SECTION 000101
PROJECT TITLE PAGE

PROJECT MANUAL

FOR

GUY SMITH STADIUM PHASE II
2113 MYRTLE AVE.
ARCHITECT'S PROJECT NUMBER: 23-0176.

OWNER
CITY OF GREENVILLE RECREATION AND PARKS
2000 CEDAR LN.
GREENVILLE, NC 27858
,
DATE:
PHASE II: 09/25/23

PREPARED BY:
MAMMOTH DESIGN LLC
DAVE DEVORE

Greenville
NORTH CAROLINA
RECREATION AND PARKS
Recreation and Parks Department
2000 Cedar Lane
Greenville, NC 27835
252-329-4567

CITY CONTACTS
GUY SMITH STADIUM IMPROVEMENTS
GREENVILLE, NORTH CAROLINA

CONTRACT DOCUMENTS AND SPECIFICATIONS
CITY OF GREENVILLE, NORTH CAROLINA

MAYOR: P. J. CONNELLY

COUNCIL MEMBERS:
ROSE H. GLOVER
WILL BELL
MARION BLACKBURN
MONICA DANIELS
LES ROBINSON
RICK SMILEY

CITY MANAGER: ANN E. WALL

CITY ATTORNEY: EMANUEL D. MCGIRT

CITY CLERK: VALERIE SHIUWEGAR

PROJECT CONTACT: MARK NOTTINGHAM, AICP
MNOTTINGHAM@GREENVILLENC.GOV

END OF SECTION

SECTION 000102
PROJECT INFORMATION

PART 1 GENERAL

1.01 PROJECT IDENTIFICATION

A. Project Name: Guy Smith Stadium Phase II, located at:

2113 Myrtle Ave..

Greenville, North Carolina27834.

B. The Owner, hereinafter referred to as Owner: City of Greenville Recreation and Parks

C. Owner's Project Manager: Mark Nottingham.
   1. Department: City of Greenville Recreation & Parks Parks Planner.
   2. Address: 2000 Cedar Ln..
   3. City, State, Zip: Greenville, NC 27858.
   4. Phone/Fax: (252) 3294242.
   5. E-mail: mnottingham@greenvillenc.gov.

1.02 NOTICE TO PROSPECTIVE BIDDERS

A. These documents constitute an Invitation to Bid to and request for qualifications from General Contractors for the construction of the project described below.

1.03 PROJECT DESCRIPTION

A. Summary Project Description:
   1. PHASE I (NIC): Renovation of an existing baseball stadium. Changes include: new fencing, relocating warning track along fence lines, new batting cages, field equipment, repair landscaping.
   2. PHASE II: New pre-manufactured shipping container modular construction buildings that includes: Restrooms, Concessions, Merchandise, and Commercial Kitchen. New pre-manufactured bleacher system. New concrete slab for circulation and gathering areas.

B. Contract Terms: Guaranteed maximum price (GMP).

1.04 PROJECT CONSULTANTS

A. The Architect, hereinafter referred to as Architect: Mammoth Design LLC
   1. Address: 8813 Penrose Ln, Suite 200
   2. City, State, Zip: Lenexa, KS 66219
   3. Phone/Fax: (785) 400-6136

1.05 PROCUREMENT TIMETABLE

A. Last Request for Information Due: 7 days prior to due date of qualifications statements.

B. Last Request for Substitution Due: 7 days prior to due date of bids.

C. Last Request for Information Due: 7 days prior to due date of bids.

D. Anticipated Bid Due Date: 10/24/23 by owner, before 2:00 pm local time.

E. Bid Opening: 10/24/23, 2:00 pm local time.

F. Desired Phase II Substantial Completion Date: .04/15/24

G. Final Completion Date for Phase II: 05/01/24

H. Final Completion date is critical due to requirements of Owner's operations.

I. The Owner reserves the right to change the schedule or terminate the entire procurement process at any time.

1.06 PROCUREMENT DOCUMENTS

A. Availability of Documents: Complete sets of procurement documents may be obtained:
   1. From Owner at the Project Manager's address listed above.
   2. All procurement items must be approved by Owner

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

This page intentionally left blank

SECTION 000103
PROJECT DIRECTORY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Identification of project team members and their contact information.

1.02 OWNER:

A. Name: City of Greenville Recreation and Parks
   1. Address Line 1: 2000 Cedar Ln.
   2. City, State Zip: Greenville, NC 27858
   3. Telephone: (252) 329-4242

B. Primary Contact: All correspondence from the Contractor to the Architect will be direct, with copies to this party, unless alternate arrangements are mutually agreed upon at preconstruction meeting.
   1. Title: Parks Planner.
   2. Name: Mark Nottingham.
   3. Email: mnottingham@greenvillenc.gov.

1.03 CONSULTANTS:

A. Architect: Design Professional of Record. All correspondence from the Contractor regarding construction documents authored by Architect's consultants will be through this party, unless alternate arrangements are mutually agreed upon at preconstruction meeting.
   1. Company Name: Dave Devore.
      a. Address Line 1: 8813 Penrose Ln, Suite 200
      b. City: Lenexa.
      c. State: KS.
      d. Zip Code: 66219.
      e. Telephone: (785) 400-6136
   2. Primary Contact:
      a. Title: Architectural Designer.
      b. Name: Beau Hewins.
      c. Email: beau.hewins@mammothbuilt.com.

B. Civil Engineering Consultant:
   1. Company Name: .Mammoth Design LLC
      a. Address Line 1: 8813 Penrose Ln, Suite 200
      b. City: Lenexa.
      c. State: KS.
      d. Zip Code: 66219.
      e. Telephone: (785) 400-6136

1.04 TBD:

A. Company Name: General Contractor
   1. Address Line 1: TBD
   2. City: TBD
   3. State: SD
   4. Zip Code: 57104
   5. Telephone: TBD

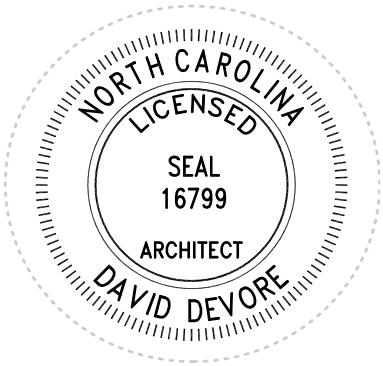
B. Primary Contact:
   1. Title: Vice President of Construction Operations.
   2. Name: TBD
   3. Email: matt@mammothbuilt.com.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION

This page intentionally left blank

SECTION 000107
SEALS PAGE



ARCHITECT
DAVID DEVORE

CIVIL ENGINEER
DYLAN MEDLOCK

END OF SECTION

This page intentionally left blank

SECTION 000110
TABLE OF CONTENTS

END OF SECTION

This page intentionally left blank

SECTION 000120
LIST OF SCHEDULES

1.01 MILESTONE SCHEDULE OF CONSTRUCTION

A. Bidders recognize that revisions in the planned schedule are inherent in the nature of construction. This may result in revisions to the schedule of construction for the Project and the Bidders' Work during the progress of construction. Bidders acknowledge that Owner or Contractor cannot guarantee Bidders, if selected, will be able to start the Work on any date or continue without interruption once started. Bidders shall include in their Bid all costs associated with this risk.

END OF SECTION

This page intentionally left blank

SECTION 001113
ADVERTISEMENT TO BID

GUY SMITH STADIUM IMPROVEMENTS

1.01 ADVERTISEMENT FOR BIDS

A. The Greenville Recreation and Parks Department (GRPD) will accept bids for the Guy Smith Stadium Improvements project, beginning October 13, 2023. SEALED, SINGLEPRIME BIDS from qualified bidders will be received by the City in the offices of Recreation and Parks, 2000 Cedar Ln. Greenville, NC 27858, at 2:00 pm (Eastern Standard Time) on October 24th, 2023, and publicly opened thereafter at 2:00 pm. Bids shall be marked “SEALED BID”, addressed to the attention of Mr. Mark Nottingham, Greenville Recreation and Parks Department, and shall include the Name, Address, and License Number of the bidder, and the type proposal enclosed. The OPTIONAL Pre-Bid Meeting was held October 3rd, 2023 at 10:00 AM.

B. Each bidder must show evidence that they are licensed under Chapter 87 of the N.C. General Statutes. Performance and payment bonds are required.

C. General Description of the work:

D. The work includes all labor, equipment, and materials to complete in every detail of the work indicated on the plans and specifications. Specifically, all work incidental thereto Guy Smith Stadium and Site Improvements including, but not limited to, demolition, earthwork, and construction.

1.02 MBE/WBE PARTICIPATION

A. The goal for Minority and / or Women Business Enterprise (M/WBE) participation is MBE 10% and WBE 6%. Each goal must be met separately. Exceeding one goal does not satisfy requirements for the other.

1.03 CONTRACT DOCUMENTS

A. Copies of the CONTRACT DOCUMENTS may be obtained electronically via the City of Greenville Current Bid Opportunities Webpage. For information, contact Mark Nottingham at 252-329-4242 or mnottingham@greenvillenc.gov.

B. If applicable, each proposal shall be accompanied by a bid bond executed by a corporate security licensed to do so under North Carolina law, of an amount equal to not less than five percent (5%) of the proposal, or in lieu thereof, a bidder may offer a certified check on a bank or trust company insured by the Federal Deposit Insurance Corporation. Each bidder’s deposit, except for the bidder to whom the contract is awarded, shall be returned after the contract awarded. The City shall retain the bid deposit of the bidder to whom the contract is awarded if the bidder fails to execute the contract within ten days after the award.

C. To whom the contract is awarded, and if required by North Carolina General Statute, a Performance and Payment Bond will be required for one hundred percent (100%) of the contract price.

D. No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of 60 days after the bid date.

E. The City of Greenville reserves the right to reject any or all proposals.

SIGNED:

Mark Nottingham
City of Greenville Recreation and Parks Department
2000 Cedar Lane Greenville, NC 27858

END OF SECTION

This page intentionally left blank

SECTION 002113
INSTRUCTIONS TO BIDDERS

1.01 INSTRUCTIONS

A. Bids will be received for Single Prime Contract. All proposals shall be for lump sum. It is the intent of the City to award this bid to the lowest responsive and responsible bidder.

B. Bidders are requested to return bids to the City of Greenville Recreation and Parks Department prior to bid opening. Bids will be opened promptly at the time specified in the Invitation to Bid. Bidders are cautioned to be prompt since No Bids Will Be Accepted after the time designated for the bid opening. The precise time will be monitored by the by the person responsible for opening the bids.

C. All bids submitted must be on the blank proposal forms herein provided and prices given shall be both in writing and figures and the complete form shall be without any lineation, alterations, or erasures. In case of conflicting prices, the written prices shall govern.

D. Bids shall be enclosed in a sealed envelope, directed to the City of Greenville, Recreation and Parks Department, 2000 Cedar Lane, Greenville, North Carolina 27858, and marked with the bidder's North Carolina Contractor's License number. All bids must be marked Bid on the outside of the envelope.

E. Each proposal shall contain the full name and address of each bidder. When firms bid, the name of each member shall be signed and the firm name added, and the execution shall be done as more specifically stated herein under the following section.

F. The omission of prices upon any item for which bids are asked or the tendering of an unbalanced bid will be the cause of the rejection of the bid submitted.

G. No bid shall be considered or accepted by the City unless at the time of its filing, it is accompanied by a deposit of cash, or a cashier's check, or a certified check on some bank or trust company insured by the Federal Deposit Insurance Corporation in an amount equal to not less than five percent (5%) of the bid, if applicable. In lieu of making that deposit, the bidder may file a bid bond executed by a corporate surety licensed under the laws of North Carolina to execute such bonds, conditioned that the surety will upon demand forthwith make payment to the City of Greenville upon the bond if the bidder fails to execute the contract in accordance with the bid bond. This deposit shall be retained by the City if the successful bidder fails to execute the contract within 10 days after the award or fails to give satisfactory bonds or deposit as required herein. The bidder to whom the award of contract is made shall either (a) furnish bonds as required by Article 3 of Chapter 44A of the N.C. General Statutes, using the form supplied by the City; or (b) deposit with the City money, certified check or government securities. The bonds or deposit shall be for the full amount of the contract to secure the faithful performance of the terms of the contract and the payment of all sums due for labor and materials in a manner consistent with Article 3 of Chapter 44 AINSTRUCTIONS TO BIDDERS

H. General Contractors are notified that Chapter 87, Article 1, General Statutes of North Carolina will be observed in receiving and awarding general contracts. General contractors submitting bids on this project must have license classification for general contractor.

I. NOTE: Under GS 87-1, a contractor that superintends or manages construction of any building, highway, public utility, grading, structure, or improvement shall be deemed a "general contractor" and shall be so licensed. Therefore, a single prime project that involves other trades will require the single prime contractor to hold a proper General Contractors license.

J. Except to the extent allowed by statute, bids shall not be withdrawn, and bids shall remain subject to acceptance by the City for a period of 90 days.

K. Bidders must present satisfactory evidence that they have been regularly engaged in the business of constructing such work, and that they are fully prepared with the necessary capital, equipment, etc., to begin the work promptly, and complete the same in accordance with specifications.

