immediately. Provide low-VOC emitting spot removers and cleaning agents near occupied areas.
   4. Remove accumulated water and keep work areas as dry as possible, including the use of dehumidification, if necessary.
   5. Once building is enclosed, vacuum with HEPA filtered vacuum cleaners to prevent settled dust from becoming airborne again.
   6. Protect porous materials from exposure to moisture. Replace items that remain damp for more than four hours.

END OF SECTION 018119

SECTION 024100
DEMOLITION

PART 1 GENERAL

1.01 DEFINITIONS

A. "Remove": Carefully detach or dismantle items from existing construction and properly dispose of or recycle off site, unless items are indicated to be salvaged or reinstalled.

B. "Salvage" or "Remove and Salvage": Carefully detach or dismantle items from existing construction in a manner to prevent damage. Clean, package, label and deliver salvaged items to Owner in ready-for-reuse condition. If indicated to be reinstalled, store in a secure area until ready for reinstallation.

C. "Reinstall" or "Remove and Reinstall": Carefully detach or dismantle items from existing construction in a manner to prevent damage. Clean and prepare for reuse and reinstall where indicated.

D. "Existing", "Existing to Remain" or "ETR": Designation for existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1. Not all existing construction to remain shall be noted with one of these terms on the Drawings; the intent is to assist the Contractor in areas where it may be difficult to determine. Existing construction shall be assumed to remain unless specifically noted to be removed - either when noted with "remove", "salvage", or "reinstall" terminology per above, or when indicated graphically in accordance with the Demolition Legend on the Demolition Drawings.

1.02 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2022, with Errata (2021).

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

1. Hold the preinstallation meeting at the Project site; perform a walkthrough to review the existing conditions and highlight areas of particular concern.
2. Review structural concerns and deficiencies in the existing building(s).
3. Review demolition schedule, including phasing.
4. Review specific elements indicated to remain or to be salvaged, and review procedures for protection and / or storage of those elements.
5. Review Owner's occupancy and noise requirements.

B. Coordination: Coordinate phasing and staging requirements with Owner's occupancy of the existing building.

1. Coordinate with Division 01 sections for Owner's occupancy, phasing, and noise requirements.
2. Owner's personnel shall remove existing equipment and furnishings from spaces to be demolished prior to the beginning of the Work. Except for any built-in equipment specifically indicated on the Drawings to remain and be protected, the Contractor will not be required to work in furnished areas and will not be responsible for the condition of furniture or equipment left in place.

1.04 SUBMITTALS

A. Photographic Documentation: Submit photographic record of the existing conditions, either as still photographs or as a video-recorded walkthrough. Contractor shall perform walkthrough of existing conditions with Owner's representative prior to site mobilization.
   1. Photographic documentation shall clearly show existing damage and wear on existing surfaces that may be interpreted as being caused by subsequent demolition and construction operations.
   2. For still photographs, submit marked-up plan(s) indicating locations where photographs were taken and direction photograph is facing. Include a written narrative to describe existing damage and other conditions as deemed necessary.
   3. For video recordings, include a spoken narrative to describe locations and existing conditions, or provide a supplementary written narrative.
   4. Submit all photographic documentation as digital photo / video files, and supplementary narratives and plans as PDF files. Submit as part of the initial submittal package required prior to release of the first request for payment.

B. Shop Drawings: Submit demolition plans and survey as required by OSHA and local AHJs.
   1. Engineering Survey: Provide structural survey of existing building(s). Provide additional surveys if unforeseen conditions are revealed during the course of the Work.
   2. Indicate extent of demolition, removal sequencing, bracing and shoring, and location and construction of barricades and fences.
   3. Indicate elements to be salvaged and elements that are to remain in place and protected.

C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Technicians removing or disposing of any equipment or applicance containing ozone-depleting refrigerants shall be certified in accordance with EPA Section 608 Technician Certification.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

A. Perform an initial walkthrough and visual survey of the existing building(s). Take photographic documentation of the existing conditions per submittal requirements above.

B. Perform structural engineering survey of the existing conditions as required by OSHA and local AHJs.

3.02 PREPARATION

A. Remove and salvage items indicated to be reinstalled or turned over to Owner. Clean items and protect in secure packaging, and store in a secure location on-site.

3.03 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. All demolition work shall be considered unclassified. Barring discovery of hazardous materials or undocumented structural components, where elements are indicated to be demolished, the bid price shall be for complete demolition of the element, regardless of the individual component makeup of that element.

B. Hazardous Materials: It is not expected that hazardous materials will be encountered during performance of the Work.
   1. If suspected hazardous materials are discovered during demolition operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCBs, and mercury.

C. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Fire Safety: Comply with applicable requirements of the International Fire Code; Chapter 33, and with NFPA 241.
      a. Use of explosives is not permitted.
      b. Hot Work: Remove all combustibles from areas where hot work is required, including use of cutting torches, welding, or heating equipment. Maintain fire watch for entire duration of hot work and for a minimum 30 minutes after completion of hot work.
         1) Keep portable fire extinguishers within 30 feet of locations where hot work is being performed for entire duration.
      c. Maintain egress routes and emergency access routes at all times; do not allow demolished materials to accumulate and block routes.
      d. Remove combustible demolished materials from the building by the end of each work day. Temporarily store combustible materials in noncombustible containers with self-closing lids until they can be removed from the building.
      e. Do not burn demolished material on site.
   3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   4. Provide, erect, and maintain temporary barriers and security devices.
   5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   6. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
   7. Conduct operations to minimize obstruction of public and private entrances and exits. Do not obstruct required exits at any time. Protect persons using entrances and exits from removal operations.
   8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon, or limit access to their property.

D. Do not begin removal until receipt of notification to proceed from Owner.

E. Do not begin removal until built elements to be salvaged, relocated, or reinstalled have been removed.

F. Protect existing structures and other elements to remain in place and not removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

G. Minimize production of dust due to demolition operations. Do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

H. Perform demolition in a manner that maximizes salvage and recycling of materials.

1. Comply with requirements of Section 017419 - Construction Waste Management and Disposal.
2. Dismantle existing construction and separate materials.
3. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

I. If items of potential historic interest are discovered during the course of the Work, such as cornerstones or plaques, consult with the Owner prior to proceeding. If Owner wishes to preserve these items, carefully remove and salvage, and store in on-site location designated by Owner.

3.04 EXISTING UTILITIES

A. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

3.05 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Existing construction and utilities indicated on drawings are based on casual field observation and existing record documents only.
   1. Verify construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from areas that remain occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 015000 in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure, except for interruptions required for replacement or modifications; prevent water and humidity damage.

D. Protect existing work to remain.
   1. Prevent movement of structure. Provide shoring and bracing as required.
   2. Perform cutting to accomplish removal work neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch to match new work.

E. Remove existing work as indicated and required to accomplish new work.
   1. Remove items indicated on drawings.

F. Services (Including but not limited to HVAC, Plumbing, Fire Protection, and Electrical
   1. Remove existing systems and equipment as indicated.
   2. Maintain existing active systems to remain in operation, and maintain access to equipment and operational components.
   3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   4. Coordinate with Section 011000 - Summary for limitations on outages and required notifications to Owner, as applicable.

G. Floor Finishes: After removal of existing floor finishes including backings, underlayments, and thick set mortar beds, remove all residual adhesives and glue. Provide grinding, sanding, or shot-blasting of existing concrete floor slab to achieve the proper surface to receive new indicated floor finish. Coordinate slab surface preparations required for each new indicated floor finish with appropriate subcontractor.

H. Concrete: Cut neatly in straight lines with power-driven saw with diamond-tooth blade or other type specifically intended for concrete and masonry. Break up and remove carefully, avoiding damage to adjacent flooring that will remain exposed in the finished work.

I. Existing Surfaces to Receive Finishes: Remove miscellaneous hangers, exposed nails not serving as fasteners, and similar protrusions; remove adhesive residue and tape; fill anchorage holes; and otherwise patch and restore surface to be a uniform substrate suitable for applied finishes.

3.06 DEBRIS AND WASTE REMOVAL

A. Comply with requirements of 017419 - Construction Waste Management and Disposal.

B. Remove all debris, trash, and other materials not indicated to be salvaged or reinstalled from the site.

C. Leave site in clean condition, ready for subsequent work.

D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION 024100

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes.

B. Cast-in-place concrete includes the following:

1. Slabs-on-grade (infill).

1.3 SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

B. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, joint systems, curing compounds, dry-shake finish materials, and others if requested by Architect.

C. Shop drawings for reinforcement detailing fabricating, bending, and placing concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, bent bar diagrams, and arrangement of concrete reinforcement. Include special reinforcing required for openings through concrete structures.

D. Shop drawings for formwork indicating fabrication and erection of forms for specific finished concrete surfaces. Show form construction including jointing, special form joints or reveals, location and pattern of form tie placement, and other items that affect exposed concrete visually.

1. Architect's review is for general architectural applications and features only. Designing formwork for structural stability and efficiency is Contractor's responsibility.

E. Samples of materials as requested by Architect, including names, sources, and descriptions, as follows:

1. Normal weight aggregates.
2. Reglets.
3. Vapor retarder/barrier.
4. Form liners.

F. Laboratory test reports for concrete materials and mix design test.

G. Material certificates in lieu of material laboratory test reports when permitted by Architect. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified:

1. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
2. ACI 318, "Building Code Requirements for Reinforced Concrete."
3. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."

B. Concrete Testing Service: Engage a testing agency acceptable to Architect to perform material evaluation tests and to design concrete mixes.

C. Materials and installed work may require testing and retesting at any time during progress of Work. Tests, including retesting of rejected materials for installed Work, shall be done at Contractor's expense.

PART 2 - PRODUCTS

2.1 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Welded Wire Fabric: ASTM A 185, welded steel wire fabric. Provide in sheets.

C. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI specifications.

2.2 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I.

1. Use one brand of cement throughout Project unless otherwise acceptable to Architect.

B. Fly Ash: ASTM C618, Type C or Type F.

C. Normal-Weight Aggregates: ASTM C 33 and as specified. Provide aggregates from a single source for exposed concrete.

1. For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling.
2. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Architect.

D. Water: Potable.

E. Admixtures, General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions.

F. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

1. Available Products: Subject to compliance with requirements, products that may be
incorporated in the Work include, but are not limited to, the following:

a. Darex AEA or Daravair, W.R. Grace & Co.
b. MB-VR or Micro-Air, Master Builders, Inc.
c. Sealtight AEA, W.R. Meadows, Inc.

G. High-Range Water-Reducing Admixture: ASTM C 494, Type F or Type G.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

a. Eucon 37, Euclid Chemical Co.
b. WRDA 19 or Daracem, W.R. Grace & Co.
c. Rheobuild or Polyheed, Master Builders, Inc.

H. Water-Reducing Admixture: ASTM C 494, Type A.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

    a. Eucon WR-75, Euclid Chemical Co.
    b. WRDA, W.R. Grace & Co.
    c. Pozzolith Normal or Polyheed, Master Builders, Inc.

D. Water-Reducing, Accelerating Admixture: ASTM C 494, Type E.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

    a. Accelguard 80, Euclid Chemical Co.
    b. Daraset, W.R. Grace & Co.
    c. Pozzutec 20, Master Builders, Inc.

E. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

    a. Eucon Retarder 75, Euclid Chemical Co.
    b. Daratard-17, W.R. Grace & Co.
    c. Pozzolith R, Master Builders, Inc.

2.3 RELATED MATERIALS

A. Reglets: Where sheet flashing or bituminous membranes are terminated in reglets, provide reglets of not less than 0.0217-inch-thick (26-gage) galvanized sheet steel. Fill reglet or cover face opening to prevent intrusion of concrete or debris.

B. Polyvinyl Chloride Waterstops: Corps of Engineers CRD-C 572.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

    a. Greenstreak Plastic Products Co.
    b. W.R. Meadows, Inc.
    c. Vinylex Corp.

C. Sand Cushion: Clean, manufactured or natural sand.

D. Vapor Retarder: Provide vapor retarder that is resistant to deterioration when tested according to ASTM E 154, as follows:

1. Water-resistant barrier consisting of heavy kraft papers laminated together with glass-fiber reinforcement and overcoated with black polyethylene on each side.

a. Product: Subject to compliance with requirements, provide Moistop by Fortifiber Corporation.

E. Underlayment Compound: Free-flowing, self-leveling, pumpable, cement-based compound for applications from 1 inch thick to feathered edges.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

a. K-15, Ardex, Inc.
b. Flo-Top, Euclid Chemical Co.
c. Underlayment 110, Master Builders, Inc.
d. Thoro Underlayment Self-Leveling, Thoro System Products.

F. Bonding Agent: Polyvinyl acetate or acrylic base.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

a. Polyvinyl Acetate (Interior Only):

1. Euco Weld, Euclid Chemical Co.
2. Everweld, L&M Construction Chemicals, Inc.
3. Herculox, Metalcrete Industries.

b. Acrylic or Styrene Butadiene:

1. SBR Latex, Euclid Chemical Co.
2. Daraweld C, W.R. Grace & Co.
3. Acryl-Set, Master Builders Inc.

G. Epoxy Adhesive: ASTM C 881, two-component material suitable for use on dry

or damp surfaces. Provide material type, grade, and class to suit Project requirements.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

   a. Euco Epoxy System #452 or #620, Euclid Chemical Co.
   b. Concresive Standard Liquid, Master Builders, Inc.
   c. Rezi-Weld 1000, W.R. Meadows, Inc.

2.4 PROPORTIONING AND DESIGNING MIXES

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use an independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

   1 Do not use the same testing agency for field quality control testing.
   2 Limit use of fly ash to not exceed 25 percent of cement content by weight.

B. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:

   Subjected to freezing and thawing: W/C 0.40.

   Subjected to brackish water, salt spray, or deicers: W/C 0.40.

   The maximum W/C ratio for concrete not exposed to the listed services is to be 0.55. All exposed exterior concrete that is part of walkways, ramps or stairs is considered subject to brackish water and salt spray.

C. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

   Ramps and sloping surfaces: Not more than 3 inches.

   Reinforced foundation systems: Not less than 3 inches and not more than 4 1/2 inches, unless otherwise noted.

   Concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8 inches after adding admixture to site-verified 3-to-4 1/2-inch slump concrete.

   Other concrete: Slump range: 3" - 4 1/2" unless otherwise noted.

2.5 CONCRETE MIXING

A. Job-Site Mixing: Not allowed.

B. Ready-Mixed Concrete: Comply with requirements of ASTM C 94, and as specified.

1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 GENERAL

A. Coordinate the installation of joint materials, vapor retarder/barrier, and other related materials with placement of forms and reinforcing steel.

3.2 VAPOR RETARDER/BARRIER INSTALLATION

A. General: Place vapor retarder/barrier sheeting in position with longest dimension parallel with direction of pour.

B. Lap joints 6 inches and seal with manufacturer's recommended mastic or pressure-sensitive tape.

1. Cover vapor retarder/barrier with sand cushion and compact to depth indicated.

3.3 PLACING REINFORCEMENT

A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as specified.

1. Avoiding cutting or puncturing vapor retarder/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers,

and hangers, as approved by Architect.

D. Place reinforcement to maintain minimum coverages as indicated for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire fabric in sheets. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.4 JOINTS

A. Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Architect.

B. Provide keyways at least 1-1/2 inches deep in construction joints in walls and slabs and between walls and footings. Bulkheads designed and accepted for this purpose may be used for slabs.

C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.

D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

E. Isolation Joints in Slabs-on-Grade: Construct isolation joints in slabs-on-grade at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Joint fillers and sealants are specified in Division 7 Section "Joint Sealants."

F. Contraction (Control) Joints in Slabs-on-Grade: Construct contraction joints in slabs-on-grade to form panels of patterns as shown. Tool joints 1/4 inch wide by one-fourth of slab depth, unless otherwise indicated. Saw cutting joints will be allowed <u>only</u> if cut is made within 18 hours of pour. Saw cutting is allowed only where joints will not be visible.

1. Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
2. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without

dislodging aggregate.

3. If joint pattern is not shown, provide joints not exceeding 15 feet in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays).
4. Joint fillers and sealants are specified in Division 7 Section "Joint Sealants."

3.5 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.

C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.

D. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309.
2. **Do not use vibrators to transport concrete inside forms**. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix to segregate.

E. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.

1. Consolidate concrete during placement operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.
2. Bring slab surfaces to correct level with a straightedge and strike off. Use bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.

3. Maintain reinforcing in proper position on chairs during concrete placement.

F. Cold-Weather Placement: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

G. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
   1. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
   2. **Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs and only in strict accordance with the requirements of the NC State Building Code and with written approval of the designer and the State Construction Office.**
   3. In addition to laboratory cured test specimens, additional concrete test specimens shall be cured under field conditions as required and directed by the designer to confirm the adequacy of curing and protection of the concrete.

H. Hot-Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.

   1. Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 deg F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
   2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.
   3. Fog spray forms, reinforcing steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without puddles or dry areas.
   4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to Architect.

3.6 MONOLITHIC SLAB FINISHES

A. **Scratch Finish**: Apply scratch finish to monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and where indicated.

1. After placing slabs, **finish surface to tolerances of 3/8" per 10 feet**. Slope surfaces uniformly to drains. Extend slope to room walls unless otherwise indicated. After leveling, roughen surface before final set with stiff brushes, brooms, or rakes.

B. **Float Finish**: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo; and where indicated.

1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. **Finish surfaces to tolerances of 3/8" per 10 feet**. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

C. **Trowel Finish**: Apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or another thin film-finish coating system.

1. After floating, begin first trowel-finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and finish surfaces to **tolerances of 3/16" per 10 feet**. Grind smooth any surface defects that would telegraph through applied floor covering system.

D. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply a trowel finish as specified, then immediately follow by slightly scarifying the surface with a fine broom.

E. Nonslip Aggregate Finish: Apply nonslip aggregate finish to concrete stair treads, platforms, ramps, sloped walks, and where indicated.

1. After completing float finishing and before starting trowel finish, uniformly spread 25 lb of dampened nonslip aggregate per 100 sq. ft. of surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as specified.
2. After curing, lightly work surface with a steel wire brush or an abrasive stone, and water to expose nonslip aggregate.

3.7 MISCELLANEOUS CONCRETE ITEMS

SCHEDULE OF CONCRETE FINISHES

1. Interior slab on grade - Trowel Finish (to match surrounding existing slab finish).

3.8 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

C. Curing Methods: Cure concrete by curing compound, by moist curing, by moisture-retaining cover curing, or by combining these methods, as specified.

D. Provide moisture curing by the following methods:

1. Keep concrete surface continuously wet by covering with water.
2. Use continuous water-fog spray.
3. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4-inch lap over adjacent absorptive covers.

E. Provide moisture-retaining cover curing as follows:

1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

F. Apply curing compound on exposed interior slabs and on exterior slabs, walks, and curbs as follows:

1. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen

has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

2. Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.

G. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

H. Curing Unformed Surfaces: Cure unformed surfaces, including slabs, floor topping, and other flat surfaces, by applying the appropriate curing method.

1. Final cure concrete surfaces to receive finish flooring with a moisture-retaining cover, unless otherwise directed.

END OF SECTION 033000

SECTION 042200

UNIT MASONRY ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete Block

B. Mortar and Grout.

C. Reinforcement and Anchorage.

D. Lintels.

E. Accessories.

1.02 REFERENCES

A. ACI 530/ASCE 5/TMS 402 - Building Code Requirements for Masonry Structures; American Concrete Institute International; 2002.

B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2002.

C. ASTM C 90 - Standard Specification for Loadbearing Concrete Masonry Units; 2003.

D. ASTM C 129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2003.

E. ASTM C 140 - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2003.

F. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar; 2003.

G. ASTM C 150 - Standard Specification for Portland Cement; 2002a.

H. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2004.

I. ASTM C 270 - Standard Specification for Mortar for Unit Masonry; 2003b.

J. ASTM C 404 - Standard Specification for Aggregates for Masonry Grout; 2003.

K. ASTM C 476 - Standard Specification for Grout for Masonry; 2002.

L. ASTM C 780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2002.

M. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 1997a.

N. IMIAWC (CW) - Recommended Practices & Guide Specifications for Cold Weather Masonry Construction; International Masonry Industry All-Weather Council; 1993.

O. IMIAWC (HW) - Recommended Practices & Guide Specifications for Hot Weather Masonry Construction; International Masonry Industry All-Weather Council; current edition.

P. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.03 SUBMITTALS

A. General: See Section 01300 - Administrative Requirements, for submittal procedures.

B. Product Data:

1. Provide complete product data for masonry units, fabricated wire reinforcement, and mortar.
2. Test Reports: Provide ASTM E 514 test reports showing compliance with specified Quality Assurance Performance Requirements; tests to be performed by NCMA certified independent testing laboratory.
3. For each category of product, provide the following:
   a. Manufacturer's installation instructions for specified products and systems.
   b. Description of manufacturer's quality control program, including copies of reports from source quality control tests performed.
4. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

C. Shop Drawings:
1. Provide complete detailed shop drawings (including schedules, plans, elevations, cross sections, details, etc.) for all concrete unit masonry wall assemblies.
   a. Indicate dimensions, layouts, reinforcement, control joints and expansion joints, types and sizes of block, shapes, lintels, type of mortar, anchoring methods, anchors, embeds, fire-ratings, and adjacent construction.

1.04 QUALITY ASSURANCE

A. Comply with provisions of ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents.

B. Fire Rated Assemblies: Conform to governing building code for physical characteristics and performance requirements for fire rated masonry construction.

C. Qualifications:
1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
   a. Adequate plant capacity to furnish quality, sizes, and quantity of products required without delaying progress of the work.
   b. Must be capable of providing on-site field service representation upon request during construction period.
2. Installer Qualifications: Company specializing in performing the work of this section with minimum five years of documented experience and approved by manufacturer.
   a. Documented experience in the erection of concrete masonry work shall include at least five structures with exposed architectural concrete masonry construction of similar design and quantity as that required for this Project.

D. Source Quality Control:
1. Tests: Perform one test for each production set-up and each 10,000 units for this project.
   a. Test for the following, in accordance with ASTM C 140:
      1) Compressive strength
      2) Density
   b. Test in accordance with manufacturer's/licensor's quality control program for water permeation resistance.

1.05 PRE-INSTALLATION MEETING

A. Convene one week before starting work of this section.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements: Comply with recommendations of IMIAWC (CW).