L. The bids will be evaluated, and the contract awarded in accordance with statutory public contract requirements as supplemented or altered by the Minority and / or Women Business Enterprise (M/WBE) requirements supplied with this bid package. These forms must be filled out and returned with the bid proposal. Any bids submitted without these completed forms shall be deemed as "non-responsive". If there are any questions or problems in filling out these

forms, please contact:

1. Tish Williams, MWBE Coordinator (252) 329-4462

M. The successful bidder is required to commence work within ten (10) written days after written notice from the Project Manager. Termination of work shall also be controlled by the City of Greenville.

N. The contractor will furnish all materials, labor, equipment, supervision, tools, machinery, etc. for complete construction of projects in accordance with plans and specifications of the City of Greenville.

O. The bidder to whom the award is made shall be required to furnish work crews of adequate number, size, and experience to properly perform the work. The interpretation of the number of crews, size, and experience will be determined by the City of Greenville as to their adequacy.

P. It shall be the contractor's responsibility to obtain all necessary and required permits and inspections. These permits shall be presented upon demand.

Q. The Contractor will perform, or have performed, all necessary site layout (both lines and grades) for this construction.

R. The Contractor must provide the City of Greenville a safety plan of their organization, prior to approval of the contract.

S. The following standard documents shall be used for their intended purposes unless the Owner consents to use other forms:

1. Standard Form of Agreement Between Owner and Contractor
2. General Conditions of the Contract for Construction.

T. The contractor(s) to whom the award is made must carry insurance in the amounts and types outlined in the Insurance Requirements section of this document.

U. The insurance herein required shall be with an insurance company authorized to do business in North Carolina and having a BEST rating of A or better.

V. Insurance shall be evidenced by a certificate:

1. Providing notice to the City of not less than 30 days prior to cancellation or reduction of coverage
2. Certificates should be addressed to:

City of Greenville, North Carolina Attn: Mark Nottingham
2000 Cedar Ln
Greenville, NC 27858

1.02 INSURANCE

A. The Company agrees to purchase at its own expense insurance coverages to satisfy the following minimum requirements. A certificate reflecting the following minimum coverages shall accompany this Agreement:

1.03 WORKERS' COMPENSATION INSURANCE:

A. Limits:

1. Workers Compensation: Statutory for the State of North Carolina
   a. Employers Liability:
      1) Bodily Injury by Accident $1,000,000 each accident
      2) Bodily Injury by Disease $1,000,000 policy limit
      3) Bodily Injury by Disease $1,000,000 each employee.

B. No sub-contractor may exclude executive officers. Workers Compensation must include all employees.

1.04 COMMERCIAL GENERAL LIABILITY:

A. Limits:

Each Occurrence:	$1,000,000
Personal and Advertising Injury	$1,000,000
General Aggregate Limit	$2,000,000
Products and Completed Operations Aggregate	$2,000,000

B. The aggregate limit must apply per project. The form of coverage must be the ISO CG 00 01 policy as approved by the State of North Carolina Department of Insurance. If a form of coverage other than the CG 00 01 is used it must be approved by the City. Any endorsed exclusions or limitations from the standard policy must be clearly stated in writing and attached to the Certificate of Insurance. Completed Operations coverage must be maintained for the period of the applicable statute of limitations.
C. The City must be added as an Additional Insured to the Commercial General Liability policy.

1.05 COMMERCIAL AUTOMOBILE LIABILITY:

A. Limits:
   1. $1,000,000 combined single limit.
B. The City must be added as an Additional Insured on the Commercial Auto Liability policy.
C. All insurance companies must be admitted to do business in North Carolina and be acceptable to the City. If the insurance company(s) is a permitted surplus lines insurer, the insurance company name, and NAIC number must be submitted to the City's Risk Manager for approval before commencing work. Company shall be required to provide the City no less than thirty (30) days' notice of cancellation, or any material change, to any insurance coverage required by this Agreement
D. A Certificate of Insurance (COI) must be issued by an authorized representative of the insurance carrier(s). Certificates of Insurance must have the Insurance Company name and NAIC number clearly identified.
E. The City's review or acceptance of Certificates of Insurance shall not relieve the Company of any requirement to provide the specific insurance coverages set forth in the Agreement. Nor shall the City's review or acceptance of Certificates of Insurance constitute a waiver of the specific insurance coverage requirements set forth in the Agreement or acknowledgement that all insurance coverage requirements set forth in the Agreement have been met.

1.06 HOLD HARMLESS AND INDEMNITY AGREEMENT:

A. To the fullest extent permitted by law, Company shall indemnify and hold harmless the City, its employees, agents, and consultants against any liability arising out of or in connection with any of the operations or obligations of Company, including but not limited to any said operations or obligations subcontracted or assigned to a different person or entity from claims, damages, losses, and expenses, including but not limited to attorneys' fees, which is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, caused by acts or omissions of Company or anyone directly or indirectly employed by them or anyone for whose acts the Company may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligation of indemnity which would otherwise exists as to a party or person described in this paragraph.
B. Indemnification.
   1. To the maximum extent allowed by law, Contractor shall indemnify and save harmless INDEMNITIES FROM AND AGAINST ALL CHARGES THAT ARISE IN ANY MANNER FROM, IN CONNECTION WITH, OR OUT OF THIS CONTRACT (INCLUDING, BUT NOT LIMITED TO, CHARGES THAT ARISE AS A RESULT OF ACTS OR OMISSIONS OF CONTRACTOR, INDEMNITIES, OR ANY OTHER PERSON, FIRM OR CORPORATION). IN PERFORMING ITS DUTIES UNDER THIS SUBSECTION "A", CONTRACTOR SHALL AT ITS SOLE EXPENSE DEFEND INDEMNITIES WITH LEGAL COUNSEL REASONABLY ACCEPTABLE TO THE CITY OF GREENVILLE ("CITY").
   2. Definitions. As used in subsections "a" above and "c" below – "Charges" means claims, judgments, costs, damages, losses, demands, liabilities, obligations, fines, penalties, royalties, and expenses (including interest and reasonable attorney's fees assessed as part of any such item); "Contractor" means all parties to this contract other than City; and "Indemnities" means City and its officers, officials, independent contractors, agents, and employees.
   3. Limitation of Contractor's Obligation. If this is in, or is in connection with, a contract relative to the design, planning, construction, alteration, repair or maintenance of a building, structure, highway, road appurtenance or appliance, including moving, demolition and

excavating therewith, then subsection “a” above shall not require the Contractor to indemnify or hold harmless the City, its independent contractors, agents, employees, or indemnities against liability for damages arising out of bodily injury to persons or damage to property proximity caused by or resulting from the negligence, in whole or in part, or the City, its independent contractors, agents, employees, or indemnities.

C. The successful bidder is required to commence work within ten (10) written days after written notice from the Project Manager. Termination of work shall also be controlled by the City of Greenville.
D. All work under this contract shall be completed within ninety (90) days from the date of the Notice to Proceed.
E. E-VERIFY COMPLIANCE: The Contractor shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. Further, if the Contractor utilizes a Subcontractor, the Contractor shall require the Subcontractor to comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. By submitting a proposal, The Proposer represents that their firm and its Subcontractors are in compliance with the requirements of Article 2 Chapter 64 of the North Carolina General Statutes.
F. IRAN DIVESTMENT ACT: Vendor certifies that: (i) it is not on the Iran Final Divestment List created by the NC State treasurer pursuant to N.C.G.S. 147-86.58; (ii) it will not take any actions causing it to appear on said list during the term of any contract with the City, and (iii) it will not utilize any subcontractor to provide goods and services hereunder that is identified on said list.
G. TITLE VI NONDISCRIMINATION NOTIFICATION The City of Greenville, North Carolina in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 US.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all respondents that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit proposals in response to this advertisement and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.
H. EQUAL EMPLOYMENT OPPORTUNITY CLAUSE The City of Greenville is an equal opportunity employer and strictly prohibits discrimination against any employee or applicant for employment because of the individual’s race, color, religion, age, gender, disability, national origin, genetic information, sexual orientation, gender identity/reassignment or expression, military or veteran status, marital status, or any characteristic protected by applicable law.
I. Any questions regarding the Contract Conditions and Bid Documents should be directed to Mark Nottingham in writing by email to mnottingham@greenvillec.gov.

END OF SECTION

SECTION 003113
MILESTONE SCHEDULE OF CONSTRUCTION

PART 1 GENERAL
PART 3 EXECUTION

2.01 SCHEDULES

A. Bidders recognize that revisions in the planned schedule are inherent in the nature of construction. This may result in revisions to the schedule of construction for the Project and the Bidders' Work during the progress of construction. Bidders acknowledge that Owner or Contractor cannot guarantee Bidders, if selected, will be able to start the Work on any date or continue without interruption once started. Bidders shall include in their Bid all costs associated with this risk.

END OF SECTION

This page intentionally left blank

(USE THIS FORM ONLY)

SUBMIT PROPOSALS IN CARE OF:
Recreation and Parks Department City of Greenville
2000 Cedar Lane
Greenville, NC 27858
(252) 329-4242

BIDDER'S FIRM NAME: _____

DATE: October 24th, 2023

PROPOSAL: Guy Smith Stadium Improvements
The Undersigned, as Bidder, hereby declares that only person or persons interested in this proposal as principals or principals is or are named herein and that no other persons than herein mentioned has any interest in this proposal or in the contract to be entered, that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respect fair and in good faith without collusion or fraud.

The bidder further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the place where the work is to be done; that he has examined the specifications for the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids, that he has satisfied himself relative to the work to be performed.

Materials to be furnished shall be in compliance with standard specifications and special provisions. CONTRACTOR'S responsibility shall continue uninterrupted until expiration of the warranty period as stated in the specifications after completion of the work. The owner (City of Greenville) reserves the right to select any or all of the alternates and to increase or decrease the total contract amount utilizing the unit prices supplied by the CONTRACTOR in the bid form.

The Bidder agrees, if his proposal is accepted, to contract with the City of Greenville, 200 West Fifth Street, Greenville, NC 27858, in the form of contract specified, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation, and labor necessary to complete within the time allotted as specified, the General Construction work on the Owner's property, in complete accordance with the Plans, Specifications, and Contract Documents bearing the title **Guy Smith Stadium Improvements**, with a definite understanding that no money will be allowed for extra work except as set forth in the Contract Documents for the sums as follows.

City of Greenville, NC
Guy Smith Stadium Improvements BID
FORM
Price Breakdown for Individual Base Bid Items Required BASE BID ITEMS

Item	Description and Price in Words	Price in Figures
1	The construction of all miscellaneous work per the plans and specifications, including but not limited to: General Conditions, Site Preparation, Demolition, Grading, Utilities, Modular Shipping Container Structures and foundations, New Bleacher, New Concrete Pad, Site Furnishings, Fencing, New Electrical Services, New Plumbing Services, Mechanical installation, and Landscaping (and any other Base Bid items not covered below), to construct complete and in place the Guy Smith Stadium Improvements in Greenville, NC for the Lump Sum of _____dollars and_____cents.	**$** _____

ADD ALTERNATE BID ITEMS (None)

Item	Description and Price in Words	Price in Figures
AA (A)	Modular (shipping container) Kitchen, foundations, new gas line, and kitchen equipment, complete and in place, for the Lump Sum of _____dollars and_____cents.	**$** _____
AA (B)	Rooftop mechanical equipment screening for Kitchen, complete and in place, for the Lump Sum of _____dollars and_____cents.	**$** _____
AA (C)	Covers & All - Pergola Cover - Design 2. Tarp Tuff ._____dollars and_____cents.	**$** _____
AA (D)	Coverstore – Custom Pergola Grommet Shade Canopy Cover. Item # W102.DSS _____dollars and_____cents.	**$** _____

A. ALLOWANCES: None Included

B. DECLARATION:

C. ADDENDA: Bidder acknowledges receipt of Addenda as follows:

No._____Date: _____

No._____Date: _____

No._____Date: _____

D. SUBCONTRACTORS: Prior to the execution of a contract, the successful bidder hereby agrees to provide City of Greenville with a list of all other subcontractors (name, address, telephone number, contact person, etc.)

E. EXTENDED PROPOSAL: Bidder agrees that this bid shall be valid and may not be withdrawn for a period of forty-five (45) calendar days after the closing time for receiving bids.

F. CONTRACT TIME: The Undersigned further agrees to commence said work upon receipt of the Notice to Proceed issued by the City and to complete the same by **May 1st, 2024**, with substantial completion by **April 15th, 2024**.

G. LIQUIDATED DAMAGES FOR SUBSTANTIAL COMPLETION: The Undersigned agrees that, from the compensation otherwise to be paid, the Owner may retain the sum of One Thousand and No Dollars ($1,000.00) for each calendar day that the entire Work remains incomplete after thirty (30) calendar days following the date of Substantial Completion issued by the Designer or Owner, which sum is agreed upon as the proper measure of liquidated damages which the Owner will sustain per diem by the failure of the Undersigned to completethe work at the time stipulated in the Contract. This sum is not to be construed in any sense a penalty.

H. FINAL COMPLETION / FINAL ACCEPTANCE: The Undersigned agrees to complete all the Work within thirty (30) calendar days after the date of Substantial Completion.

ALTERNATES

Should any of the alternates as described in the contract documents be accepted, the amount written below shall be the amount to be "added to" the base bid.

REQUIRED FORMS

The following forms have been completed by the CONTRACTOR and are attached hereto. CONTRACTOR to sign.

MBE / WBE Form(s):

Refer to the Instructions section found on page 3 of the MBE / WBE Forms in the Project Manual.