B. Hot Weather Requirements: Comply with IMIAWC (HW).

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 x 8 inches (400 x 200 mm) and nominal depths as indicated on the drawings for specific locations.
   2. Special Shapes: Provide non-standard blocks configured for corners, lintels, headers, control joint edges, and other detailed conditions.
   3. Load-Bearing Units: ASTM C 90
      a. Hollow block, as indicated.
      b. Type II: Non moisture-controlled; normal weight.
      c. Unit Linear Shrinkage (ASTM C 428): 0.03 percent.
      d. Shapes: Appropriate to suit conditions.
   4. Non-Loadbearing Units: ASTM C 129.
      a. Hollow block.
      b. normal weight.
      c. Unit Linear Shrinkage (ASTM C 428): 0.03 percent.
      d. Shapes: Appropriate to suit conditions, including partition top closure units.
   5. Concrete Unit Masonry for Fire-Rated Walls/Partitions:
      a. Provide U.L. Classification D-2 (2-hour) or B-4 (4-hour) concrete masonry units.
         1) Masonry manufacturer must be listed in U.L. Fire Resistance Directory.

2.02 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150, Type I or III.
   1. Hydrated Lime: ASTM C 207, Type S.
   2. Mortar Aggregate: ASTM C 144.
   3. Coarse Aggregate for Grout: ASTM C 404.
   4. Sand: ASTM C144.

B. Water: Clean and potable.

2.03 REINFORCEMENT AND ANCHORAGE

A. Reinforcing Steel:

   1. Reinforcing Bars: ASTM A615, Grade 60, deformed.

   2. Joint Reinforcement: ASTM A82 steel wire, hot dip galvanized after fabrication to ASTM A153, Class B; 0.1875-inch (4.8 mm) side rods with 0.1875 inch (4.8 mm) cross rods; width as required to provide not more than 1 inch (25 mm) and not less than 1/2 inch (13 mm) of mortar coverage on each exposure. Provide ladder type for reinforced masonry, and truss type for all other conditions.

   3. Plain-Steel Welded Wire Fabric: ASTM A185, fabricated from as-drawn steel wire into flat

sheets. Rolls are not acceptable.

2.04 LINTELS

A. Concrete Unit Masonry Lintels: Use specially formed U-shaped concrete unit masonry lintel units, except as otherwise indicated or where precast concrete lintel beams are allowed by A/E; concrete unit masonry lintel to be reinforced with minimum of two #5 steel reinforcement bars; concrete unit masonry lintel cavity to be filled with grout.

B. Cast In Place Concrete Lintels: at Contractor's option, for enlarged door opening, tied to filled cells at jamb.

2.05 MORTAR AND GROUT MIXES

A. Mortar for Unit Masonry: ASTM C 270; Type S as specified in Section 04820. For locations where masonry is in contact with earth, use Type M.

B. Grout: ASTM C 476. Consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 4 inches (50 mm) or less; coarse grout for spaces with smallest horizontal dimension greater than 4 inches (50 mm).

C. Mortar Mixing
1. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C 270 and in quantities needed for immediate use.
2. Maintain sand uniformly damp immediately before the mixing process.
3. Add admixtures in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.
4. Do not use anti-freeze compounds to lower the freezing point of mortar.
5. If water is lost by evaporation, re-temper only within two hours of mixing.
5. Use mortar within two hours after mixing at temperatures of 90 degrees F (32 degrees C), or two-and-one-half hours at temperatures under 40 degrees F (5 degrees C).

D. Grout Mixes:
1. Bond Beams, Lintels, and Filled Cells: 2,500 PSI strength at 28 days; 8 inches maximum slump; provide premixed type in accordance with ASTM C 94.
2. Reinforced (Engineered) Masonry: Refer to Section 04820.

E. Grout Mixing
1. Mix grout in accordance with ASTM C 94.
2. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C 476 for fine grout.
3. Add admixtures in accordance with manufacturer's instructions; mix uniformly.
4. Do not use anti-freeze compounds to lower the freezing point of grout.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

A. General:
1. Direct and coordinate placement of metal anchors supplied for installation under other

sections.
2. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
1. Bond: Running.
2. Coursing: One unit plus one mortar joint to equal 8 inches (200 mm).
3. Mortar Joints: Flush.

3.04 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units with face shell bedding on head and bed joints.

C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

D. Remove excess mortar and mortar smears as work progresses.

E. Interlock intersections and external corners.

F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

H. Cut mortar joints flush where wall tile is scheduled or cement parging is required.

I. Isolate masonry partitions from vertical structural framing members with a control joint.

J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

3.05 LINTELS

A. Install reinforced unit masonry lintels over openings.
1. Do not splice reinforcing bars.
2. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch (13 mm) of dimensioned position.
3. Place and consolidate grout fill without displacing reinforcing.
4. Allow masonry lintels to attain specified strength before removing temporary supports.

B. Maintain minimum 8 inch (200 mm) bearing on each side of opening.

3.06 GROUTED COMPONENTS

A. Fill masonry cores with grout where indicated on drawings, and at the following locations:
1. At ends of masonry walls and partitions, fill masonry cores for a minimum of 8 inches (200 mm) from end.
2. At locations adjacent to wall openings, fill masonry cores with grout for a minimum 8 inches (200 mm) from each side of opening.

B. Lap splices minimum 48 bar diameters.

C. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch (13 mm) of dimensioned position.

D. Place and consolidate grout fill without displacing reinforcing.

3.07 GROUTING

A. Use either high-lift or low-lift grouting techniques, at Contractor's option.
   1. Do not use high-lift grouting where size of cavities mandates use of fine grout.

B. Verify that horizontal and vertical reinforcement is in proper position and adequately secured before beginning pours. Prevent displacement of bars as grout is poured.

C. Place grout for each pour continuously and consolidate immediately; do not interrupt pours for more than 1-1/2 hours.

D. Low-Lift Grouting:
   1. Limit height of masonry to 16 inches (400 mm) above each pour.

E. High-Lift Grouting:
   1. Hollow Masonry: Limit lifts to maximum 5 feet and pours to maximum height of 24 feet.
   2. Place grout for spanning elements in single, continuous pour.

3.08 CONTROL AND EXPANSION JOINTS

A. Do not continue horizontal joint reinforcement through control and expansion joints.

B. Form control joint with a sheet building paper bond breaker fitted to one side of the hollow contour end of the block unit. Fill the resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.

C. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

3.09 BUILT-IN WORK

A. As work progresses, install built-in metal door frames, glazed frames, fabricated metal frames, window frames, anchor bolts, and plates, and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
   1. Fill adjacent masonry cores with grout minimum 12 inches (300 mm) from framed openings.

D. Do not build into masonry construction organic materials that are subject to deterioration.

3.0 TOLERANCES

A. Maximum Variation from Alignment of Columns and Pilasters: 1/4 inch (6 mm).

B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch (1.6 mm).

C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft (6 mm/3 m) and 1/2 inch in 20 ft (13 mm/6 m) or more.

D. Maximum Variation from Plumb: 1/4 inch (6 mm) per story non-cumulative; 1/2 inch (13 mm) in

two stories or more.

E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft (3 mm/m) and 1/4 inch in 10 ft (6 mm/3 m); 1/2 inch in 30 ft (13 mm/9 m).

F. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft (3 mm/m).

G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch (6 mm).

3.11 CUTTING AND FITTING

A. Cut and fit for chases, pipes, conduit, sleeves, and grounds. Coordinate with other sections of work to provide correct size, shape,and location.

B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.12 PARGING

A. Dampen masonry walls prior to parging.

B. Scarify each parging coat to ensure full bond to subsequent coat.

C. Parge masonry walls in two uniform coats of mortar to a total thickness of 3/4 inch (19 mm).

D. Steel trowel surface smooth and flat with a maximum surface variation of 1/8 inch per foot (1 mm/m).

E. Strike top edge of parging at 45 degrees.

3.13 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01400.

B. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C 140 for conformance to requirements of this specification.

C. Mortar Tests: Test each type of mortar in accordance with ASTM C 780, testing with same frequency as masonry samples.

3.14 CLEANING

A. Remove excess mortar and mortar droppings.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.15 PROTECTION OF FINISHED WORK

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

SECTION 079200

JOINT SEALANTS

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants 2018 (Reapproved 2022).

B. ASTM C834 - Standard Specification for Latex Sealants 2017.

C. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications 2022.

D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.

E. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems 2016.

F. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016.

G. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants 2022.

H. ASTM C1311 - Standard Specification for Solvent Release Sealants 2022.

I. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints 2019 (Reapproved 2020).

J. CAL (CDPH SM) - Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers Version 1.2 2017.

K. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board 2020.

L. SCAQMD 1113 - Architectural Coatings 1977, with Amendment (2016).

1.02 SUBMITTALS

A. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
   1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
   2. List of backing materials approved for use with the specific product.
   3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   4. Substrates the product should not be used on.

B. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

D. Executed warranty.

1.03 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section and is approved and/or certified by manufacturer.

B. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.

1. Adhesion Testing: In accordance with ASTM C794.
2. Compatibility Testing: In accordance with ASTM C1087.
3. Allow sufficient time for testing to avoid delaying the work.
4. Deliver sufficient samples to manufacturer for testing.
5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.

C. Preinstallation Field Adhesion Test Plan: Include destructive field adhesion testing of one sample of each combination of sealant type and substrate, except interior acrylic latex sealants, and include the following for each tested sample.

1. Identification of testing agency.
2. Preinstallation Field Adhesion Test Log Form: Include the following data fields, with known information filled out.
   a. Test date.
   b. Copy of test method documents.
   c. Age of sealant upon date of testing.
   d. Test results, modeled after the sample form in the test method document.
   e. Indicate use of photographic record of test.

D. Field Adhesion Test Procedures:

1. Allow sealants to fully cure as recommended by manufacturer before testing.
2. Have a copy of the test method document available during tests.
3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
4. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.
5. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to Owner.
6. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.

E. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.

1. Sample: At least 18 inches long.
2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch by that percentage; if adhesion failure occurs before the 1-inch mark is that distance from the substrate, the test has failed.
3. If either adhesive or cohesive failure occurs before minimum elongation, take necessary measures to correct conditions and retest; record each modification to

products or installation procedures.

1.04 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide 5-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
      b. Wall and ceiling joints.
      c. Joints between plumbing fixtures and floor or wall construction.
      d. Tamper- or pick-resistant sealant in secure areas.
      e. Other joints indicated below.
   2. Do not seal the following types of joints:
      a. Joints indicated to be treated with manufactured expansion joint cover, or some other type of sealing device.
      b. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
      c. Joints where installation of sealant is specified in another section.
      d. Joints between suspended panel ceilings/grid and walls.

B. Interior Joints: Use non-sag polyurethane sealant (ES-4), unless otherwise indicated.
   1. Type ES-3 - Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.
   2. Type ES-5 - Floor Joints: Self-leveling polyurethane "traffic-grade" sealant.
   3. Type AS-1 - Joints at sound-rated or acoustic assemblies, and at full-height panel wall and partition assemblies indicated to have sound attenuation batts.
   4. Type LS-1 - Joints around perimeters of interior doors, windows, elevator entrances, and similar framed openings.

C. Interior Wet Areas: Bathrooms, restrooms, and kitchens; fixtures in wet areas include plumbing fixtures, countertops, cabinets, and other similar items.