Bid Bond for City of Greenville:

Refer to the Bid Bond forms found in the Project Manual. ***Use these forms, only if required.***

Respectfully submitted this_____day of_____, 2022.

Signature: _____

Title: _____

Firm: _____

Address: _____

_____

_____

License No._____Expiration Date: _____

BID BOND for the City of Greenville

Contract name and number or other description of the Contract:

Name of Bidder:

Name, address, and telephone number of Surety's N. C. Resident Agent:

Telephone number of Surety's home office:

Surety is a corporation organized and existing pursuant to the laws of the State of:

Amount of this bond: *check (a) or (b):*

_____(a) *(write or type the amount in words and figures*) All numbers in this section are in U. S. dollars.

($)

_____(b) five percent of the amount of the proposal

Bond number:

Date of execution of this bond:

Obligee: CITY OF GREENVILLE, a North Carolina municipal corporation.

*** * * * * * * * * * * * * * * * * * ***

KNOW ALL PERSONS BY THESE PRESENTS, that the Surety executing this bond, which Surety is duly licensed to act as surety in North Carolina, is held and firmly bound unto the City of Greenville, Obligee, in the penal sum of the amount stated above, for the payment of which sum, well and truly to be made, the Surety binds itself and its successors and assigns, jointly and severally, by these presents. Whereas the Bidder is herewith submitting a proposal for the Contract referred to above, and the Bidder desires to file this Bid Bond in lieu of making the cash deposit pursuant to G.S. 143-129; NOW THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such, that if the Bidder shall be awarded the contract for which the bond is submitted, and shall, within ten days after the award is made, execute and deliver to the Obligee the contract and give satisfactory surety as required by G.S. 143-129, then this obligation shall be null and void, otherwise to remain in full force and virtue; and if the Bidder fails or refuses to so execute and deliver said contract or give said satisfactory surety, the Surety shall upon demand forthwith pay to the Obligee the full penal sum of this bond. The Surety waives all extensions of time, and notice of extensions of time, for the opening of proposals and for the modification, award, execution, and delivery of the contract. IN WITNESS WHEREOF, the Surety has executed this instrument under its seal as of the date of execution indicated above, pursuant to authority of its governing body.

_____

(name of Surety)

_____

(signature of Surety's attorney in fact)

(Affix Surety's corporate seal)

(Instructions to Surety: If you use a raised corporate seal, press hard enough to make it legible.)

ACKNOWLEDGMENT OF SURETY'S EXECUTION OF BID BOND

State of_____ County of _____

I,_____, a notary public in and for said county and state, certify that _____personally appeared before me this day and acknowledged that he or she is Attorney in Fact for _____, the Surety named in the foregoing Bid Bond, in which bond the Obligee is the City of Greenville, and that he or she executed said bond, under the seal of the Surety, on behalf of the Surety.

This the_____day of_____, 20_____.

My commission expires: _____ _____

Notary Public

_____

PERFORMANCE BOND AND PAYMENT BOND *(Use this form only if required)*

Date of Contract: _____

Contract Name and Number: _____

Name of Principal (Name of Contractor): _____

The Principal is organized and existing under the laws of the following State:

_____

Name of Surety: _____

Name, address, and telephone number of Surety's N. C. Resident Agent:

_____

_____

Amount of Performance Bond (in words and figures):
($)_____

_____**dollars**

Bond number: _____

Date of Execution of these Bonds**:** _____

Contracting Body: **CITY OF GREENVILLE, a North Carolina municipal corporation**.
Amount of Payment Bond: **same dollar amount as the dollar amount of the Performance Bond.**

* *

KNOW ALL PERSONS BY THESE PRESENTS, That we, the PRINCIPAL AND SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue. As used hereinabove, "modifications" shall include, without limitation, changes (including, without limitation, changes granting extensions of time) and additions to or with respect to the work, scope of work, and specifications. The undertakings, covenants, terms, conditions, and agreements of said contract shall include, without limitation, the Principal's obligations, if any, with respect to damages for delay, to indemnify, and to provide warranties.

* * * * * * * * * * * * * * * * * * *

KNOW ALL PERSONS BY THESE PRESENTS, That we, the PRINCIPAL AND SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the Principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue. As used hereinabove, "modifications" shall include, without limitation, changes (including, without limitation, changes granting extensions of time) and additions to or with respect to the work, scope of work, and specifications.

* * * * * * * * * * * * * * * * * * *

The Performance Bond and the Payment Bond are being combined here only for purposes of convenience in signing and acknowledging, and the obligations of the Principal and of the Surety are the same as if the bonds were on separate documents. Each bond is in the dollar amount stated above, and the amounts of these bonds are not combined. The Surety agrees that both of these bonds are fully binding on it whether or not the Principal executes these bonds. These bonds are given pursuant to Article 3 of Chapter 44A of the N. C. General Statutes.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument (for both the Performance Bond and the Payment Bond) under their several seals on the date of execution indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

_____

(name of Principal)

[Execution by Principal when the Principal is a corporation]

By: _____
Title of officer: _____

(Affix Principal's corporate seal.)

[Execution by Principal when the Principal is a limited liability company]

By: _____
Manager of Principal

[Surety's execution]

_____
(name of Surety)

_____
(signature of attorney in fact)
(Affix Surety's corporate seal.)

(Instructions to Surety and Principal: ***If you use a raised corporate seal, press hard enough to make it legible****.)*

ACKNOWLEDGMENT OF CONTRACTOR'S EXECUTION OF CONTRACT AND PERFORMANCE BONDAND PAYMENT BOND

[Acknowledgment when the Contractor (the Principal) is a corporation]

State of_____ County of _____

I, a notary public in and for the aforesaid county and state, certify that

_____

personally appeared before me this day and stated that he or she is **(strike through the inapplicable:)** chairperson/ president/ chief executive officer/ vice-president/ assistant vice-president/ treasurer/ chief financial officer of_____, a corporation, and that by authority duly given and as the act of the corporation, he or she signed the foregoing contract with the City of Greenville and Performance Bond and Payment Bond with respect tothe contract and the corporate seal was affixed to said instrument(s). This the _____day of _____, 20_____.

My commission expires: _____ _____

Notary Public

[Acknowledgment when the Contractor (the Principal) is a limited liability company]

State of_____County of _____

I,_____, a notary public for said county and state, certify that_____(1) appeared before me this day, (2) stated that he or she is a manager of_____, a limited liability company, (3) acknowledged that the foregoing contract with the City of Greenville and the Performance Bond and Payment Bond with respect to the contract carry on the company's business in the usual way, and (4) acknowledged the due execution of the contract and the Performance Bond and Payment Bond on behalf of the company.

This the_____day of_____, 20_____.

My commission expires: _____ _____

Notary Public

ACKNOWLEDGMENT OF SURETY'S EXECUTION OF PERFORMANCE BOND AND PAYMENT BOND

State of_____ County of_____

I, a notary public in and for the aforesaid county and state, certify that _____personally appeared before me this day and stated that he or she is Attorney in Fact for _____,

the Surety named in the foregoing Performance Bond and Payment Bond, in both of which bonds the contracting body is the City of Greenville, and that he or she executed said bonds, under the seal of the Surety, on behalf of the Surety.

This the_____ day of_____, 20_____

My commission expires: _____ _____

Notary Public

City of Greenville/Greenville Utilities Commission Minority and Women Business Enterprise (MWBE) Program

City of Greenville
Construction Guidelines and Affidavits
$100,000 and above

These instructions shall be included with each bid solicitation.

MBForms 2002-
Revised July 2010
Updated 2019

City of Greenville/Greenville Utilities Commission Minority and Women Business Enterprise Program

$100,000 and Construction Guidelines for MWBE Participants

Policy Statement
It is the policy of the City of Greenville and Greenville Utilities Commission to provide minorities and women equal opportunity for participating in all aspects of the City's and Utilities' contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchases, and professional and personal service contracts.

Goals and Good Faith Efforts
Bidders responding to this solicitation shall comply with the MWBE program by making Good Faith Efforts to achieve the following aspiration goals for participation.

	CITY	
	MBE	**WBE**
Construction This goal includes Construction Manager at Risk.	10%	6%

Bidders shall submit MWBE information with their bids on the forms provided. This information will be subject to verification by the City prior to contract award. **As of July 1, 2009, contractors, subcontractors, suppliers, service providers, or MWBE members of joint ventures intended to satisfy City MWBE goals shall be certified by the NC Office of Historically Underutilized Businesses (NC HUB) only.** Firms qualifying as "WBE" for City's goals must be designated as a "women-owned business" by the HUB Office. Firms qualifying as "MBE" for the City's goals must be certified in one of the other categories (i.e.: Black, Hispanic, Asian American, American Indian, Disabled, or Socially and Economically Disadvantaged). Those firms who are certified as both a "WBE" and "MBE" may only satisfy the "MBE" requirement. **Each goal must be met separately. Exceeding one goal does not satisfy requirements for the other.** A complete database of NC HUB certified firms may be found at http://www.doa.nc.gov/hub/. An internal database of firms who have expressed interest to do business with the City and GUC is available at www.greenvillenc.gov. However, the HUB status of these firms must be verified by the HUB database. The City shall accept NCDOT certified firms on federally funded projects only. Please note: A contractor may utilize any firm desired. However, for participation purposes, all MWBE vendors who wish to do business *as a minority or female* must be certified by NC HUB.

The Bidder shall make good faith efforts to encourage participation of MWBEs prior to submission of bids in order to be considered as a responsive bidder. Bidders are cautioned that even though their submittal indicates they will meet the MWBE goal, they should document their good faith efforts and be prepared to submit this information, if requested.

The MWBE's listed by the Contractor on the **Identification of Minority/Women Business Participation** which are determined by the City to be certified shall perform the work and supply the materials for which they are listed unless the Contractors receive prior authorization from the City to perform the work with other forces or to obtain materials from other sources. If a contractor is proposing to perform all elements of the work with his own forces, he must be prepared to document evidence satisfactory to the owner of similar government contracts where he has self-performed.

The Contractor shall enter into and supply copies of fully executed subcontracts with each MWBE or supply signed Letter(s) of Intent to the Project Manager after award of contract and prior to Notice to Proceed. Any amendments to subcontracts shall be submitted to the Project Manager prior to execution.

Instructions

The Bidder shall provide with the bid the following documentation:

☐ Identification of Minority/Women Business Participation (if participation is zero, please mark zero—Blank forms will be considered nonresponsive)

☐ Affidavit A (if subcontracting)

OR

☐ Identification of Minority/Women Business Participation
(if participation is zero, please mark zero—Blank forms will be considered nonresponsive)

☐ Affidavit B (if self-performing; will need to provide documentation of similar projects in scope, scale, and cost)

Within 72 hours or 3 business days after notification of being the apparent low bidder who is subcontracting anything must provide the following information:

☐ Affidavit C (if aspirational goals are met or are exceeded)

OR

☐ Affidavit D (if aspirational goals are not met)

☐ After award of contract and prior to issuance of notice to proceed: Letter(s) of Intent or Executed Contracts

****With each pay request, the prime contractors will submit the Proof of Payment Certification, listing payments made to MWBE subcontractors.**

*****If a change is needed in MWBE Participation, submit a Request to Change MWBE Participation Form. Good Faith Efforts to substitute with another MWBE contractor must be demonstrated.**

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 City for performance of contracts. 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 City 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 City whether to terminate the contract for breach or not. In determining whether a contractor has made Good Faith Efforts, the CITY will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts.

Identification of Minority/Women Business Participation

I,_____.
(Name of Bidder)

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

Firm Name, Address and Phone #	Work type	*MWBECategory

*MWBE categories: Black, African American (**B**), Hispanic, Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

If you will not be utilizing MWBE contractors, please certify by entering zero "0"

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

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

City of Greenville 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 beperformed.
- ☐ **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/Women 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/women 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 _____

MBForms 2002-
Revised July 2010
Updated 2019

City of Greenville --AFFIDAVIT B-- Intent to Perform Contract with <u>own</u> 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 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_____

MBForms 2002-
Revised July 2010
Updated 2019

Do not submit with bid Do not submit with bid Do not submit with bid Do not submit with bid

City of Greenville - AFFIDAVIT C –

Portion of the Work to be Performed by MWBE Firms

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 MWBE businesses as defined in GS143-128.2(g) and the COG/CITY MWBE Plan sec. III is equal to or greater than 16% 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 and a minimum of_____% of the total dollar amount of the contract with women business enterprises. Minority/women 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	*MWBE Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**)Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with MWBE 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 _____

MBForms 2002-
Revised July 2010
Updated 2019

City of Greenville 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 16% participation by minority/women 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
(Name of Bidder)

that on the _____
(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 and a minimum of_____% of the total dollar amount of the contract with women business enterprises. Minority/women 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	*MWBE Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**),Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Examples of documentation 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.

Do not submit with the bid Do not submit with the bid Do not submit with the bid Do not submit with the bid

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with MWBE 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 _____

LETTER OF INTENT
MWBE Subcontractor Performance

Please submit this form or executed subcontracts with MWBE firms after award of contract and prior to issuance of notice to proceed.