D. Sound-Rated Assemblies: Walls and ceilings identified as STC-rated, sound-rated, or acoustical.

2.02 JOINT SEALANTS - GENERAL

A. Low-Emitting Materials:
   1. Paints and Coatings: Paints and coatings field-applied inside the weatherproofing system shall be tested and determined compliant in accordance with CAL (CDPH SM) AND shall meet applicable VOC limits of CARB (SCM) or SCAQMD 1113.
   2. Adhesives and Sealants: Adhesives and sealants field-applied inside the weatherproofing system shall be tested and determined compliant in accordance

with CAL (CDPHSM) AND shall meet the chemical content requirements of SCAQMD 1168.

2.03 NONSAG JOINT SEALANTS

A. Type ES-1 - Low-Modulus Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 50 percent, minimum.
   2. Nonstaining to Porous Stone: Nonstaining to light-colored natural stone when tested in accordance with ASTM C1248.
   3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
   4. Color: To be selected by Architect from manufacturer's full range.
   5. Products:
      a. Master Builders Solutions; MasterSeal NP 100.
      b. Momentive Performance Materials, Inc/GE Silicones; SCS 2000 SilPruf.
      c. Pecora Corporation; Pecora 890 NST (Non-Staining Technology) or 890 FST (Field Tint).
      d. Polymeric Systems, Inc.; PSI-641.
      e. Tremco Commercial Sealants & Waterproofing; Spectrem 3 or Spectrem 4-TS (Field Tint).
      f. Substitutions: See Section 016000 - Product Requirements.

B. Type ES-2 - Medium-Modulus Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 50 percent, minimum.
   2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
   3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
   4. Color: To be selected by Architect from manufacturer's full range.
   5. Manufacturers:
      a. Dow Chemical Company; DOWSIL 795 Silicone Building Sealant.
      b. Momentive Performance Materials, Inc/GE Silicones; SCS9000 SilPruf NB - Non- Staining Silicone Weatherproofing Sealant.
      c. Pecora Corporation; Pecora 895 NST (Non-Staining Technology).
      d. Tremco Commercial Sealants & Waterproofing; Spectrem 2.
      e. Substitutions: See Section 016000 - Product Requirements.

C. Type ES-3 - Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic. Neutral- or acid-curing per manufacturer standard.
   1. Color: White.
   2. Products:
      a. Dow; DOWSIL 786 Mildew Resistant.
      b. Pecora Corporation; Pecora 898 NST (Non-Staining Technology).
      c. Tremco Commercial Sealants & Waterproofing; Tremsil 600 or Tremsil 200.
      d. Substitutions: See Section 016000 - Product Requirements.

D. Type ES-4 - Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; multi-component; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 25 percent, minimum.
   2. Color: To be selected by Architect from manufacturer's full range.
   3. Products:
      a. ITW Polymers Sealants; Permathane SM 7200.
      b. Master Builders Solutions by BASF; MasterSeal NP2.
      c. Pecora Corporation; DynaTrol II.
      d. Sika Corporation; Sikaflex-2c NS.
      e. Tremco Commercial Sealants & Waterproofing; Dymeric 240 FC or Vulkem 227.
      f. Substitutions: See Section 016000 - Product Requirements.

E. Type LS-1 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non- staining, non-bleeding, non-sagging; not intended for exterior use.
   1. Color: To be selected by Architect from manufacturer's full range.
   2. Grade: ASTM C834; Grade NF.
   3. Products:
      a. Bostik, Inc; Chem-Calk 600.
      b. ITW Polymers Sealants; SM 8200.
      c. Master Builders Solutions; MasterSeal NP 520.
      d. Pecora Corporation; AC-20 +Silicone.
      e. Tremco Commercial Sealants & Waterproofing; Tremflex 834.
      f. Substitutions: See Section 016000 - Product Requirements.

F. Type AS-1 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non- staining, non-bleeding, non-sagging acoustical sealant.
   1. Color: Standard colors matching finished surfaces, Type OP (opaque).
   2. Grade: ASTM C834; Grade NF.
   3. Manufacturers:
      a. Accumetric LLC; BOSS 826 Acoustical Sound Sealant.
      b. Franklin International, Inc; Titebond GREENchoice Acoustical Smoke & Sound Sealant.
      c. Hilti, Inc; CP 506 Smoke and Acoustical Sealant.
      d. Master Builders Solutions; MasterSeal NP 520.
      e. Momentive Performance Materials, Inc/GE Silicones; RCS20 Acoustical.
      f. Pecora Corporation; AC-20 FTR or AIS-919.
      g. Specified Technologies Inc; Smoke N' Sound Acoustical Sealant.
      h. Tremco Commercial Sealants & Waterproofing; Tremstop Smoke and Sound.
      i. Substitutions: See Section 016000 - Product Requirements.

G. Type SRS-1 - Butyl Sealant: Solvent-based; ASTM C1311; single component, nonsag; not expected to withstand continuous water immersion or traffic.
   1. Products:
      a. Bostik, Inc; Chem-Calk 300.
      b. Pecora Corporation; Pecora BC-158 Butyl Rubber Sealant.

c. Tremco Inc.; Tremco Butyl Sealant.
d. Substitutions: See Section 016000 - Product Requirements.

2.04 SELF-LEVELING JOINT SEALANTS

A. Type ES-5 - Self-Leveling Polyurethane Sealant for Traffic: Polyurethane; ASTM C920, Grade P, Uses M and A; single or multi-component; explicitly approved by manufacturer for traffic exposure.
   1. Movement Capability: Plus and minus 25 percent, minimum.
   2. Products:
      a. Bostik, Inc.; Chem-Calk 550.
      b. ITW Polymers Sealants; Permathane SM 7201.
      c. Pacific Polymers, Inc; Elast-Thane 227 Type 1 (Self-Leveling).
      d. Polymeric Systems, Inc; PSI-270SL.
      e. Tremco Commercial Sealants & Waterproofing; THC-901 or THC-900.
      f. W. R. MEADOWS, Inc; POURTHANE SL.
      g. Substitutions: See Section 016000 - Product Requirements.

2.05 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint

filler in an inconspicuous area to verify that it does not stain or discolor slab.

3.03 INSTALLATION

A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Provide joint sealant installations complying with ASTM C1193.

C. Install acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Install bond breaker backing tape where backer rod cannot be used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

I. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements for additional requirements.

B. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.

C. Destructive Adhesion Testing: If there are any failures in first 1,000 linear feet, notify Architect immediately.

D. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

E. Repair destructive test location damage immediately after evaluation and recording of results.

END OF SECTION 079200

SECTION 081100

STEEL DOOR FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Steel doors and frames.

1.02 RELATED SECTIONS

A. Section 08211 - Flush Wood Doors.

B. Section 08710 - Door Hardware

1.03 REFERENCES

A. ANSI/CABO A117.1 - American National Standard for Buildings and Facilities - Providing Accessible and Usable Buildings and Facilities; Council of American Building Officials; 1992.

B. ANSI A250.6 - Hardware on Standard Steel Doors (Reinforcement--Application); 1997.

C. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 1998.

D. ANSI A250.11 - Recommended Erection Instructions for Steel Frames; 2001 (until publication use SDI 105).

E. ASTM A 366 - Standard Specification for Commercial Steel (CS) Sheet, Carbon, (0.15 Maximum Percent) Cold-Rolled; 1997.

F. ASTM A 569 - Standard Specification for Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Sheet and Strip Commercial; 1998.

G. ASTM A 591 - Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Weight (Mass) Applications; 1998.

H. ASTM A 620 - Standard Specification for Drawing Steel (DS), Sheet, Carbon, Cold-Rolled; 1997.

I. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2000.

J. ASTM E 336 - Standard Test Method for Measurement of Airborne Sound Insulation in Buildings; 1997.

K. ASTM E 413 - Classification for Rating Sound Insulation; 1987 (Reapproved 1994).

L. ASTM E 1408 - Standard Test Method for Laboratory Measurement of the Sound Transmission Loss of Door Panels and Door Systems; 1991 (Reapproved 1995).

M. DHI A115 Series - Specifications for Steel Doors and Frame Preparation for Hardware; Door and Hardware Institute; current edition (ANSI/DHI A115 Series).

N. DHI A115.1G - Installation Guide for Doors and Hardware; Door and Hardware Institute; 1994.

O. NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association; 1999.

P. SDI 111 - Recommended Standard Details for Steel Doors & Frames; Steel Door Institute; current edition.

Q. SDI 113 - Test Procedure and Acceptance Criteria for Apparent Thermal Performance of Steel Door and Frame Assemblies; Steel Door Institute; 1979.

R. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

A. General: See Section 01300 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard details and catalog data demonstrating compliance with referenced standards; installation instructions.

C. Certificates:
1. Provide manufacturer's certification that products comply with referenced standards.
2. Provide evidence of manufacturer's membership in the Steel Door Institute.

D. Shop Drawings: Submit for approval of the following:
1. Shop drawings showing all openings in the door schedule and/ or drawings; provide details of door design, door construction and methods of assembling sections, hardware locations, anchorage and fastening methods, door frame types, and finish requirements.
2. At glazed openings, lights and transoms indicate removable and non-removable glazing stops.
3. Door, frame, and hardware schedule in accordance with SDI 111.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide all products from a single manufacturer who is a member of the Steel Door Institute.

B. Fire-rated Assemblies: Manufactured in accordance with Underwriter's Laboratories Inc. and bearing their label.

C. Manufacture products only after receipt of approved hardware schedule and templates.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Upon delivery, inspect all materials for damage; notify shipper and supplier if damage is found.

B. Protect products from moisture, construction traffic, and damage.

C. Store vertically under cover. Do not use non-vented plastic or canvas shelters. Should wrappers become wet, remove immediately.

D. Place units on 4 inch (100 mm) high wood sills or in a manner that will prevent rust or damage. Provide 1/4-inch (6 mm) space between doors to promote air circulation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Ceco Door Products.

B. Curries Company.

C. Republic Builders Products.

D. Steelcraft.

2.02 MATERIALS

A. Steel Sheet for Doors and Frames:
1. Cold rolled steel: ASTM A 1008, Designation CS.

2. Hot rolled steel: Pickled and oiled, ASTM A 1011, Designation CS Type B.
3. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed), ASTM A 653, with G60/Z180 or A40/ZF120 coating (minimum).

B. Steel Sheet for Anchors and Accessories: Electrolytically deposited zinc coated steel; ASTM A 591, coating 40Z (12G), minimum.

C. Finish Materials:
1. Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard. Coordinate with paint to be used for field finishing; refer to Section 09900.

2. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.

2.03 STEEL FRAMES

A. Fire-Rated Openings: Comply with NFPA 80; UL listed.
1. Affix permanent labels attesting to fire resistance.
2. At stairway enclosures, provide units listed for 450-degree F (232 degree C) maximum temperature rise rating for 30 minutes of exposure.
3. Provide manufacturer's certificate that oversized openings have been constructed in accordance with all other applicable requirements for labeled door construction.

B. Frames: Provide welded unit type frames.
1. For drywall partitions provide slip-on type frames for installation after partitions are erected.
2. Lights and Transoms: Provide tubular mullions and transom bars with heads and jambs.
3. Finish: Factory primed, for field finishing.

C. Galvanizing: Provide units of galvanized steel at all locations, except as otherwise indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are suitable before beginning installation of frames.
1. For wrap-around frames, verify that completed openings are of correct size and thickness.
2. For butt type frames, verify that completed openings are of correct size.