PROJECT: _____
(Project Name)

TO: _____
(Name of Prime Bidder/Architect)

The undersigned intends to perform work in connection with the above project as a:

____Minority Business Enterprise _____Women Business Enterprise

The MWBE status of the undersigned is certified the NC Office of Historically Underutilized Businesses (required).____Yes __No

The undersigned is prepared to perform the following described work or provide materials or services in connection with the above project at the following dollar amount:

Work/Materials/Service Provided	Dollar Amount of Contract	Projected Start Date	Projected End Date

_____
(Date)

_____ _____
(Address) (Name & Phone No. of MWBE Firm)

_____ _____
(Name & Title of Authorized Representative of MWBE) (Signature of Authorized Representative of MWBE)

MBForms 2002-
Revised July 2010
Updated 2019

REQUEST TO CHANGE MWBE PARTICIPATION

(Submit changes only if notified as apparent lowest bidder, continuing through project completion)

Project: _____

Bidder or Prime Contractor: _____

Name & Title of Authorized Representative: _____

Address: _____ **Phone #:** _____

Email Address: _____

Total Contract Amount (including approved change orders or amendments): $_____

_____

Name of subcontractor: _____

Good or service provided: _____

Proposed Action:

___Replace subcontractor
___Perform work with own forces

For the above actions, you must provide one of the following reasons (Please check applicable reason):

____The listed MBE/WBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract.

___The listed MBE/WBE is bankrupt or insolvent.

___The listed MBE/WBE fails or refuses to perform his/her subcontract or furnish the listed materials.

___The work performed by the listed subcontractor is unsatisfactory according to industry standards and is not in accordance with the plans and specifications; or the subcontractor is substantially delaying or disrupting the progress of the work.

If replacing subcontractor:

Name of replacement subcontractor: _____

The MWBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required).____Yes_____No

Dollar amount of original contract $_____

Dollar amount of amended contract $ _____

Other Proposed Action:

___Increase total dollar amount of work
___Decrease total dollar amount of
___Add additional subcontractor
___Other

Please describe reason for requested action: _____

_____

If adding additional subcontractor:*

The MWBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required). Yes No

**Please attach Letter of Intent or executed contract document*

Dollar amount of original contract $_____

Dollar amount of amended contract $ _____

Interoffice Use Only:

Approval Y N

Date_____

Signature_____

Pay Application No. _____

Purchase Order No. _____

Proof of Payment Certification

MWBE Contractors, Suppliers, Service Providers

Project Name: _____

Prime Contractor:_____

Current Contract Amount (including change orders): $ _____

Requested Payment Amount for this Period: $_____

Is this the final payment?_____Yes_____No

Firm Name	MWBE Category*	Total Amount Paid from this Pay Request	Total Contract Amount (including changes)	Total Amount Remaining

*Minority categories: Black, African American (B), Hispanic or Latino (L), Asian American (A) American Indian (I), Female (F)
Socially and Economically Disadvantaged (S) Disabled (D)

Date:_____ Certified By:_____

Name

_____

Title

_____

Signature

MBForms 2002-
Revised July 2010
Updated 2019

This page intentionally left blank

SECTION 007200
GENERAL CONDITIONS

FORM OF GENERAL CONDITIONS

1.01 THE GENERAL CONDITIONS APPLICABLE TO THIS CONTRACT ARE AS FOLLOWS.

A. . AIA Document A232, General Conditions of the Contract for Construction, is the General Conditions of the Contract for Construction, Construction Manager as Adviser 2019 Edition
B. The General Conditions applicable to this contract is attached following this page.

1.02 RELATED REQUIREMENTS

A. SECTION 00 7300 - Supplementary Conditions.

1.03 SUPPLEMENTARY CONDITIONS

A. Refer to document 00 7300 - Supplementary Conditions for amendments to these general conditions.

RELATED REQUIREMENTS

3.01 SECTION 007300 - SUPPLEMENTARY CONDITIONS.

END OF SECTION

This page intentionally left blank

SECTION 007300
SUPPLEMENTARY CONDITIONS

PART 1 GENERAL

1.01 SUMMARY

A. These Supplementary Conditions amend and supplement the General Conditions defined in Document 007200 - General Conditions and other provisions of Contract Documents as indicated below. Provisions that are not so amended or supplemented remain in full force and effect.

B. The terms used in these Supplementary Conditions that are defined in the General Conditions have the meanings assigned to them in the General Conditions.

C. All work required by these Specific Project Requirements shall be included in the Subcontract Documents. In case of conflicts between the Specific Project Requirements and other Subcontract Documents, the more stringent requirements shall govern as determined and directed by the Contractor.

D. Subcontractor will be required to attend preconstruction meetings, progress meetings and other meetings to review the Project. Items to be discussed during the progress meetings shall include, but are not limited to, schedule, safety, coordination issues, quality, security, RFI's, changes to the work etc as set forth below.

1.02 WORK HOURS

A. Normal working hours on the project are Monday through Friday, 7:00 a.m. to 5:00 p.m. Contractor has the right to amend work hours as required or necessary to maintain project schedule or as seasonal and/or site work conditions warrant.

1.03 ELECTRONIC PROJECT CORRESPONDENCE AND COMMUNICATION

A. Project communications and correspondence will occur electronically. This will include all project correspondence, meeting minutes, change documents, schedules, payment applications, submittals, etc.

B. Subcontractors will be required to have internet access and to maintain an email address (of sufficient file size to receive drawings and .pdf files) for the purpose of managing communication and documents during the construction stage.

C. A Project W eb site administered by the Contractor will be used for purposes of managing communication and documents during the construction stage.

D. Subcontractors will be required to utilize field online collaboration software to input, respond and/or update information as required for jobsite observations and issue tracking and resolution such as safety audits, quality documentation, punch lists and coordination of Cx activities. Use of this software may require administration through field tablet or mobile devices provided by the Subcontractor for associated activities.

1.04 BUILDING INFORMATION AND OTHER ELECTRONIC DATA

A. The Architect and Contractor may utilize and provide the Subcontractor Building Information Modeling or other electronic data ("Electronic Data") for use in the Subcontractor's work during the course of the Project.

B. The Electronic Data will be provided for informational purposes only. Subcontractor cannot not use or attempt to use the Electronic Data for any other project or purpose other than in connection with this Project.

C. The Electronic Data shall not replace or supersede the record hard copy set of the drawings and other Subcontract Documents ("Paper Documents"). In the event of a conflict between the Paper Documents and the Electronic Data, the Paper Documents shall govern.

D. Prior to receiving any Electronic Data, Subcontract will be required to complete and execute the Electronic Data Release included as Attachment A to this section or the Release required by the Architect if obtaining Electronic Data directly from the Architect or other design professional.

E. See the attached 3D BIM Models Coordination Program included as Attachment B to this section.

F. Subcontractor shall pay any fees for electronic files as defined in other Sections.

1.05 SUBMITTALS

A. Refer to Division 01, Section “Submittal Procedure” for Specific Contract Requirements Regarding Submittals.

B. Subcontractors are to submit all Shop Drawings, Product Data and Samples (“Submittals”) to the Contractor bearing the Subcontractor’s stamp indicating conformance to the Subcontract Documents and shall be signed by Subcontractor’s representative.

C. Subcontractor is to submit the following to the Contractor:
1. Shop Drawings - in PDF format via electronic files.
2. Product Data - in PDF format via electronic files.
3. Samples - 3 each of each differing type.

D. Coordination Drawings - in PDF format via electronic files.
1. Contractor will return to the subcontractor:
2. Shop Drawings - in PDF format via electronic files.
3. Product Data - in PDF format via electronic files.
4. Samples - 1 each of each differing type.

E. Subcontractor is required to forward Submittals to Contractor in a timely fashion for Contractor and Architect’s review so as to maintain the Project Schedule. If a Submittal requires expediting to maintain the Project Schedule, a return date needs to be so noted on the transmittal.

F. Subcontractor is to forward all Submittals and Shop Drawings in electronic format – hard copies will not be accepted. Samples are to be clearly marked indicating appropriate information. All Submittals forwarded to Contractor are to be accompanied by a transmittal form/letter indicating quantity and description of information provided.

1.06 RECORD DOCUMENTS

A. Refer to Division 01, Section “Submittal Procedures” for Specific Contract Requirements regarding Submittals.

B. The Subcontractor is required to maintain at the Project site for the Contractor’s and Owner’s review current versions of the following:
1. Drawings
2. Specifications
3. Addenda
4. Change Orders
5. Other Change Directives
6. Approved Shop Drawings, Product Data and Samples
7. Field Test Reports
8. Meeting Notes

C. Subcontractors will provide electronic redline drawings, specifications, submittals, etc. with “As-Built” information and return to the Contractor via CD or in PDF format via electronic files when the Subcontractor is substantially complete with its work.

1.07 PAYMENT PROCEDURES

A. Refer to Division 01, Section “Payment Procedures” for specific contract requirements regarding Payment Procedures.

B. Schedule of Values

C. The Subcontractor will submit to the Contractor a Schedule of Values that includes all major categories of its work. Dollar amounts are to include all labor, material, overhead and profit applicable to each item in the breakdown. Submit an electronic project Schedule of Values on an AIA Form G703 - Application and Certificate of Payment Continuation Sheet.

D. Submit an electronic Schedule of Values within seven (7) calendar days] after the date established in Notice of Award. The Schedule of Values shall list the installed value of the component parts of the work, broken down in sufficient detail to serve as a basis for computing values for progress payments during construction. The Schedule of Values should be broken down by area, building, floor, etc. in sufficient detail to evaluate progress payments. No payments will be processed prior to receipt of an approved Schedule of Values.

E. Add approved Change Orders to the electronic Schedule of Values for submission with each Application for Payment. List Change Orders in numerical sequence with a brief description of the change, with a reference to Contractor's Change Order No.

F. No progress payments will be made until the electronic Schedule of Values has been received, reviewed and approved by the Contractor and Owner. The costs assigned to the breakdown are to total the Subcontract Sum. The approved Schedule of Values is to be used by the Subcontractor on all Applications for Payment.

G. Application for Progress Payments
   1. At a time consistent with the requirements of this section and the Subcontract Documents, and for each calendar month during the progress of the Work, the Subcontractor shall submit a properly notarized itemized Application for Payment prepared in a manner consistent with the Schedule of Values.
   2. The amount shown on the Application for Payment shall be established by adding the
   3. value of work completed through the last day of the application period based upon the Subcontractor's estimate of labor and materials to be incorporated in the W ork by that date, and the value of the material/equipment suitably stored in accordance with the Subcontract Documents, less the aggregate of previous payments, and less the retainage as specified in the Subcontract.

H. The form of application for payment shall be the AIA Document G702, "Application and Certificate for Payment", supported by AIA Document G703, "Continuation Sheet".

I. Application Form. To sufficiently complete this form, the Subcontractor shall:
   1. Fill in all required information, including that for change orders executed prior to the date of submittal application.
   2. Fill in the summary of dollar values to agree with the respective totals indicated on the continuation sheet.
   3. Execute certificate with the signature of a responsible officer of the contractor's firm.

J. Continuation Sheets. To sufficiently complete this form, the Subcontractor shall:
   1. Fill in total list of all scheduled component items of work, with each number and the scheduled dollar value of each item.
   2. Fill in the dollar value in each column for each scheduled line item when work has been performed or products stored. Round off values to nearest dollar, or as specified in the Schedule of Values.
   3. List each change order executed prior to the date of submission, at the end of the continuation sheets. List by change order number, proceed order no., description, and breakdown of costs as for an original component item of work.

K. Substantiating Data for Progress Payments
   1. Substantiating data is required to verify a payment request. Subcontractors are to include a cover letter identifying the:
      a. Project.
         1) Application number and date.
         2) Detailed list of enclosures.
         3) In order to bill for stored materials, Subcontract is required to provide certain documentation and adhere to specific procedures as follows:
            (a) [if !vml][endif]Subcontractor shall mark and identify the subject materials and/or equipment and shall segregate from and shall not commingle such goods with other goods held by the Subcontractor.

(b) [if !vml][endif]Subcontractor shall submit evidence of insurance coverage on the material and/or equipment while stored at its warehouse or other approved facilities, naming Contractor and the Owner as Additional Insureds.

(c) [if !vml][endif]Subcontractor shall complete and submit a Bill of Sale form endorsed by a corporate officer or owner. The validity of the Bill of Sale is subject to Subcontractor's receipt of payment as referred to therein. A copy of the Bill of Sale is included in Section 00 62 00.

(d) [if !vml][endif]Subcontractor shall complete and submit a Non-negotiable Bailment Receipt. A copy of the approved Non-negotiable Bailment Receipt is included in Section 00 62 00.

2. Submit one copy of the data cover letter for each of the applications.
3. Applications for Payment shall be accompanied by cost breakdowns from the sub-subcontractors, the previous billing month's waivers from the sub-subcontractors and Material Suppliers, as applicable.
4. When the Contractor finds the application properly completed and correct, it will transmit two (2) Certificates for Payment to the Architect to be certified for payment.
5. Payment Application Documents:
   a. Cover Letter
   b. G702 and G703
   c. Subcontractor And Supplier Partial waiver And Affidavit
   d. Non-negotiable Bailment Receipt (if stored material is being billed)
   e. Bill of Sale (if stored material is being billed)
   f. Evidence of Insurance covering the stored material

L. Application for Final Payment
1. Submit final Application for Payment following the procedures specified above for progress payments as set forth in the Subcontract Documents.
2. Before submitting a final Application for Payment, the Subcontractor will be required to forward to the Contractor for submittal to the Architect, the written warranties and guarantees, Record and Information Manuals, and other documents required by the Contract (or Subcontract) Documents, and placed properly in approved storage at the site the extra stock and spare parts specified. Subcontractor will obtain the signature of the Contractor verifying receipt of the extra stock and spare parts.
3. Properly executed "Subcontractor And Supplier Final W aiver And Affidavit" shall be submitted to the Contractor in duplicate prior to final payment.