B. Correct unsatisfactory condition before proceeding with installation.

3.02 INSTALLATION

A. Install frames plumb, level, rigid, and in true alignment as recommended in ANSI A250.11 and DHI A115.1G.

B. Install doors plumb and in true alignment and fasten to achieve the maximum operational effectiveness and appearance of the unit. Maintain clearances specified in ANSI A250.8 and NFPA 80 whichever is more restrictive.

C. If additives are used in masonry or plaster work during cold weather, field coat the inside of steel frames with a bituminous compound to prevent corrosion.

3.04 CLEAN

A. Clean and restore soiled surfaces. Remove scraps and debris, and leave site and a clean condition.

END OF SECTION

SECTION 081416

FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid-core doors with wood veneer faces.
2. Factory finishing flush wood doors.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of door indicate door core materials and construction, veneer species, type and characteristics. Include factory-finishing specifications.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:

1. Dimensions and locations of blocking.
2. Dimensions and locations of mortises and holes for hardware.
3. Dimensions and locations of cutouts.
4. Undercuts.
5. Requirements for veneer matching.
6. Doors to be factory finished and finish requirements.
7. Fire-protection ratings for fire-rated doors.

C. Samples: For factory-finished doors.

1.3 INFORMATIONAL SUBMITTALS

A. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

1.4 QUALITY ASSURANCE

A. Doors to comply with WDMA IS 1A04 Window and Door Manufacturers Association, AWS Section 9 (Architectural Woodwork Institute), or AWI with quality certification program (QCP)

1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in plastic bags or cardboard cartons.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.

b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.

2. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include:

1. Algoma Hardwoods, Inc.
2. Marshfield Door Systems, Inc.
3. Eggers Industries.
4. VT Industries, Inc.

2.2 FLUSH WOOD DOORS, GENERAL

A. WDMA I.S.1-A Performance Grade:

1. Heavy Duty unless otherwise indicated.

2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors as indicated.

1. Construction: Five ply. Fabricate doors by hot-press method, bonding faces, crossbands, and core together in a single operation with Type 1 glue. Doors manufactured by cold pressing of manufactured or pre-manufactured components will not be accepted.
2. Grade: Premium, with Grade AA faces.
3. Species: White Maple
4. Cut: Plain Sliced
5. Core: Particleboard. ANSI A208.1, Grade LD-2, made with binder containing no urea- formaldehyde.
6. Crossbands: Wood-based composites of a minimum thickness of 1/16". Crossbands and face veneers are laminated to the core with Type 1 interior use glue using the Hot Press method. Crossbands must extend the full width of the door. Minimum properties include internal bond of 100 psi and density of 50 lbs. per cubic foot.
7. Stiles (Vertical Edges) – Matching Hardwood (one piece).
8. Rails (Horizontal Edges) – Solid Wood
9. Blocking: Composite blocking in particleboard-core doors as needed to eliminate through-bolting hardware. Provide solid blocks at lock edge and top of door for closer.

2.4 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance

requirements of referenced quality standard for fitting unless otherwise indicated.

1. Comply with NFPA 80 requirements for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied.

1.2 FACTORY FINISHING

B. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.

1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.

C. Transparent Finish:

1. Grade: Equivalent to WDMA TR-6 and System 10.
2. Finish: Enviroclad UV Coating
3. Staining: As selected by Architect from manufacturer's full range
4. Sheen: Satin

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hardware: For installation, see Section 087100 Door Hardware.

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

1. Install fire-rated doors according to NFPA 80.

C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.2 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

C. If required, protect doors following installation from damage that may occur as a result of project completion.

END OF SECTION 08 1416

SECTION 087100

DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work under this section includes furnishing and the installation of finish hardware specified herein and noted on drawings for a complete and operational system.

Items include, but are not limited to:

1. Hinges/Continuous Hinges
2. Locksets and Cylinders
3. Push Plates - Pulls
4. Kick, Mop and Protection Plates
5. Thresholds, Gasketing
6. Silencers
7. Miscellaneous Trim and Accessories

B. RELATED SECTIONS:

1. Section 08 11 00 – Steel Frames
2. Section 08 14 00 – Flush Wood Doors

1.02 REFERENCES

A. The following references are used in this section.

1. NFPA 252 – Standard Methods of Fire Tests of Door Assemblies, 2022, or UL 10C – Standard for Positive Pressure Fire Tests of Door Assemblies, for compliance with NCBC Section 716.5.1
2. Installation Guide for Doors and Hardware, DHI, 1984.
3. ANSI / BHMA A156.18, Materials and Finishes, 2006.

1.03 GENERAL REQUIREMENTS

A. Provide items, articles, materials, operations and methods listed, mentioned or scheduled herein or on drawings, in quantities as required to complete project. Provide hardware that functions properly. Prior to furnishing hardware, advise Architect of items that will not operate properly, are improper for conditions, or will not remain permanently anchored.

1.04 SUBMITTALS

A. Hardware Schedule: Submit hardware schedule in vertical format as illustrated by the Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Schedules which do not comply will be returned for correction before checking.

B. Hardware schedule shall clearly indicate architect's hardware group and manufacturer of each item proposed.

C. The schedule shall be reviewed prior to submission by a certified Architectural Hardware Consultant (AHC), who shall affix his or her seal attesting to the completeness and correctness of the schedule.

1. Provide 2 copies of illustrations from manufacturer's catalogs and data in brochure form.
2. Check specified hardware for suitability and adaptability to details and surrounding conditions. Indicate unsuitable or incompatible items and proposed substitutions in hardware schedule.
3. Provide listing of manufacturer's template numbers for each item of hardware in hardware schedule.
4. Furnish other Contractors and Subcontractors concerned with copies of final approved hardware schedule. Submit necessary templates and schedules as soon as possible to hollow metal, wood door, and aluminum door fabricators in accordance with schedule they require for fabrication.
5. Samples: Lever design or finish sample: Provide 3 samples if requested by architect.

D. Installation Instructions: Provide manufacturer's written installation and adjustment instructions for finish hardware. Send installation instructions to site with hardware.

E. Templates: Submit templates and "reviewed Hardware Schedule" to door and frame supplier and others as applicable to enable proper and accurate sizing and locations of cutouts and reinforcing.

F. Contract Closeout Submittals: Comply with Section 01700 including specific requirements indicated below.

1. Operating and maintenance manuals: Submit 3 sets containing the following:
2. Complete information in care, maintenance, and adjustment, and data on repair and replacement parts, and information on preservation of finishes.
3. Catalog pages for each product.
4. Name, address, and phone number of local representative for each manufacturer.
5. Parts list for each product.
6. Copy of final approved hardware schedule, edited to reflect "As installed".
7. Copy of final keying schedule.
8. One complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

1.05 QUALITY ASSURANCE

A. General Contractor’s Investigation: Prior to Contract Execution, the General Contractor shall have thoroughly investigated the entities that will be performing work or supplying materials, products, equipment, or systems for this project, to ensure that they comply with all of the qualifications and requirements mentioned or implied in the Contract Documents. If it is later determined that any of the previously mentioned entities do not comply with the qualifications and requirements specified in the Contract Documents, the General Contractor will be required to replace that entity with a qualified entity at no increase in Contract Sum or Contract Time.

B. Manufacturer: Obtain each type of hardware (ie. latch and locksets, hinges, closers) from single manufacturer, although several may be indicated as offering products complying with requirements.

C. Qualifications of the Hardware Supplier: A recognized architectural door hardware supplier, with warehousing facilities, who has been furnishing hardware and installation in the Project’s vicinity for a period of not less than 4 years. The supplier shall be, or shall employ, an Architectural Hardware Consultant (AHC) who is available, at reasonable times during the course of the work, for consultation about the Project’s hardware requirements, to the Owner, Architect, and Contractor. An Architectural Hardware Consultant (AHC) shall prepare all hardware and access

control schedules. This Supplier shall be responsible for proper coordination of all finish hardware items and access control items with related sections to insure compatibility of products.

1. Hardware supplier must be an authorized, direct factory distributor of all door hardware products specified herein to insure compliance and service of these products.
2. Require supplier to meet with Owner to finalize keying requirements and to obtain final instructions in writing.

D. Qualifications of Installer: The hardware installer shall have documented experience in the installation of hardware of similar quantities and types as required for this project. The installer's qualifications shall be submitted to the architect, in writing, for approval by the architect before any work shall commence.

E. Fire-Rated Openings: Furnish door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of the Authorities Having Jurisdiction. Furnish only items, of door hardware, that are listed and are identical to products tested by UL, ITS-WH, FM, or other testing and inspecting organization acceptable to the Authorities Having Jurisdiction, for use on types and sizes of doors indicated, in compliance with the requirements of fire-rated door and door frame labels.

Project requires door assemblies and components that are compliant with positive pressure and S Label requirements. Specifications must be cross-referenced and coordinated with door and frame manufacturers to ensure that total door opening engineering is compatible with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies.

Where emergency exit devices are required on fire-rated doors (with supplementary marking on doors' UL or FM labels including "Fire Door to be Equipped with Fire Exit Hardware") provide UL/WHI or FM label on exit devices indicating "Fire Exit Hardware".

F. Substitutions: All substitution requests are required to be submitted prior to the bid date and complying with the procedures and time frame as outlined in Division 01, General Requirements. Approval of submitted products is at the discretion of the architect and his hardware consultant.

G. At the Project's Completion, the Owner's Representative shall accompany the Architect and General Contractor during the Door Hardware and Access Control Items punch list phase of the project close-out, ensuring the Owner's Representative is familiar with all applications and systems, as installed. Refer to additional requirements under 3.0 EXECUTION.

H. Pre-Installation Meeting: Prior to door hardware installation, the General Contractor / Construction Manager shall request a hardware installation meeting to be held at the project location. This meeting shall convene prior to the hardware's installation. The types of hardware this meeting shall include are: locksets, exit devices, and door closers. The manufacturer's representatives of the above listed products, in conjunction with the hardware supplier for this project, shall conduct the installation training. All hardware installers shall be required to attend this meeting to receive certificate of authorized training. This meeting shall serve as door openings coordination and review of all shop drawings from related trades prior to the hardware installation. The Hardware Supplier shall include any related meeting costs in their proposal.

1.06 DELIVERY, STORAGE AND HANDLING

A. Tag each item or package separately with identification related to final hardware schedule and include basic installation instructions with each item or package.

B. Packaging of door hardware is the responsibility of the supplier. As material is received by the

hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set numbers to match the set numbers of the approved hardware schedule. Two or more identical sets may be packed in the same container.

C. The door hardware supplier shall deliver all individually packaged hardware items in a timely fashion to the place of installation (Shop or Project Site); direct factory shipments are not acceptable unless agreed upon beforehand. Hardware supplier shall coordinate delivery times and schedules with the contractor.

D. The General Contractor, door hardware supplier, access control supplier, and installers shall count, coordinate, and store all door hardware and access control items herein, verifying complete counts of all items scheduled and furnished. The contractor must report all shortages (discrepancies with shipping documents) within five (5) working days. The manufacturers' and Owner's representatives will inspect the installation of the door hardware and access control items during that phase of construction. Any deficiencies in installation of all materials included herein shall be corrected before installation continues.

E. The General Contractor shall provide a secure lock-up for the door hardware and security equipment delivered to the Project, but not yet installed. Control handling and installation of the hardware items that are not immediately replaceable, so that completion of the work will not be delayed by hardware losses, both before and after installation.