1.08 CHANGES AND/OR CLARIFICATIONS

A. Request for Information (RFI)
1. If during the construction of the Project, clarification of the documents is required, it shall be brought to the attention of the Contractor. (Refer to Division 01, Section "Project Management and Coordination" for specific Contract requirements regarding RFI's.).
2. The Contractor will either provide clarification or forward a Request for Information (RFI) to the Architect. These RFI's shall be dated and sequentially numbered. The Architect shall provide its written response to the RFI and return to the Contractor for distribution to all affected subcontractors or suppliers.
3. If the RFI requires additional compensation, a response to an RFI is not an authorization to proceed with work. If additional compensation is required, the Subcontractor shall immediately advise the Contractor who will review the item with the Architect and Owner to determine if a Proposal Request will be issued.

B. Proposal Request (PR)
1. Should the Owner contemplate making a change in the work, the Architect will issue a Proposal Request (PR) to the Contractor. (Refer to Division 01, Section "Contract Modification Procedures" for specific Contract requirements regarding Proposal Requests.)

2. All PR's will be reviewed and forwarded to the affected Subcontractors and Suppliers for review. Each Subcontractor will determine if the PR affects its Scope of W ork. If the described change impacts cost and/or time, the Subcontractor or Supplier shall immediately prepare a proposal for submission to the Contractor. The Subcontractor's proposal shall be broken down completely so as to identify all quantities and associated unit costs (both adds and deducts). The Contractor will review the pricing with the Owner and Architect to determine if a change order will be issued. Subcontractors are not to proceed with additional work until written authorization has been received.

C. Change Orders (CO)
   1. If the Owner determines that a Proposal Request will be accepted, the Architect will prepare a Change Order (CO) which will be dated and numbered sequentially. (Refer to Division 01, Section "Contract Modification Procedures" for specific Contract requirements regarding Change Orders.).
   2. The Change Order will describe the change or changes, will refer to the Proposal Request and proposal number, and will be signed by the Owner, the Architect and the Contractor.

D. Construction Change Directives (CCD)
   1. Refer to Division 01, Section "Contract Modification Procedures" and other Subcontract Documents for specific Contract requirements regarding Construction Change Directives (CCD). Construction Change Directive instructs the Contractor to proceed with a change in the work prior to concluding Contract adjustment negotiations.

E. Submission Of Proposals For Change Order - Follow other Contract Document requirements if more stringent than the requirements listed in this section.
   1. Labor Rate Breakdown:
      a. Base Rate Calculation: All Subcontractors will be required to substantiate all labor rates (for all skill levels and tradesmen) as actual cost plus allowable overhead and profit, prior to submitting change order pricing. Breakdowns shall include: base labor rate, fringes, union dues, payroll taxes and insurance. Any item not falling into one of these categories will be considered overhead and shall be included in the fee limits listed below.
      b. Premium on Overtime Rate Calculation: In the event overtime work is requested bythe Contractor (not required by the Contract Documents or due to the fault of the Subcontractor), the premium on the overtime rate will be required to be substantiated as actual cost plus allowable overhead and profit. Breakdowns shall include: half of base labor rate, only the overtime premium portion of any applicable union fringes, and payroll taxes and insurance (excluding workers compensation insurance which is not paid on the premium portion of overtime). Any item not falling into one of these categories will be considered overhead and shall be included in the fee limits listed below.

F. Method of Proposal:
   1. Comply with the requirements of this section and all other contract requirements.
   2. Include a direct reference to the change document in the proposal description. If the request is not linked to a change document, a full and thorough description of the work and the reason for the change order request is required. Change requests not in this format will not be reviewed.
   3. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
   4. Indicate applicable taxes, delivery charges, equipment rental (rates and hours), and amounts of trade discounts.
   5. Include costs of labor and supervision (as allowed by contract provisions) directly attributable to the change. Provide crew information including, labor rate for each skill level and trade, number of man-hours including estimating program back-up substantiating those hours.
   6. Provide proposal detail and estimate which defines the type or area of work (i.e. Concrete: concrete walls, grade beams, piers, sidewalks, etc., Drywall: metal studs, rock, finishing,

etc.).

7. Include substantiating back-up from second tier Subcontractors and Material Suppliers equal to the requirements of the Subcontractor proposal as described in this section.
8. Include all fee itemized separate from the detail described herein and in the limits described in this section
9. Include an updated Subcontractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
10. Review and approval of a Subcontractors proposal for change order does not alleviate Subcontractors responsibility to provide accurate estimating, i.e. acceptance of pricing does not constitute acceptance of quantities, unit prices, man- hours, etc.

G. Fee Limits:
1. Fee includes all general requirements, all supervision (including project management and general on site supervision), overhead and profit.
2. The following fee percentages shall be used for lump sum pricing and actual cost pricing of additions and deletions to the work:
   a. To sub for work performed by own forces: not to exceed 10%
   b. To sub for work performed by other than own forces: not to exceed 5%
   c. To second tier subcontractor/material supplier for work performed by subcontractor's own forces: not to exceed 10%
   d. To second tier subcontractor/material supplier for work performed by other
3. than subcontractor's own forces: not to exceed 5%

H. Pricing Validation:
1. If the Work associated with a Subcontractor requested change order is performed, and in the opinion of the Owner, Architect, or Contractor, the W ork does not adequately reflect the breakdown provided during pricing of the change, the Subcontractor may be asked and shall be required to substantiate man-hours, equipment, quantity, etc, to validate the change order pricing.

1.09 PROJECT MEETINGS

A. Pre-Phase Meeting
1. General Contractorwill schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect.
   a. The conference will be conducted to review responsibilities and personnel assignments.
   b. Authorized representatives of Owner, Contractor, Architect, and their consultants; Subcontractor(s) and their superintendent; major sub-subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the W ork.
   c. Contractor will discuss items of significance such as administrative items, procedural issues, site usage and requirements, schedule, jobsite rules and regulations, etc.
2. Progress Meetings
   a. Progress Meetings, chaired by the Contractor, will be held regularly, on a weekly or bi- weekly basis as required to support the schedule. Attendance by the Subcontractor's onsite superintendent will be mandatory; however, an authorized representative of the Subcontractor, who can make decisions on the Subcontractors' behalf, must be present. At the direction of the Contractor, key Suppliers, sub-subcontractors and supervisors will be required to participate in the coordination and discussions and give summary reports of their activities.
   b. The progress meeting gives the Subcontractor the opportunity to discuss with the Contractor any problems or potential problems arising out of the Project. Each Subcontractor shall attend progress meetings as requested by the Contractor and shall come to the meeting prepared to discuss its work status and how it relates to the project schedule.

c. The project schedule will be updated by the Contractor as indicated in the Project Manual and presented at the progress meetings. Each Subcontractor will be expected to discuss, as a minimum, the status of shop drawings, material and equipment delivery, job progress and quality control.
d. Refer to Division 01, Section “Project Management and Coordination” for additional contract requirements regarding meetings.

B. Pre-Installation Conference
1. Contractor will conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.
2. Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. All Contractors (including field superintendents and/or foremen) performing or directly affected by a particular scope of work will be required to attend.
3. Contractor will prepare the meeting agenda. Items for discussion will include review progress of other construction activities and preparations for the particular activity under consideration.

C. Coordination Meetings
1. Contractor may conduct additional Project coordination meetings as needed to resolve issues or coordinate upcoming work. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.

D. MEP Overhead Coordination Meetings
1. Contractor shall host MEP overhead coordination meetings as required by this Section. While the MEP Subcontractor(s) shall have primary responsibility, all Subcontractors whose work impacts or is impacted by the MEP work will be required to attend applicable meetings
2. Subcontractors shall comply with the coordination program identified in Attachment B to this Section.

1.10 PROGRESS SCHEDULE

A. Contractor will prepare a critical path schedule for construction including actual construction activities, submittals for major components, procurement of materials and equipment, and testing of major building systems and periodically update the progress schedule throughout the Project. (Refer to Division 01, Section “Project Management and Coordination” for specific contract requirements regarding scheduling.)

B. Each Subcontractor is to submit within seven (7) calendar days after receiving its Notice to Proceed and prior to the preconstruction meeting, a schedule indicating durations for submittals, fabrication, delivery and installation of the components for its Scope of Work. This information will be utilized in the completion of the progress schedule presented at the progress meeting.

C. As changes occur in the schedule information provided by the Subcontractors, the Subcontractor is responsible for forwarding the information to the Contractor immediately. The Contractor will utilize this information in issuing updates to the progress schedule.

D. The Subcontractor it will substantially complete the work in accordance with the schedule developed by the Contractor. A construction milestone schedule has been included in Section 00 31 00. A detailed project schedule is available at Contractor’s office and is available for review by all Subcontractors.

E. The Subcontract hereby agrees to commence work under the Contract within seven (7) days after the date of a Notice to Proceed, unless otherwise stipulated in that notice.

F. Substantial Completion of the w ork: The Subcontractor will have the work ready for either the following subcontractor’s work or the final inspection and Owner’s acceptance within the time.limit stated in the Schedule and as defined in the scopes of work (reference Section 00 24 00).

1.11 GENERAL REQUIREMENTS FOR WORKMANSHIP

A. Manufacturer's requirements shall be strictly followed for storage, preparation, installation, cleaning, protecting and testing of all products and materials except where specific requirements included in appropriate Sections in exceed those requirements Where conflicts between manufacturer's requirements and Subcontract Documents occur, Subcontractor shall notify Contractor and request resolution prior to proceeding.

B. The Subcontractor is required to inspect jobsite, coordinate with other trades and field verify dimensions where applicable prior to fabricating product or material.

C. Manufacturer's requirements and industry standards are to be followed in regards to the effect of temperature, moisture and humidity on products and materials.

D. Materials and equipment are to be installed plumb, level and true, with uniform joints and edge conditions, tight seams and neatly fitting adjoining materials, unless specifically shown otherwise.

E. Materials and equipment are to be installed as dimensioned on the drawings. If dimensions or height are not dimensioned on the drawings, Subcontractor is to issue a RFI to the Contractor requesting location of item in question.

F. Cleaning of materials and equipment shall be completed in a manner as not to damage the finish.

G. Equipment and material shall be protected by Subcontractor following installation with labels intact until final cleaning.

1.12 GENERAL REQUIREMENTS FOR PRODUCTS AND MATERIALS

A. [if !vml][endif]Refer to Division 01, Section "_____" for specific Contract requirements regarding product selection.

B. Refer to Division 01, Section "Substitution Procedures" for specific Contract requirements regarding substitutions.

1.13 QUALITY CONTROL AND INSPECTIONS

A. Refer to Division 01, Section "Testing & Inspection Services" for specific Contract requirements regarding testing and inspections.

B. The Subcontractor shall advise the Contractor's on-site field superintendent of all scheduled tests two (2) working days in advance.

C. The Subcontractor's quality control representative will review his drawings, procurement documents and contracts to ensure that the technical information provided and all work performed is in accordance with the latest revision of the Subcontract Documents. These documents shall be updated to reflect all changes made through Addenda, Change Orders and Requests for Information.

D. The Subcontractor's quality control representative will perform an inspection upon receipt at the site, of all materials, equipment and supplies. Items which are damaged or not in conformance with the respective Submittals, quality standards, Subcontract Documents, contract drawings and Specifications, will be identified and segregated from accepted items. Items thus identified will not be incorporated into the W ork until corrective action, acceptable to the Contractor and Architect is completed.

E. The Subcontractor is responsible for the quality of the work performed by his work force and its sub-subcontractors, as well as the quality of the material, equipment and supplies furnished by the Subcontractor to be incorporated into the work. The Subcontractor will designate a quality control representative who will be on site at all times when work is in progress.

1.14 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

A. Personnel and Materials Hoisting
   1. Crane: The Contractor will not provide a crane for materials hoisting
   2. Vertical material and personnel management: The Contractor will not provide a Personnel lift or scaffold stair.

3. Horizontal material management: The contractor will not provide a forklift for subcontractors. Subcontractors are responsible for personnel equipment needs.
4. Scaffolding: The Subcontractor shall provide all scaffolding (unless noted otherwise) required to complete its work.
5. Lifts: The Subcontractor shall provide all lifts and other necessary equipment (unless noted otherwise) required to complete its work.
6. Temporary Stairs: Until permanent stairs are available, each subcontractor will provide access on multi-floor projects.

B. Disposal and Trash Removal
1. All Subcontractors shall comply with the requirements of Attachment D, “Construction Waste Management and Disposal.”
2. The Contractor will provide dumpsters for Subcontractors use. Dumpsters may be Subcontractor will clean up and remove to designated points at the site, daily and as
3. Subcontractor will clean up and remove to designated points at the site, daily and as directed by the Contractor, all rubbish and debris resulting from the Subcontractor’s work and shall clean up its work to the satisfaction of the Contractor.
4. Subcontractor shall maintain one (1) laborer for clean-up purposes for every ten (10)
5. In the event the Subcontractor fails to clean up in accordance with the directions, the Contractor, after twenty-four (24) hours written notice to the Subcontractor, reserves the right to arrange otherwise for the clean up to be done and charge the Subcontractor the cost.
6. Subcontractors shall ensure that all boxes, cartons, etc. are crushed to the minimum volume prior to placing in the trash containers or trash collection areas.
7. No paint cloths will be allowed in trash containers.
8. The disposal of any material, waste, effluents, trash, garbage or oil, grease, chemicals, etc. resulting from either demolition or new work, shall be disposed of in accordance with all applicable laws and shall be subject to the approval of the Contractor.
9. Contractor will coordinate progress cleaning for joint-use areas where more than one installer has worked.
10. An area will be designated for lunch and breaks. All food or drink, other than water, consumed on site must be in this pre-approved area and all waste disposed of in trash receptacles furnished by the Contractor. All food and drink, other than water, is prohibited in any other work area.

C. Temporary Toilets
1. Temporary toilet facilities shall be furnished, and maintained as required by Contractor. The toilets shall be in sufficient number and at various locations to accommodate the workforce. The use of these toilet facilities by all members of the workforce is mandatory.

D. Temporary Water
1. Owner will pay all water utility bills on the project.
2. The Plumbing Subcontractor will provide and maintain temporary potable water for the other Subcontractors’ use throughout the building and at the jobsite as determined by Contractor.
3. Subcontractor requiring additional temporary water service will be responsible to make arrangements for this work through the Plumbing Subcontractor and be subject to the approval of Contractor. Associated cost of additional water service will be paid by the Subcontractor requesting the service.
4. It will be the responsibility of the Subcontractor utilizing temporary water to protect the Project against water damage. W hen using water, Subcontractor is required to use new materials and replace worn or broken parts. Hoses, fittings, etc. that are leaking shall be removed. Subcontractor will be responsible for the cost of damages arising from violation of this policy.
5. Temporary water service shall be drained down and reactivated as required by the Plumbing Subcontractor to prevent freezing.
6. No bulk water will be provided.

E. Temporary HVAC
   1. Temporary HVAC work includes, but is not limited to, caps for ductwork, temporary filters and filter media, necessary equipment warranty extensions, interim controls, fire watch, temporary stand alone smoke detectors for fan shut-down, ventilation and humidity control, monitoring of temperature and humidity, manual control of dampers (if required) and final clean-up of mechanical systems upon completion of construction work.
   2. Ventilation and humidity control includes, but is not limited to, temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption. Relative humidity shall be controlled as required to reduce substrate moisture levels to level required to allow installation or application of finishes.
   3. Heat required for specific work-oriented situations is to be provided by each subcontractor for its needs (i.e. masonry, EFIS, etc). General heating for creature comfort will not be provided by the Contractor.
   4. Reference project specific temporary HVAC plan for the timeline of temporary conditioning inside the building.
   5. Project Specific Temporary HVAC plan
      a. Mechanical subcontractor will not need to provide temporary heat and cooling (including ventilation and humidity control) during construction.
      b. New and/or existing systems: The Owner will allow the use of new or existing heat/cooling for temporary heating and cooling.
      c. Rental equipment for temporary conditioning:
         1) If the Owner will not allow use of the existing or new systems for temporary heating and cooling (as previously defined) the contractor will provide temporary (including all equipment, fuel, and fire watch as required) to maintain both temperature and humidity. Any specific requirements for Subcontractors will be defined in the scope of work in section 00 24 13.
         2) If permanent HVAC systems are not available when required as defined in this section (due to Subcontractor not maintaining the Milestone Schedule), Mechanical Subcontractor shall provide temporary units (including all equipment, fuel, and fire watch as required) to maintain both temperature and humidity. Fire watch will be required for any temporary heating equipment. If temporary units are utilized, Mechanical Contractor shall coordinate and include electrical costs associated with powering units. Coordinate type of temporary heating and cooling with the temporary electrical service or other utility capacities available at the time temporary heating and cooling is required. Verify electrical capacities with Electrical Contractor prior to selecting and installing heating and cooling system.
      d. Utility Charges for permanent equipment: Owner will pay for utility charges incurred as a result of operating permanent equipment for temporary HVAC.
      e. Utility Charges for rental equipment: Subcontractor will pay for utility charges incurred as a result of operating rental equipment for temporary HVAC. Fuel charges will be the responsibility of the subcontractor providing the equipment.
      f. Monitoring: During temporary conditioning site conditions shall be monitored. The Contractor will provide data loggers to perform this function. A sling-psychrometer may also be used as they are recognized by the HVAC industry to provide accurate readings.
      g. Humidity control: A heating load may be required to control relative humidity during summer conditions. In humid climates it may be necessary to provide additional moisture removal using dehumidification systems.
      h. Mechanical Subcontractor shall coordinate electrical requirements for temporary HVAC with the Electrical Subcontractor and other affected Subcontractors
      i. Reference Section 15.11 regarding safety issues during temporary conditioning/temporary heat.
      j. Use of permanent systems

1) Subcontractors shall include necessary warranty extensions for all equipment utilized during temporary HVAC.
2) Equipment safeties: Mechanical subcontractor shall provide stand alone fire alarm devices for AHU shut down as required for temporary heating and cooling. Coordinate any other fire alarm requirements with the Electrical Subcontractor. Other safeties may be required if circumstances dictate, such as: a high static safety on the leaving side of the fan ahead of first fire smoke damper to protect the duct work, a low pressure static safety on return duct applications with a return fan, freeze protection along with control sequences to protect water coils. The leaving air temperature must be below dew point (approximately fifty-five (55) degrees farenheit) to provide adequate moisture removal. Discharge air temperature must remain constant due to the use of 100% outside air.

6. Reference Attachment C, “Construction Indoor Air Quality” for cleanup guidelines, ductwork cleanliness, and temporary heating and cooling guidelines for maintaining proper indoor air quality.
7. Reference Attachment E, “Special Project Procedures for Healthcare Facilities” for infection control requirements for HVAC systems.

F. Temporary Electrical (Power, lighting, fire alarm)
1. Owner will pay usage costs for electrical power.
2. Electrical Subcontractor will furnish, install, relocate, maintain and remove all necessary temporary wiring, lighting fixtures, protective devices, distribution panels, and transformers, etc. required for construction purposes conforming to rules and regulations of OSHA as well as other agencies having local jurisdiction. W ork includes electrical power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations. Electrical Subcontractor shall coordinate temporary power requirements for trailers, equipment, and other special needs as required to execute the work. Reference paragraph 14.1 of this section for specific equipment. Each Subcontractor shall coordinate any further special temporary electrical requirements with Electrical Subcontractor.
3. Electrical Subcontractor shall make all necessary arrangements with the utility company to provide temporary service. All electrical connections must meet local code requirements.
4. All Subcontractors will be responsible for their power extension cords from the temporary panels to their work areas. These cords shall be three wire (including ground wire) of sufficient capacity for service intended and fully approved by all governing bodies.
5. Each Subcontractor shall coordinate and pay for any further special temporary electrical requirements with the electrical subcontractor. Approval shall be provided by the Contractor.
6. Electrical Subcontractor shall provide temporary lighting with local switching that provides requirements with the electrical subcontractor. Approval shall be provided by the Contractor.
7. Electrical Subcontractor shall provide temporary lighting that fulfills security and protection requirements without operating entire system.
8. Additional temporary light requirements (task lighting) shall be the responsibility of individual Subcontractors.
9. When required by code or by the Owner, Electrical Subcontractor shall provide temporary fire alarm system tied into existing fire alarm control panel. This temporary system shall be completed and functional at all times. No part of the temporary system shall be used for the permanent system. W ork includes removal and maintenance of the temporary system.

G. Temporary Communication Systems
1. Contractor will contract to erect and maintain a construction fence around the perimeter of the site and staging area as indicated on the site access plan. Fence gates will be located to provide access/egress as determined by Contractor. Subcontractor shall not remove sections of the fence without approval from Contractor. Subcontractors granted approval

to remove a portion of the construction fence will be responsible to replace and restore those sections to the satisfaction of Contractor. Reference site access plan section 00 30 00 for further detail.

H. Construction Fence
   1. Contractor will contract to erect and maintain a construction fence around the perimeter of the site and staging area to ensure safety and loss prevention. Fence gates will be located to provide access/egress as determined by Owner. Subcontractor shall not remove sections of the fence without approval from Contractor. Subcontractors granted approval to remove a portion of the construction fence will be responsible to replace and restore those sections to the satisfaction of Contractor. Access to existing grandstands must be maintained

I. Temporary Onsite Structures
   1. Each Subcontractor shall make its own arrangements with the Contractor for office facilities as designated by the site access plan. Subcontractor shall provide, maintain andremove his own offices and storage facilities.
   2. Temporary power, telephone and water service requirements to its onsite structures shall be the responsibility of the individual Subcontractors. Services will be provided to a central location per the logistics plan for use by the Subcontractors.

J. Storage
   1. Onsite storage shall not be allowed except as specifically approved by the Contractor and as defined in the Scope of Work. Contractor will not assume any responsibility for any stored materials.
   2. If it becomes necessary at any time during construction to move materials which are to enter into construction or equipment and barricades which have been temporarily placed, the Subcontractor furnishing these materials, equipment or barricades shall, when directed by the Contractor, move them or cause them to be moved without additional charge to the Contractor

K. Temporary Enclosures
   1. Any in progress or recently completed portions of work requiring protection from exposure to foul weather and detrimental operations shall be protected by the Subcontractor performing that work.

L. Fire Protection
   1. Contractor will provide fire extinguishers of proper type and number as required. Subcontractor shall provide firewatch as required to perform its work. Notify Contractor and Owner when welding, cutting or any activity that could create a fire hazard.

M. Surveying
   1. [if !vml][endif]Benchmarks will be established and maintained by the Contractor. Any inconsistencies found in dimensions or elevations shall be reported to the Contractor before proceeding with work. (Refer also to Division 01, Section "_____" for specific Contract requirements regarding layout and examination.)

N. Site and Area Restrictions – Reference site access plan described in Section 00 30 00.
   1. Access and egress to and from the site is under the control and direction of Contractor. All Subcontractors will be responsible for advising Contractor of their delivery schedules and will coordinate the work of various Subcontractors as to minimize delays.
   2. Please refer to the site logistics plan for temporary staging and contractor parking.
   3. Construct and maintain temporary roads, crane roads and pads, and paved areas adequate for construction operations as described in the site access plan. At a time directed by the Contractor, remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. The mass grading contractor shall be responsible for temporary roads and/or pads specifically detailed on the site access plan. Each Subcontractor is responsible for temporary roads and/or crane roads and pads if not detailed on the site access plan as by others.
   4. Traffic Controls: Each Subcontractor shall provide traffic controls for their Work. Comply with requirements of authorities having jurisdiction. Protect existing site improvements to

remain including curbs, pavement, and utilities. Maintain access for fire-fighting equipment and access to fire hydrants.

O. Water and Snow Removal
1. Dewatering Facilities and Drains: Each Subcontractor will be required to maintain the project site, excavations, and construction free of water to maintain progress of the work. Comply with requirements of authorities having jurisdiction.
2. Pump water and push water: Each Subcontractor will be required to remove water as required to maintain progress of the work.
3. [if !vml][endif]Snow and Ice Removal: Each Subcontractor will be required to remove snow and ice as required to maintain progress of the work. The use of calcium chloride as an aid or means to remove snow or ice will not be permitted.

P. Security And Protection Facilities Installation
1. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to authorities having jurisdiction and Contract Documents. Primary responsibility for the stormwater and erosion control will be the mass grading contractor. To the extent other Subcontractor's work will result in additional land disturbance or affect erosion control measures in place, the subcontractor shall comply with the requirements of the Subcontract Documents and the authorities having jurisdiction.
2. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains. Primary responsibility for this Work will be the mass grading contractor. To the extent other Subcontractor's work will result in additional land disturbance or affect erosion control measures in place, the subcontractor shall comply with the requirements of the Subcontract Documents and the authorities having jurisdiction.
3. Tree and Plant Protection: Not needed
4. Barricades, W arning Signs, and Lights: Comply with requirements of authorities having jurisdiction (and as required for adequate pedestrian and traffic safety) for erecting structurally adequate barricades, including warning signs and lighting.
5. Temporary Egress: Maintain temporary egress from existing occupied facilities as
6. Temporary Partitions: Contractor if required shall provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side. W here fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
7. Site Security: Site security will not be provided on the project.

1.15 SAFETY

A. General
1. Safety on the project site is a primary concern to the Owner and Contractor. Each Subcontractor is responsible for the safety and security of its employees.
2. All Subcontractors and lower tier subcontractors are required to follow all of Contractor’s safety requirements, OSHA, state and local safety regulations.
3. Each Subcontractor is responsible for providing the proper training and equipment necessary to ensure that their employees follow all of Contractor’s safety requirements, OSHA, state and local safety requirements.
4. Each Subcontractor is responsible for inspecting their work areas periodically throughout the day for recognizable safety hazards and for taking immediate corrective actions to provide a safe work environment at the site.
5. Safety Representative - Each Subcontractor will assign a competent individual to act as the Subcontractor’s safety representative. This individual must be on site and have the authority to immediately correct hazardous conditions. The name of the on-site representative shall be submitted to the Contractor prior to the Subcontractor beginning

work.