1.07 WARRANTY

A. All materials must be warranted against defects in workmanship and materials for a period of one (1) year from date of acceptance of this project, unless otherwise noted. Any evidence of misuse or abuse voids all warranties. These warranties shall be each manufacturers' standard written warranty.

B. Special Warranties:

1. Door Closers: Thirty (30) Year Period.
2. Saddle Thresholds, Bumper Thresholds, Door Sweeps, Self-Adhesive Gasketing, Perimeter Seals, Astragal Seals, Self-Adhesive Astragal Gasketing, Mullion Seals, Interlocking Seals, and Drip Strips: Three (3) Year Period.

C. Any manufacturer whose standard written warranty does not equal or exceed the requirements listed above must provide a letter stating that they will extend their warranty to comply with the requirements of this specification.

D. All of the manufacturer's fasteners and attachments supplied with each hardware item must be installed to maintain the manufacturer's fire listing and/or warranty.

E. Refer to Section 01 - Closeout Procedures for additional warranty requirements.

1.08 MAINTENANCE

A. Maintenance Tools and Instructions: General Contractor shall furnish a complete set of specialized tools and maintenance instructions as needed for the Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 PRODUCTS

2.1 BUTTS AND HINGES

A. Acceptable Manufacturers:

Ives	Bommer	Stanley
5BB1	BB5000	FBB179
5BB1	BB5001	FBB191

B. Application:

1. Provide NRP (non-removable pins) at out-swinging lockable doors.

C. Quantity:

1. Two hinges per leaf for openings through 60 inches high.
2. One additional hinge per leaf for each additional 30 inches in height or fraction thereof.
3. Four hinges for Dutch doors up to 90 inches in height.

2.2 LOCKSETS – MORTISE

A. Acceptable Manufacturer and Series:

Corbin	Schlage	Best
ML2020 Series x LWM ***Owner Preferred**	L9040	45H Series

B. Provide lock functions specified in Hardware Groups, with following provisions:

1. Cylinders: Refer to “KEYING” article, herein.
2. Locksets shall be manufactured from heavy gauge steel, 1/8” minimum lock case thickness, containing components of steel with a Zinc dichromate plating for corrosion resistance.
3. Locksets are to have a standard 2 3/4” backset with a full 3/4” throw. Deadbolt shall be a full 1” throw, constructed of stainless steel.
4. Lock shall be easily handed without opening the lock case.
5. Lock trim shall be through-bolted to door to assure correct alignment a proper operation.
6. Furnish “Knurled” or “Tactile” outside levers as indicated in the door Hardware Sets. “Abrasive” outside levers shall not be acceptable.

2.3 KEYING

A. Master key or Grand master key cylinders and key in groups, unless otherwise specified.

B. Provide 6 masterkeys for each masterkey set. Stamp keys "DO NOT DUPLICATE."

C. Permanent Cores shall be provided by Contractor Zero Bitted. Provide Corbin Russwin Cores and Housings for Academic buildings. Construction cores during the construction phase. Near the end of the project, WCU FM will remove the construction cores and install the permanent cores.

Construction cores will be returned to the Contractor.

D. WCU FM shall develop the keying schedule prior to purchasing and delivering of permanent cores.

2.4 DOOR CLOSERS

A. Acceptable Manufacturers and Types of Exposed Closers:

HAGAR	LCN	Corbin
5100 Series ***Owner Preferred**	4040XP Series	DC8200 / DC8210 x A3

B. Closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder.

C. Provide non-sized closers, continuously adjustable over the full range of closer sizes, and allow for reduced opening force to meet opening force requirements of ANSI A117.1

D. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, swing speed, and back check.

E. Provide closers with solid forged steel main arms (and forearms for parallel arm closers) and where specified to have a cast-in solid stop on the closer shoe (“CUSH”). Parallel arm mounted closers shall have “EDA” type arms or, where specified, “CUSH” or “SCUSH” type arms.

F. Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

G. Provide back-check for closers.

H. Provide hold-open arms where indicated.

I. Provide closers for doors as noted in Hardware Groups and, in addition, provide closers for labeled doors whether or not specifically noted in group.

J. Provide closers meeting the requirements of UBC 7-2, 1997 and UL 10C positive pressure tests.

K. Pressure relief valves (PRV’s) shall not be permitted.

2.5 WALL STOPS AND HOLDERS

A. Acceptable Manufacturers and Types:

Ives	Trimco	Door Controls
WS406/407CCV	1270WVP	3211T

B. Provide WS406/407CCV Series wall stop for each door leaf unless otherwise specified, or where conditions require the use of an overhead stop.

C. Floor or base stops shall be used only where definitely specified or absolutely unavoidable.

2.6 GASKETING

A. Acceptable Manufacturers:

Zero	National Guard	Reese
188S	5050	F-797B

B. Where smoke gasket is specified in hardware groups, provide 188S, unless detailed otherwise.

C. Provide gaskets for 20-minute doors and doors designated for smoke and draft control.

D. Where frame applied intumescent seals are required by the manufacturer, provide gaskets that comply with UBC 7-2, 1997 and UL 10C positive pressure tests.

2.7 FASTENERS

A. ncluding, but not limited to, wood or machine screws, bolts, bolts, nuts, anchors, etc. of proper type, material, and finish required for installation of hardware.

B. Use Phillips head for exposed screws. Do not use aluminum screws to attach hardware.

C. Provide self-tapping (TEC) screws for attachment of sweeps and stop-applied weatherstripping only.

2.8 TYPICAL FINISHES AND MATERIALS

A. Finishes, unless otherwise specified:

1. Butts: Interior Doors and Inswinging Exterior Doors
    a. US26D (BHMA 652) on Steel
2. Exit Devices:
    a. US26D (BHMA 626) on Brass or Bronze
3. Locks and Latches:
    a. US26D (BHMA 626) on Brass or Bronze

4. Kick Plates, Armor Plates, and Edge Guards:
5. Closers: Surface mounted.
    a. Sprayed Aluminum Lacquer.
6. Miscellaneous Hardware:
    a. US26D (BHMA 626) on Brass or Bronze
    b. US32D (BHMA 630) on Stainless Steel
    c. SP28 (BHMA 689) on Aluminum
    d. LGR- Light Gray
    e. S-Cl- Silicone Clear

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine doors, frames, and related items for conditions that would prevent the proper application

of finish hardware. Do not proceed until defects are corrected.

3.2 INSTALLATION

A. Mount hardware units at heights indicated in the following applicable publications, except as specifically indicated or required to comply with governing regulations and, except as otherwise indicated, by the Architect.

1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.

B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 09 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

C. Sets units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

D. Where scheduled, door pulls shall be through-bolted with bolt heads concealed behind push plates.

E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

F. Set thresholds, for exterior and interior doors, in a full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 07 - Joint Sealers.

G. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

H. The hardware installer shall be responsible for installation of all mechanical and electromechanical hardware items contained within this specification, in accordance with the manufacturer's technical installation guidance, and in addition to all applicable code requirements.

3.3 FIELD QUALITY CONTROL

A. After installation has been completed, provide services of qualified hardware consultant to check Project to determine proper application of finish hardware according to schedule. Also check operation and adjustment of hardware items.

B. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

3.4 ADJUSTING AND CLEANING

A. At final completion, hardware shall be left clean and free from disfigurement. Make final

adjustment to door closers and other items of hardware. Where hardware is found defective repair or replace or otherwise correct as directed.

B. Adjust door closers to meet opening force requirements of Uniform Federal Accessibility Standards.

C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of space or area, return to work during week prior to acceptance or occupancy, and make final check and adjustment of hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors.

D. Instruct Owner's personnel in proper adjustment and maintenance of door hardware and hardware finishes.

E. Clean adjacent surfaces soiled by hardware installation.

3.5 PROTECTION

A. Provide for proper protection of items of hardware until Owner accepts Project as complete.

3.6 HARDWARE GROUPS

A. The hardware supplier is cautioned to refer to general conditions, special conditions, and the preamble to this section. It shall be the hardware supplier's responsibility to furnish all required hardware.

B. Refer to the hardware groups below for door hardware required at each door opening.

Hardware Group No. HW-01

For use on mark/door #(s):
119 – ALL GENDER TOILET ROOM

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY/BATHROOM LOCK	ML2020 LWM CL6	630	C-R
1	EA	CONSTRUCTION CORE	- AS REQUIRED		C-R
1	EA	PERMANANT CORE	CR8000 x MK	626	C-R
1	EA	SURFACE CLOSER	5100	689	HAG
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	188S-CL	S-Cl	ZER

END OF SECTION

SECTION 092116

GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Interior gypsum board and accessories
2. Gypsum board finishing
3. Backing Panels

1.3 ACTION SUBMITTALS

A. Product Data: For data on gypsum board, accessories, and joint finishing systems.

1.4 QUALITY ASSURANCE

A. Single Source Responsibility for Gypsum Products: Obtain each type of gypsum panel product from a single manufacturer.

B. Installer Qualifications: Company specializing in performing work similar in type and scope to that required for use on this Project, with minimum 5 years of documented experience.

1.5 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

PART 2 - PRODUCTS

2.1 INTERIOR GYPSUM BOARD MATERIALS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include:

1. American Gypsum.
2. CertainTeed Corp.
3. Georgia-Pacific Gypsum LLC.
4. Lafarge North America Inc.
5. National Gypsum Company.
6. USG Corporation.
7. Substitutions: Refer to Section 01 6000 – Product Requirements.

B. Gypsum Wallboard, Type X: ASTM C 1396/C 1396M.
   1. Thickness: 5/8 inch
   2. Long Edges: Tapered
   3. Finish: Level 4

C. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
   1. Thickness: 1/2 inch
   2. Long Edges: Tapered
   3. Finish: Level 4

D. Glas-Mat Gypsum Sheathing Board: ASTM C 1177/C 1177M, with fiberglass mat laminated to both sides and with manufacturer's standard edges.
   1. Core: 5/8 inch, Type X

E. Cementitious Backer Units: ANSI A118.9 and ASTM C 1288 or 1325, with manufacturer's standard edges.
   1. Thickness: **1/2 inch (15.9 mm)**.
   2. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.2 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.
   1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
   2. Special Shapes:
      a. Cornerbead at outside corners, unles otherwise indicated.
      b. Architectural reveal bead.
      c. U-Bead at exposed panel edges.
      d. LC-Bead at exposed corners.
      e. Tapered fin drywall reveal where gypsum board assemblies abut dissimilar materials.

B. Aluminum Trim: ASTM B 221 Alloy 6063-T5.

2.3 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M and as recommended by gypsum board manufacturer for project conditions

B. Joint Tape for Interior Gypsum Board: 2 inch wide, coated glass fiber mesh tape for joints and corners, except as otherwise indicated.

C. Joint Compound for Interior Gypsum Board: Ready-mixed vinyl-based. For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

D. Joint Compound for Backing Panels:
   1. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.4 AUXILIARY MATERIALS

A. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

B. Sound Attenuation Blankets: 3 ½ inch insulation, see drawings.

PART 3 - EXECUTION

3.1 APPLYING AND FINISHING PANELS

A. Comply with ASTM C 840 and manufacturer's instructions.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

D. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4 wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

E. Install trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

1. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

2. Not more than 30 feet apart on walls and ceilings over 50 feet long.

F. Prefill open joints and damaged surface areas.

G. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

H. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

I. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

1. Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

K. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.

a. Primer and its application to surfaces are specified in Section 09 9123 "Interior Painting."