B. Disciplinary Policy:
   1. Failure to follow safety requirements may result in disciplinary action up to and including the removal and replacement of employees and site foreman per Contractor's safety policy.
   2. Each Subcontractor is responsible for replacing foreman and employees who are unable correcting Subcontractor to take action and a back charge may be issued to the creating contractor.
   3. Each Subcontractor is responsible for enforcing its safety program and OSHA requirements as it relates to their work at the project.
   4. Failure to correct safety issues in a timely manner may result in Contractor directing a correcting Subcontractor to take action and a back charge may be issued to the creating contractor.

C. Training requirements:
   1. Copies of all training must be forwarded to the Contractor's site office. This documentation must include a detailed description of the items covered in the training and the signatures of the attendees.

D. Orientation:
   1. Each Subcontractor is responsible for providing each of its employees with an orientation prior to the start of work to familiarize its employee with the site, site safety requirements and specific safety policies and procedures as it applies to their work. Copies of all orientations must be forwarded to the Contractor's site office. This documentation must include a detailed description of the items covered in the orientation and the signatures of the attendees.

E. Task specific training:
   1. Task specific training must be provided by each Subcontractor to ensure that each employee knows how to perform their work in a safe manner.
   2. Task specific training must be conducted following the identification of a safety issue concerning a particular crew and weekly at a minimum.

F. MSDS:
   1. A copy of the MSDS program including a written program and a copy of the MSDS sheets for all products that will be used at the project must be provided to the Contractor prior to the start of Subcontractor's work at the Project.

G. Personal Protective Equipment:
   1. OSHA approved hard hats shall be worn by all personnel and visitors on the jobsite at all times. Proper clothing shall be worn, suitable for construction work. Shirts and long pants shall be worn at all times. Durable work shoes are required; canvas or leather type athletic shoes and shoes without heels or toes are not permitted. All other personal protective equipment shall be furnished by the Subcontractor to its employees as required.

H. First Aid:
   1. The Contractor will maintain a first aid center at the Project office. The Contractor will have phone numbers of the local clinics and hospitals posted at all times.

I. Housekeeping:
   1. Good housekeeping shall be maintained at all times. All stripped lumber shall be safely stacked after nails have been removed or bent down. All stairways, scaffolds, ramps, walkways, and work areas shall be kept clear and clean of trash and material. W ork areas shall be maintained free from accumulation of combustible trash.
   2. All Subcontractors are responsible for cleaning their work areas each day. Failure to clean work areas each day may result in Contractor directing a correcting Subcontractor to take action and a back charge may be issued to the creating contractor.

J. GFCI:
   1. Each Subcontractor is responsible for providing GFCI protection for their work when using generators or permanent electrical installations.

K. Temporary Conditioning/Temporary Heat:
   1. W hen temporary heat must be maintained during non-working hours, a competent person, agreed upon by Contractor, must be present to monitor heating equipment and take all necessary actions to prevent fire or respond to an emergency per the Contractor's Temporary Heat policy (available upon request). Each Subcontractor is responsible for any and all cost associated with this requirement as it applies to their work. Temporary heat is defined as any heating source that is powered by electricity (all types), LP gas, kerosene, fuel oil, and natural gas.

L. Electrical Contractor only:
   1. All electrical installations must be installed per applicable OSHA and NEC standards.
   2. Ground Fault Circuit Interrupters must be installed in all temporary installations.
   3. Lighting must be provided sufficiently and in a timely manner.

1.16 CODE OF CONDUCT

A. Because this Project may involve working in and around occupied facilities and/or public areas, Subcontractor and all of its employees are required to comply with the following:
   1. Subcontractor and its employees are expected to perform their work in a professional manner.
   2. Subcontractor is not to converse or talk with employees of Owner. All construction related questions are to be directed to Contractor.
   3. Inappropriate language or gestures, profanity, or lewd conduct are strictly prohibited.
   4. Tobacco use on the Project site must comply with the Owner's restrictions. If there are no restrictions, tobacco must be kept to a minimum so as to not damage the Project or litter the site. Smoking is restricted to designated areas, if any. Violations of this policy may result in tobacco use being prohibited on the Project site.
   5. Subcontractor parking is only allowed in areas designated by Contractor

B. Violations of this policy could result in immediate dismissal from the site.

1.17 CONTRACT CLOSE-OUT

A. [if !vml][endif]Refer to Division 01, Section "17800" for specific Contract requirements regarding project closeout.

B. [if !vml][endif]Refer to Division 01, Section "007300" for specific Contract requirements regarding warranties.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

This page intentionally left blank

This page intentionally left blank

SECTION 012500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.02 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.
      a. Unavailability.
      b. Regulatory changes.
   2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
      a. Substitution requests offering advantages solely to the Contractor will not be considered.

1.03 REFERENCE STANDARDS

A. CSI/CSC Form 1.5C - Substitution Request (During the Bidding/Negotiating Stage) Current Edition.
B. CSI/CSC Form 13.1A - Substitution Request (After the Bidding/Negotiating Phase) Current Edition.

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. A Substitution Request for specified installer constitutes a representation that the submitter:
   1. Has acted in good faith to obtain services of specified installer, but was unable to come to commercial, or other terms.

C. 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.

D. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
   1. No specific form is required. Contractor's Substitution Request documentation must include the following:
      a. Project Information:
         1) Official project name and number, and any additional required identifiers established in Contract Documents.
         2) Owner's, Architect's, and Contractor's names.

b. Substitution Request Information:
   1) Discrete and consecutive Substitution Request number, and descriptive subject/title.
   2) Indication of whether the substitution is for cause or convenience.
   3) Issue date.
   4) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
   5) Description of Substitution.
   6) Reason why the specified item cannot be provided.
   7) Differences between proposed substitution and specified item.
   8) Description of how proposed substitution affects other parts of work.

c. 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.

d. Impact of Substitution:
   1) Savings to Owner for accepting substitution.
   2) Change to 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 PROCUREMENT

A. Submittal Time Restrictions:
   1. Instructions to Bidders specifies time restrictions and the documents required for submitting substitution requests during the bidding period.

3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A. Architect will consider requests for substitutions only within 15 days after date of Agreement.
B. Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
C. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
   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 construction by Owner.
      c. 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. When acceptance will require revisions to Contract Documents.

3.04 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.
   1. Architect's decision following review of proposed substitution will be noted on the submitted form.

3.05 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.

3.06 CLOSEOUT ACTIVITIES

A. Include completed Substitution Request Forms as part of the Project record. Include both approved and rejected Requests.

END OF SECTION

This page intentionally left blank

SECTION 013000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting.
B. Progress meetings.
C. Construction progress schedule.
D. Submittals for review, information, and project closeout.
E. Number of copies of submittals.
F. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 017000 - Execution and Closeout Requirements: Additional coordination requirements.
B. Section 017800 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 PROJECT COORDINATOR

A. Project Coordinator: Construction Manager.
B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for _____ access, traffic, and parking facilities.
C. During construction, coordinate use of site and facilities through the Project Coordinator.
D. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities. Responsibility for providing temporary utilities and construction facilities is identified in Section 011000 - Summary.
F. Coordinate field engineering and layout work under instructions of the Project Coordinator.
G. Make the following types of submittals to Architect through the Project Coordinator:
    1. Requests for Interpretation.
    2. Shop drawings, product data, and samples.
    3. Test and inspection reports.
    4. Design data.
    5. Manufacturer's instructions and field reports.
    6. Applications for payment and change order requests.
    7. Progress schedules.
    8. Coordination drawings.
    9. Correction Punch List and Final Correction Punch List for Substantial Completion.
    10. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Project Coordinator will schedule a meeting after Notice of Award.
B. Attendance Required:
    1. Owner.
    2. Architect.
    3. Contractor.
    4. Note: The following agenda items are not intended to be the final or a complete list of the items that will be discussed. A complete agenda will be distributed at the preconstruction meeting..
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. Submission of initial Submittal schedule.
6. Designation of personnel representing the parties to Contract, _____ and Architect.
7. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
8. Scheduling.
9. Open for comments; attendees are encouraged to bring other topics or concerns up for discussion at this time.

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

3.02 PROGRESS MEETINGS

A. Project Coordinator will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
B. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Contractor's superintendent.
   5. Major subcontractors.
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. Maintenance of progress schedule.
   7. Corrective measures to regain projected schedules.
   8. Planned progress during succeeding work period.
   9. Maintenance of quality and work standards.
   10. Effect of proposed changes on progress schedule and coordination.
   11. Other business relating to work.
D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.03 CONSTRUCTION PROGRESS SCHEDULE

A. Within 7 days after date of the 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 7 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 5 days after joint review, submit complete schedule.
E. Submit updated schedule with each Application for Payment.

3.04 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.
   1. Submit at the same time as the preliminary schedule specified in Section - 013216 - Construction Progress Schedule.
   2. Coordinate with Contractor's construction schedule and schedule of values.
   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.

3.05 SUBMITTALS IN GENERAL

A. All submittals shall be submitted to the Architect through the Project Coordinator - No exceptions.
B. PDFs by e-mail is the preferred method; coordinate with Architect's representative.
    1. Refer to "Requirements for Electronically Submitted Shop Drawings" attached to this section.
C. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
D. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
E. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
    1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.
F. By submitting submittals, the General Contractor represents to Architect that General Contractor has:
    1. Reviewed and approved them.
    2. Determined and verified materials, field measurements and field construction criteria related thereto, or will do so.
    3. Checked and coordinated the information contained within such submittals with the requirements of the Work of the Contract Documents.
G. Submittals that do not appear to be reviewed and approved will be returned to the General Contractor without the Architect's review. Time delays for this breach in procedure will be at the sole expense of the General Contractor.
H. All shop drawings shall be submitted no later than 45 days after execution of the contract.

3.06 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
    1. Product data.
    2. Shop drawings.
    3. Samples for selection.
    4. Samples for verification.
    5. Any required certification for installation.
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. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 017800 - Closeout Submittals.
E.

3.07 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
    1. Design data.
    2. Certificates.
    3. Test reports.
    4. Inspection reports.
    5. Manufacturer's instructions.

6. Manufacturer's field reports.
7. Other types indicated.

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

3.08 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.
B. Submit Final Correction Punch List for Substantial Completion.
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.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.
D. Submit for Owner's benefit during and after project completion.
E. Refer to Section 01 7800 - Closeout Submittals.

3.09 SUBMITTAL PROCEDURES

A. General Requirements:
B. Shop Drawing Procedures:
   1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
   2. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
C.
   1. For shop drawing submittals use form attached to this specification section.
D. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
E. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
F. 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.
G. Schedule submittals to expedite the Project, and coordinate submission of related items.
H. For each submittal for review, allow 10 days excluding delivery time to and from the Contractor. The time allotted starts when the architect recieves all required material for submittel review. Proper planning and scheduling of submittals shall be performed. Amendments to the construction schedule due delayed submittal to Architect is not acceptable.
I. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
J. Provide space for Contractor and Architect review stamps.
K. When revised for resubmission, identify all changes made since previous submission.
L. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
M. Submittals not requested will not be recognized or processed.
N. /Submittals must be review and stamped by ithe Subcontractor/Supplier and GC/Designbuilder prior to submitting to Architect. Submittal may be rejected without required reviews prior to submittal to Architect.

3.10 REQUIREMENTS FOR ELECTRONICALLY SUBMITTED SHOP DRAWINGS

A. The Contractor shall fill out and include the submittal cover sheet included in the project manual.
B. The shop drawings are to be reviewed by the Contractor before submitting. All field required verifications and missing information shall be completed and noted on the drawings. The Contractor shall review them and verify that the products submitted are acceptable per the specifications. The Contractor shall then affix their stamp on the submittal cover sheet.

Contractor must review - No pass-through drawings are permitted.

C. The Contractor shall prepare a single PDF file so that all sheets of the submittal are included in one document. Only ONE specifications section per submittal is permitted. Each PDF shall contain Bookmarks set to the destination of separate items contained within the file. If the Contractor elects to use their own transmittal sheet it shall be a separate attachment.
D. Scans shall be in color. All pages shall be oriented correctly. Actual sheet sizes for the submittal shall be 8 ½ x11 or 11x17 whenever possible. All print and details must be legible at those sizes. Larger file sheets such as 24x36 sheet size shall be identified in the e-mail.
E. The e-mail subject line shall list the five-digit project number first followed by the project name. Then the section number and a brief description of the submittal contents shall follow the submittal number. Example: *12345 - High School Addition - 23 3700-Air outlets and inlets.*
F. The PDF file or attachment shall be named as follows. Example: *23 3700 - Air outlets & inlets - 12345 - High School Addition.pdf*
G. Samples and color selections associated with the drawings shall be included in a separate attachment when practical. Actual samples, color selections shall be delivered to ISG and the shop drawings will not be reviewed until actual samples are received.
H. The Architect / Engineer will review the drawings, make notes as required on the drawings and stamp them. The PDF file shall then be renamed by adding the action required such as REVIEWED, FURNISH AS CORRECTED, REVISE AND RESUBMIT or REJECTED. Example: *23 3700 - Air outlets and inlets - 12345 High School Addition - REVIEWED.pdf*
I. The Architect / Engineer shall then use the original email and attach the reviewed drawings and forward back to the contractor. The e-mail that they are attached to will be considered the transmittal. Any notes in the body of the email from the Architect / Engineer shall be considered as written on the sheets of the PDF file.
J. No hard copies will be sent by the Architect / Engineer. Note: Hard copies will be required to be included in the O&M Manuals as part of the project close out submittals.