3.2 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092116

SECTION 093000

TILING

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar 2017.

B. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar 2017.

C. ANSI A108.1c - Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar 1999 (Reaffirmed 2021).

D. ANSI A108.2 - American National Standard General Requirements: Materials, Environmental and Workmanship 2019.

E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesive or Water Cleanable Tile-Setting Epoxy Adhesive 2019.

F. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar 2021.

G. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grout Epoxy 1999 (Reaffirmed 2019).

H. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout 1999 (Reaffirmed 2019).

I. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework 2017.

J. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone 2005 (Reaffirmed 2021).

K. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar 2020.

L. ANSI A108.20 - American National Standard Specifications for Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs 2020.

M. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive 2021.

N. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar 2019.

O. ANSI A118.10 - American National Standard Specifications for Load Bearing,

Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone 2014 (Reaffirmed 2019).

P. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation 2014 (Reaffirmed 2019).

Q. ANSI A137.1 - American National Standard Specifications for Ceramic Tile 2022.

R. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products 2018.

S. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation 2022.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting at the Project Site one week before starting work of this section; require attendance by affected installers.
   1. Review substrate preparation requirements.
   2. Review each type of tile, mortar, grout, and TCNA installation methods.
   3. Review requirements for waterproofing and/or crack isolation membrane(s).

1.03 SUBMITTALS

A. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

B. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
   1. Include waterproofing details at floor drains, shower pans, cove base, and thresholds.

C. Installer's Qualification Statement.
   1. Submit documentation of National Tile Contractors Association (NTCA) or Tile Contractors' Association of America (TCAA) accreditation.
   2. Submit documentation of completion of apprenticeship and certification programs.

D. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.

E. Maintenance Materials Submittals: Furnish the following for Owner’s use in maintenance of project.
   1. Tile and Trim Units: Furnish 2 percent of each size, color, and surface finish.
   2. Grout and Sealant: Furnish 1 percent of amount installed for each type, composition, and color.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Installer shall have documented experience of work similar in scope, materials, and design to that indicated for this Project, with a record of successful in-service performance, with references upon request. Installer shall hold company-wide accreditation or employ individuals with one of the listed certifications (comply with at least one):
   1. Company-wide accreditation from one of the following:
      a. Accredited Five-Star member of the National Tile Contractors Association

(NTCA) or Trowel of Excellence member of the Tile Contractors' Association of America (TCAA).

2. Installer Certification:
   a. Ceramic Tile Education Foundation (CTEF): Certified Tile Installer (CTI).
   b. Apprenticeship Program: Installer has achieved Journeyworker status through an apprenticeship from the International Union of Bricklayers and Allied Craftworkers (IUBAC) or a U.S. Department of Labor (DOL)-recognized program.

1.05 MOCK-UPS

A. See Section 014000 - Quality Requirements for general requirements for mock-up.

B. Construct tile mock-up where indicated on drawings, incorporating all components specified for the location.
   1. Provide mock-up of minimum 5 square feet for each type of floor tile, unless otherwise indicated.
   2. Provide mock-up of minimum 5 square feet for each type of wall tile, unless otherwise indicated.
   3. Approved mock-up may remain as part of the Work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store tile, grout, and mortar off the ground, protected from weather and water infiltration.

B. Store products in unopened containers or packages until ready for use.

C. Protect materials from freezing or overheating in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not install solvent-based products in an unventilated environment.

B. Maintain ambient and substrate temperature and humidity at levels required by referenced ANSI and TCNA tile standards, and per manufacturer's instructions.

PART 2 PRODUCTS

2.01 TILE

A. Porcelain Tile, Type PT-3 (Floor): ANSI A137.1 standard grade.
   1. Basis-of-Design Product: Subject to compliance with requirements, provide Daltile, "Society – Union Smoke" or equal by one of the following:
      a. American Olean
      b. Crossville
   2. Size: 12-inch x 14-inch, nominal.
   3. Thickness: 3/8 inch.
   4. Surface Finish: Matte.
   5. Pattern: As indicated on drawings.

B. Porcelain Tile, Type PT-4 (Floor Trim – Cove Base): ANSI A137.1 standard grade.
   1. Basis-of-Design Product: Subject to compliance with requirements, provide Daltile, "Society – Union Smoke" or equal by one of the following:

a. American Olean
b. Crossville
c. Substitutions: See Section 016000 - Product Requirements.

2. Size: 6-inch x 12-inch, nominal.
3. Thickness: 3/8 inch.
4. Surface Finish: Matte.
5. Pattern: As indicated on drawings.

C. Glazed Ceramic Tile (Wall), Type CT-1: ANSI A137.1 standard grade.
1. Moisture Absorption: 0 to less than 20 percent as tested in accordance with ASTM C373.
2. Basis-of-Design Product: Subject to compliance with requirements, provide Daltile, "Color Wheel, Artic White" or equal by one of the following:
   a. American Olean
   b. Crossville
   c. Substitutions: See Section 016000 - Product Requirements.
3. Size: 3-inch x 6-inch, nominal.
4. Thickness: 5/16 inch.
5. Surface Finish: Glazed.
6. Pattern: As indicated on drawings.

D. Glass Tile, Type GT-2 (Wall Accent Band – Glass): ANSI A137.2 standard grade.
1. Basis-of-Design Product: Subject to compliance with requirements, provide MSI Surfaces' "Stonella 2-inch Hexagon Mosaic SMOT-GLS-STNELA6MM" or equal by one of the following:
   a. American Olean
   b. Crossville
   c. Substitutions: See Section 016000 - Product Requirements.
2. Size: 2-inch x 2-inch, nominal
3. Thickness: 6mm, +/- 1/4 inch.
4. Surface Finish: Matte.
5. Pattern: As indicated on drawings.
6. Note: Install flush with surrounding Glazed Ceramic Wall Tile Type CT-1

2.02 TRIM AND ACCESSORIES

A. Thresholds: 3/4 inches wide by 7/16 inches high, full width of door frame opening; straight edge on both long edges; without holes, cracks, or open seams. Basis-of-Design Product: Subject to compliance with requirements, provide Schluter-Systems '1.2 Schluter – RENO-U-EU110', or equal by one of the following:
   a. Genesis APS International.
   b. Blanke.
   c. Ceramic Tool Company (CTC).
   d. Substitutions: See Section 016000 - Product Requirements.

2. Material: Stainless Steel

3. Applications:
   a. At doorways where tile terminates.

2.03 SETTING MATERIALS

A. Provide setting and grout materials from same manufacturer.

B. Latex-Portland Cement LHT Mortar (Medium-Bed): ANSI A118.4.
   1. Applications: Use this type of bond coat in a 5/8-inch thick medium-bed application.
   2. Products:
      a. Custom Building Products; ProLite Premium Rapid Setting Large Format Tile Mortar, with Multi-Surface Bonding Primer.
      b. H.B. Fuller Construction Products, Inc; TEC Ultimate Large Tile Mortar.
      c. LATICRETE International, Inc; 257 TITANIUM.
      d. MAPEI Corporation; Ultraflex LFT.
      e. Merkrete, by Parex USA, Inc; Merkrete 735 Premium Flex.
      f. Summitville Tiles, Inc.; S-1200 MP Premium Medium Bed Mortar.
      g. Substitutions: See Section 016000 - Product Requirements.

2.04 GROUTS

A. Provide setting and grout materials from same manufacturer.

B. Water-Cleanable Epoxy Grout: ANSI A118.3 stain-resistant epoxy grout.
   1. Applications: Where indicated.
   2. Heat Resistance: Tested by manufacturer for continuous exposure up to 140 deg F, and intermittent exposure up to 212 deg F.
   3. Color(s):
      a. #643 - Warm Gray (Use with Tile Type GT-2)
      b. # 165 – Delorean Gray (Use with Tile Types PT-3 and PT-4)
   4. Products:
      a. Custom Building Products; Prism Ultimate Performance Cement Grout. (Basis of Design)
      b. H.B. Fuller Construction Products, Inc; TEC AccuColor EFX Epoxy Special Effects Grout.
      c. LATICRETE International, Inc; LATICRETE SPECTRALOCK PRO Premium Grout.
      d. MAPEI Corporation; Kerapoxy CQ.
      e. Merkrete, by Parex USA, Inc; Merkrete Pro Epoxy.
      f. Summitville Tiles, Inc; S-500 Ultra Max.
      g. Substitutions: See Section 016000 - Product Requirements.

2.05 MAINTENANCE MATERIALS

A. Tile Sealants: Moisture- and mildew-resistant type sealants; one-part silicone for wall applications and multi-part urethane for floor applications. Sealants and accessories shall comply with requirements below and with requirements of Division 7 Section "Joint Sealants."
   1. Color(s): As selected by Architect from manufacturer's full line. Sealant colors shall match grout colors in adjacent joints unless otherwise indicated.

2. Silicone Sealant (Walls): ASTM C 920, Type S, Grade NS, Class 25; Uses NT (non- traffic), G (glass), A (aluminum), O (other substrates indicated).
    a. Products:
        1) GE Silicones, a division of GE Specialty Materials; SCS1700 Sanitary.
        2) Pecora Corporation; Pecora 898 NST. (Basis of Design)
        3) Tremco Inc.; Tremsil 200.
        4) Substitutions: See Section 016000 - Product Requirements.
3. Sealant Accessories: Provide backer rod, primer, and other sealant accessories as recommended by sealant manufacturer for applications required.

B. Grout Sealer: Liquid-applied, penetrating, moisture and stain protection for existing or new Portland cement grout.
    1. Composition: Water-based colorless silicone.
    2. Products:
        a. Custom Building Products; Aqua Mix Sealer's Choice Gold.
        b. Merkrete, by Parex USA, Inc; Merkrete Grout Sealer.
        c. SGM, Inc.; Grout Sealer.
        d. Summitville Tiles, Inc.; SL-99 Summitseal II.
        e. Substitutions: See Section 016000 - Product Requirements.

C. Tile Sealer: Stain protection for exposed surfaces of unglazed ceramic tile, other porous tile, and grout. Provide penetrating sealer with no sheen, preserving natural tile appearance.
    1. Products:
        a. Custom Building Products; Aqua Mix Sealer's Choice Gold.
        b. Rust-Oleum Corporation; Miracle Sealants 511 Impregnator Natural Looking Penetrating Sealer.
        c. STONETECH, a division of LATICRETE international, Inc; STONETECH Heavy Duty Sealer.
        d. Substitutions: See Section 016000 - Product Requirements.

D. Grout Release: Temporary, water-soluble pre-grout coating.
    1. Products:
        a. Custom Building Products; Aqua Mix Grout Release.
        b. MAPEI Corporation; UltraCare Grout Release.
        c. Substitutions: See Section 016000 - Product Requirements.

2.06 ACCESSORY MATERIALS

A. Waterproofing Membrane: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
    1. Crack Resistance: No failure at 1/8 inch gap, minimum; comply with ANSI A118.12.
    2. Fluid or Trowel Applied Type with Embedded Reinforcing Fabric:
        a. Material: Synthetic rubber or Acrylic.
        b. Thickness: 30 mils, minimum, dry film thickness.
        c. Products:
            1) Custom Building Products; RedGard Waterproofing

2) H.B. Fuller Construction Products, Inc; TEC HydraFlex Waterproofing Crack Isolation Membrane.
3) LATICRETE International, Inc; 9235 Waterproofing Membrane.
4) MAPEI Corporation; Mapelastic AquaDefense.
5) Merkrete, by Parex USA, Inc; Merkrete Hydro Guard 2000.
6) Summitville Tiles, Inc.; S-9000.
7) Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work, per ANSI A108.01, and are ready to receive tile.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

C. Verify that subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.

D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Protect surrounding work from damage.
B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

D. For ease of cleaning and to prevent staining, precoat tile with temporary grout release. For unglazed ceramic and other porous tile types, provide either combination tile sealer/grout release, or a temporary grout release with final tile sealer applied after tile installation.

3.03 INSTALLATION - GENERAL

A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.20, manufacturer's instructions, and TCNA (HB) recommendations.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.

E. Form internal angles square and external angles bullnosed.

F. Install non-ceramic trim in accordance with manufacturer's instructions.

G. Install thresholds where indicated.

H. Sound tile after setting. Replace hollow sounding units.

I. Keep control and expansion joints free of mortar, grout, and adhesive.

J. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

K. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.

L. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F122/F122A, over combination waterproofing/crack-isolation membrane, with latex-Portland cement grout.

1. Provide modified dry-set mortar in a standard thinset bed, except provide LHT mortar in a 5/8-inch medium bed at all large format tile (tile 12 inches or greater in any dimension).

3.05 INSTALLATION - WALL TILE

A. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin- set with dry-set or latex-Portland cement bond coat.

3.06 CLEANING

A. Clean tile and grout surfaces.

3.07 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION 093000

SECTION 099123

INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the field application of paint systems on interior substrates.

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and in each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials from the same product run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 1 unopened gallon of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).

b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.

2. Remove rags and waste from storage areas daily.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to:

1. Basis of Design: The Sherwin Williams Company

2. Benjamin Moore & Co.

3. PPG Architectural Finishes

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Primers, Sealers, and Undercoaters: 200 g/L.

D. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

E. Colors: As selected by Architect from manufacturer's full range

2.3 PRIMERS/SEALERS

A. Primer Sealer, Latex, Interior: MPI #50
   1. Sherwin Williams: ProMar 200 Zero VOC Latex Primer
   2. Benjamin Moore: EcoSpec Interior Latex Primer – N372
   3. PPG Architectural: PVA Wall Interior Primer Sealer

2.4 METAL PRIMERS

A. Primer, Galvanized, Water Based: MPI #134
   1. Sherwin Williams: Pro Industrial Pro-Cryl Universal Primer
   2. Benjamin Moore: IronClad Latex Low Luster Enamel – C363
   3. PPG Architectural: CorroStop Ultra Metal Primer

2.5 WATER-BASED PAINTS

A. Latex, Interior, (Gloss Level 2): MPI #44, Flat, Ceilings
   1. Sherwin Williams: ProMar 200 Zero VOC Latex Flat
   2. Benjamin Moore: EcoSpec WB Interior Latex Flat – N373
   3. PPG Architectural: Diamond 450 No VOC Interior Premium

B. Latex, Interior, (Gloss Level 3): MPI #52, Egg Shell, Walls
   1. Sherwin Williams: ProMar 200 Zero VOC Latex Egg-Shell
   2. Benjamin Moore: EcoSpec WB Interior Latex Egg-Shell – N374
   3. PPG Architectural: Diamond 450 No VOC Interior Premium

C. Latex, Interior, Gloss, (Gloss Level 5): MPI #141, Semi-Gloss, Hollow Metal Frames
   1. Sherwin Williams: Pro Industrial Zero VOC Acrylic Semi-Gloss Coating
   2. Benjamin Moore: Impervex Latex High Semi-Gloss Enamel - 309
   3. PPG Architectural: DevFlex QuickDry Waterborne Semi-Gloss – 4208QD

2.6 ACCESSORY MATERIALS

A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.

B. Patching Material: Latex Filler.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
   1. Gypsum Board: 12 percent.
   2. Masonry (Clay and CMU): 12 percent

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

1. Gypsum Board: Verify that finishing compound is sanded smooth.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Metal Substrates - Unprimed (Aluminum, Steel):

1. Latex over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based MPI #134.

b. Intermediate Coat: Latex, interior, matching topcoat.

c. Topcoat: Latex, interior, gloss, (Gloss Level 5)

B. Clay - Masonry Substrates:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior, MPI #50, matching topcoat.

b. Intermediate Coat: Latex, interior, matching topcoat.

c. Topcoat: Latex, interior, (Gloss Level 3), MPI #52

C. Gypsum Board Substrates:

1. Latex System (Walls):

a. Prime Coat: Primer sealer, latex, interior, MPI #50.

b. Intermediate Coat: Latex, interior, matching topcoat.

c. Topcoat: Latex, interior, (Gloss Level 3), MPI #52

2. Latex System (Ceilings):

a. Prime Coat: Primer sealer, latex, interior, MPI #50.

b. Intermediate Coat: Latex, interior, matching topcoat.

c. Topcoat: Latex, interior, (Gloss Level 2), MPI #44

END OF SECTION 09 9123

SECTION 102800

TOILET AND BATH ACCESSORIES

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.

B. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless-Steel Tubing for General Service 2022.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc- Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2022.

D. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless-Steel Sheet, Strip, Plate, and Flat Bar 2015.

E. ASTM C1036 - Standard Specification for Flat Glass 2021.

F. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass 2018.

G. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror 2018.

H. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023.

I. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi 2015, with Editorial Revision (2021).

1.02 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with the placement of internal wall reinforcement and reinforcement of toilet partitions to receive anchor attachments.

1.03 SUBMITTALS

A. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

B. Setting Drawings: For cutouts required in other work; include templates, substrate preparation instructions, and directions for preparing cutouts and installing anchoring devices.

C. Maintenance Data: For each type of accessory, to include in maintenance manual per Section 017800 - Closeout Submittals. Include list of replacement parts and service recommendations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Commercial Toilet, Shower, and Bath Accessories:
   1. A&J Washroom Accessories, Inc.
   2. American Specialties, Inc.
   3. Bobrick Washroom Equipment.
   4. Bradley Corporation.

B. Under-Lavatory Pipe Supply Covers:
   1. Plumberex Specialty Products, Inc.

2. Truebro; IPS Corporation.

C. Provide products of each category type by single manufacturer.

2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.

B. Keys: Provide 6 master/universal keys, minimum, to Owner.

C. Stainless Steel Sheet: ASTM A666, Type 304.

D. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.

E. Galvanized Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating.

F. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

G. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.
   1. Provide mechanical attachment of all accessories. Use of adhesive or double-side tape is not acceptable.

2.03 FINISHES

A. Stainless Steel: Satin finish, unless otherwise noted.

2.04 TOILET ACCESSORIES SCHEDULE, GENERAL

A. General: The following products make reference to the designations indicated on the Toilet Accessories Schedule, Toilet Assemblies, and toilet room plans on the drawings; herein designated as "X" (in letters).

2.05 COMMERCIAL TOILET AND BATH ACCESSORIES

A. Grab Bars (Items F, G & H on Drawings): Stainless steel, smooth surface.
   1. Standard Duty Grab Bars:
      a. Push/Pull Point Load: 250 pound-force, minimum.
      b. Dimensions: 1-1/4 inch outside diameter, minimum 0.05 inch wall thickness, concealed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.
      c. Finish: Satin.
      d. Length and Configuration: As indicated on drawings.
      e. Products:
         1) A&J Washroom Accessories, Inc.; UG2 Series.
         2) American Specialties, Inc.; 3700 Series.
         3) Bobrick Washroom Equipment, Inc.; B-5806 Series.
         4) Bradley Corporation; 832 Series.

B. Angle-Framed Mirror (Item E on Drawings):
   1. Materials:
      a. Frame: One-piece, stainless steel sheet angle frame, ¾ x ¾ inch (19 x 19mm) with continuous integral stiffener on all sides and beveled front to hold frame tightly against mirror; corners shall be

heliarc welded, ground, and polished smooth; all exposed surfaces shall have satin finish with vertical grain.

b. Mirror: No. 1 quality, ¼ inch (6mm) select float glass, electrolytically copper-plated by the galvanic process, and guaranteed for 15 years against silver spoilage.

c. Size (Width x Height): 24 x 36 inches

d. Product: Bobrick B-293 2436

2. Other Approved Manufacturers:

a. A&J Washroom Accessories, Inc.

b. American Specialties, Inc.

c. Bradley Corporation.

C. Sanitary Napkin Disposal (Item D on Drawings):

1. Material: 18-8-gauge stainless steel sheet; exposed surfaces to have satin finish.
2. Disposal Door: Unit shall have a self-closing panel covering disposal opening. Panel shall be secured to door with spring-loaded, full-length stainless steel piano hinge.
3. Size: 7-1/2-inch Wide x 10-inch High x 3-3/16in Deep
4. Product: Bobrick B-270.
5. Installation Method:

a. a. Attachment to Concrete Block thru Wall tile: provide fiber plugs or expansion shields for use with sheet-metal screws.

D. Paper Towel Dispenser (Item A on Drawings): Supplied by Owner, installed by Contractor.

1. Material: Break and Chemical Resistant Plastic
2. Size: 12-5/8-inch W x 16-5/8in H x 9-3/8-inch D
3. Roll Width: 7-1/2-inch to 8-1/8-inch.
4. Roll Diameter: 8-inches.
5. Finish/Color: Transparent smoke cover, black back housing
6. Product: ‘No Touch Choice 8-in Roll Towel Dispenser’ by Perrincraft System

E. Soap Dispenser (Item B on Drawings): Supplied by Owner, installed by Contractor.

1. Material: Break Resistant Plastic
2. Capacity: 1,000 ml
3. Size: 10-5/16-inch H x 5-3/8in W x 3-7/8-inch D
4. Product: ‘1000ml Foamer’ by Daansen

F. Toilet Tissue Dispenser (Item C on Drawings): Supplied by Owner, installed by Contractor.

1. Material: Impact Resistant Plastic with tamper proof metal lock
2. Size: 20-inch W x 11-1/5” H x 5” D
3. Roll size: fits all 9-3/4 inch Jumbo Roll Tissue with 2-inch or 3-3/8-inch cores
4. Product: ‘Twin JRT Toilet Tissue Dispenser # 18838’, manufactured by CleanTech Products.

2.06 UNDER-LAVATORY PIPE AND SUPPLY COVERS

A. Under-Lavatory Pipe and Supply Covers:
   1. Insulate exposed drainage piping, including hot, cold, and tempered water supplies under lavatories or sinks to comply with ADA Standards.
   2. Exterior Surfaces: Smooth non-absorbent, non-abrasive surfaces.
   3. Construction: 1/8 inch flexible PVC.
      a. Surface Burning Characteristics: Flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
      b. Microbial and Fungal Resistance: Comply with ASTM G21.
   4. Color: White.
   5. Fasteners: Reusable, snap-locking fasteners with no sharp or abrasive external surfaces.
   6. Products:
      a. Plumberex Specialty Products, Inc; Plumberex Trap Gear.
      b. Truebro; IPS Corporation; Lav Guard 2.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify exact location of accessories for installation.

3.02 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated on Drawings.

3.03 PROTECTION

A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION 102800