END OF SECTION

This page intentionally left blank

SECTION 013510
STRUCTURAL TESTING AND SPECIAL INSPECTION

PART 1 GENERAL

1.01 INTENT AND CONDITIONS

A. Intent
   1. Define and coordinate structural testing and special inspection services.
   2. Define and coordinate conventional testing and inspection services.
   3. Provide greater confidence that the specified work is constructed in compliance with the contract documents and Chapter 17 of the 2018 International Building Code.
   4. Testing and Inspection services are intended to assist in determining probable compliance of the work with requirements specified. These services do not relieve the Contractor of responsibility for compliance with the requirements of the contract documents

B. Conditions
   1. If inspection of fabricator's work is required, the Owner's representative may require testing and inspection of the work at the plant, before shipment. Owner, Architect and Structural Engineer of Record (SER) reserve the right to reject material not complying with the contract documents.
   2. Testing and inspection shall be performed in accordance with the industry standard used as the reference for the specific material or procedure unless other criteria are specified. In the absence of a referenced standard, tests shall be accomplished in accordance with generally accepted industry standards.
   3. Work shall be checked as it progresses, but failure to detect any defective work or materials shall in no way prevent later rejection if defective work or materials are discovered, nor shall it obligate Owner to accept such work.

1.02 RELATED REQUIREMENTS

A. Testing – Evaluation of systems, primarily requiring physical manipulation and analysis of materials, in accordance with approved standards.
B. Inspection – Evaluation of systems, primarily requiring observation and engineering judgment.
C. Structural Testing and Special Inspection – Structural Testing and Special Inspection Services herein include items required by the 2018 International Building Code, and other items which in the professional judgment of the Structural Engineer of Record, are critical to the integrity of the building structure.
D. Conventional Testing and Inspection – Conventional Testing and Inspection Services herein describe those items not specially required by Code but may be considered essential to the proper performance of the building systems.
E. Architect of Record – The prime consultant in charge of overall design and coordination of the project.
F. Structural Engineer of Record (SER) – The Licensed Engineer in responsible charge of the structural design for the project.
G. Licensed Structural Engineer: – A professional engineer with education and experience in the design of structures similar to this project licensed to practice in the state in which the project is located.
H. Testing Agency (TA) – The properly qualified firm performing testing services.
I. Special Inspector (SI) – A properly qualified individual or firm performing special inspections.
J. Building Official – The Officer or his duly authorized representative charged with the administration and enforcement of the 2018 International Building Code.
K. Continuous –The full-time observation of work requiring special inspection by an approved special inspector who is present in the area where the work is being performed.
L. Periodic –The part-time or intermittent observation of work requiring special inspection by an approved special inspector who is present in the area where the work is being performed.

1.03 REFERENCES

A. ASTM E329-02 - Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

B. ASTM E43-02 - Standard Practice for Agencies Performing Nondestructive Testing.
C. ASTM C1077-02 - Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
D. ASTM C1093-95 - Practice for Accreditation of Testing Agencies for Unit Masonry.
E. ASTM D3740-01 - Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
F. AISC Steel Construction Manual 14th Edition (2010)
G. 2018 International Building Code.
H. See technical sections of PART 3 for specific references.

1.04 QUALIFICATIONS

A. Testing Agency (TA) – The testing agency shall be an approved independent testing agency acceptable to the Owner, Architect, SER and as noted below:
   1. Authorized to operate in the state in which the project is located and experienced with the requirements and testing methods specified in the technical scope sections of PART 2.
   2. Meeting applicable requirements of Section 1.04 "References".
   3. Testing equipment shall be calibrated at reasonable intervals by devices of accuracy traceable to either the National Bureau of Standards, or to accepted values of natural physical constants.

B. Special Inspector (SI) – The special inspector shall be under the direct supervision of a registered civil/structural engineer, experienced with the type of work requiring structural testing and special inspection.
   1. The categories of special inspector are:
      a. Special Inspector - Technical I, II, and III: Usually an employee of a testing agency.
      b. Special Inspector - Structural I and II: Preferably an employee of the SER's firm.
   2. Unique special inspector requirements, for specific materials and system, are noted in Structural Testing and Special Inspectionrelated technical specification sections.

1.05 RESPONSIBILITIES

A. Structural Testing and Special Inspection
   1. Special Inspectors:
      a. Sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencement of construction.
      b. If requested, attend a pre-construction meeting to review the scope of structural testing and special inspection.
      c. Test and/or inspect the work assigned for conformance with the building department approved design drawings, specifications and applicable material and workmanship provisions of the Code. Perform testing and inspection in a timely manner to avoid delay of work.
      d. Bring discrepancies to the immediate attention of the contractor for correction, confirm that they are corrected and, if uncorrected after a reasonable period of time, bring to the attention of the Structural Engineer of Record, the Building Official, and to the Architect.
      e. Submit test and/or inspection reports to the Building Official, Contractor, the Structural Engineer of Record, and other designated persons in accordance with the Structural Testing and Special Inspection Summary Schedule.
      f. Submit a final signed report stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications and the applicable workmanship provisions of the Code.
   2. Testing Agency:
      a. Sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencement of construction.
      b. If requested, attend a pre-construction meeting to review the scope of structural testing and special inspection.
      c. When engaged as a special inspector, provide structural testing and special inspection services as previously described.
   3. Architect of Record (or other prime consultant):

a. Complete and sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencement of construction. Provide a completed copy of the schedule to all signed parties including Building Official.
b. If appropriate, arrange and attend a pre-construction meeting to review the scope of structural testing and special inspection. Include Contractor, Building Official, SER, Testing Agency and other parties concerned.
c. Coordinate the flow of reports and related information to expedite resolution of construction issues.

4. Structural Engineer of Record (SER):
   a. Identify items requiring structural testing and special inspection including special cases.
   b. Define "type" of special inspector required for "description" of work indicated on the structural testing and special inspection schedule.
   c. Complete and sign the Structural Testing and Special Inspection Summary Schedule prior to commencement of construction.
   d. If requested, attend a pre-construction meeting to review the scope of structural testing and special inspection.
   e. Review reports submitted by special inspectors.
   f. If engaged as a special inspector, provide structural testing and special inspection services as previously described.Contractor:
5. Contractor:
   a. Sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencement of construction.
   b. Coordinate efforts to gain signatures of all signing parties other than the Architect and Structural Engineer of Record (SER).
   c. If requested, attend a pre-construction meeting to review the scope of structural testing and special inspection.
   d. Post or make available the Structural Testing and Special Inspection Summary Schedule within its office at the job site. Also, provide adequate notification to those parties designated on the schedule so they may properly prepare for and schedule their work.
   e. Provide the special inspectors access to the approved drawings and specifications at the job site.
   f. Review reports submitted by special inspectors.
   g. Retain at the job site all reports submitted by the special inspectors for review by the building official upon request.
   h. Correct in a timely manner, deficiencies identified in inspection and/or testing reports.
   i. Provide the special inspector safe access to the work requiring inspection and/or testing.
   j. Provide labor and facilities to provide access to the work and to obtain, handle and deliver samples, to facilitate testing and inspection and for storage and curing of test samples.
   k. Verification of conformance of the work within specified construction tolerances is solely the Contractor's responsibility.
6. Fabricator:
   a. Sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencing construction.
   b. Submit a Certificate of Compliance to the Building Official, Special Inspector, and Structural Engineer of Record that the work was performed in accordance with the approved plans and specifications.
7. Building Official (Typical responsibilities noted for information only):
   a. Determine work, which in the Building Officials opinion, involves unusual hazards or conditions in accordance with the 2018 International Building Code.
   b. Review special inspector qualifications.
   c. Accept and sign the completed Structural Testing and Special Inspection Summary Schedule.

d. Review all fabricators who perform work in their shop, which requires special inspection.
e. Review reports and recommendations submitted by the special inspectors.
f. Review the "final signed reports" submitted by the special inspector(s). These documents should be accepted and approved by the building department prior to issuance of a Certificate of Occupancy.

8. Owner:
   a. Establish direct funding to provide for cost of structural testing and special inspection services.
   b. Provide special inspector with approved design drawings, specifications and approved shop drawings.
   c. Provide special inspectors and testing agencies with full access to site at all times.
   d. Sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencement of construction.

B. Conventional Testing and Inspection
C. Inspections by Building Official
   1. Contractor shall provide adequate notice for inspections performed by the Building Official, as required by the 2018 International Building Code, and local ordinance.
D. Periodic Site Observations by Design Consultant
   a. Submit test and/or inspection reports to the Architect of Record, the Contractor and other designated persons.
   2. Special structural testing and inspection, conventional testing and inspection, and periodic inspections by the Building Official do not preclude the normal field involvement and site observations by Architect or Structural Engineer of Record, nor shall it relieve the Contractor of any responsibility to complete the work in accordance with the approved drawings and specifications.
E. Limits of Authority
   1. Testing agents and/or special inspectors may not waive or alter contract requirements, or approve or accept any portion of the work unless specifically authorized by the Architect or Structural Engineer of Record. They may not assume any duties of the Contractor, and they have no authority to stop or reject "Work".

1.06 PAYMENT

A. Owner shall directly employ and pay for services of the special inspectors to perform required Structural Testing and Special Inspection.
B. Owner shall employ and pay for services of the testing agency to perform required Conventional Testing and Inspection.
C. Unless noted otherwise, the Contractor shall provide and pay for all materials, samples, mock-ups, and assemblies required for testing and inspection and shall pay for all shipping costs related to delivery of this work. Testing agency will pay for shipping costs of samples transported from site to lab.
D. If exploratory work is required to determine the cause of defects, the cost of such work shall be paid by the Contractor, if the work is found to be defective, in the judgment of the Architect/Engineer. Contractor shall reimburse the Owner for all costs incurred in this event.
E. Any tests required to qualify the Contractor, or the workmen for any phase of the work, shall be performed at no additional cost to the Owner.

1.07 INSPECTION NOTICE

A. Contractor shall provide minimum of 24 hours notice for all items requiring testing or inspection. Items requiring testing and inspection services prior to or during placement shall not be placed until testing and inspection services are available. Items requiring testing and inspection services after placement shall not be enclosed or obscured until testing and inspection services are performed.

1.08 REPORTS

A. Testing agency and/or special inspectors shall submit reports in accordance with the Structural Testing and Special Inspection Summary Schedule and shall conduct and interpret tests and

inspections and state in each report whether; (1) test specimens and observations comply with Contract Documents, and specifically state any deviations, (2) record types and locations of defects found in work, (3) record work required and performed, to correct deficiencies.

B. Reports for structural testing and special inspection, shall be submitted in timely manner to the Contractor, Building Official, SER, and Architect of Record.
   1. Submit reports for ongoing work, to provide the information noted below:
      a. Date issued.
      b. Project title and number.
      c. Firm name and address.
      d. Name and signature of tester or inspector.
      e. Date and time of sampling.
      f. Date of test or inspection.
      g. Identification of product and specification section.
      h. Location in project, including elevations, grid location and detail.
      i. Type of test or inspections.
      j. Results of tests or inspections and interpretation of same.
      k. Observations regarding compliance with Contract Documents or deviations there from.
   2. Submit a final signed report stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications and the applicable workmanship provisions of the code.

C. Reports for conventional testing and inspection shall be submitted in a timely manner to the Contractor and the Architect of Record.

1.09 FREQUENCY OF TESTING AND INSPECTION

A. For detailed requirements see technical sections of PART 3.

1.10 PROTECTION AND REPAIR

A. Upon completion of testing, sample-taking, or inspection, the Contractor shall repair damaged work and restore substrates and finishes to eliminate deficiencies, including deficiencies in the visual qualities of exposed surfaces, as judged solely by the Architect/Engineer of Record. Protect work exposed by or for testing and/or inspection and protect repaired work. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for testing and/or inspection.

1.11 TESTS TO DEMONSTRATE QUALIFICATION

A. If the Contractor proposes a product material, method, or other system that has not been pre-qualified, the Architect may require applicable tests, to establish a basis for acceptance or rejection. These tests will be paid for by the Contractor.

B. The Architect/Engineer of Record reserves the right to require certification or other proof that the system proposed, is in compliance with any tests, criteria or standards called for. The certificate shall be signed by a representative of an independent testing agency.

PART 2 MATERIALS (NOT USED)

PART 3 SCOPE OF TESTING AND INSPECTION

3.01 STRUCTURAL TESTING AND SPECIAL INSPECTION PROGRAM SUMMARY

A. The parties involved shall complete and sign the Structural Testing and Special Inspection Summary Schedule. The Program, including Summary Schedule, shall be submitted to the building official for approval prior to issuance of a building permit. The competed schedule includes the following:
   1. A specific listing of the items requiring inspection and testing.
   2. The associated technical scope sections that define the applicable standards by which to judge conformance with the approved plans and specifications in accordance with 2018 International Building Code. The technical scope sections should also include the degree or basis of inspection and testing; i.e., intermittent/will-call or full-time/continuous.
   3. The frequency of reporting, i.e., weekly, monthly, per test/inspection, per floor, etc.
   4. The parties responsible for performing the inspection and testing work.

5. The required acknowledgments by each designated party.

3.02 CONVENTIONAL TESTING AND INSPECTION

A. (Not Used)

3.03 STRUCTURAL TESTING AND SPECIAL INSPECTION STATEMENT OF SPECIAL INSPECTIONS

A. Refer to attached Program Summary Schedule for this project. It includes a schedule of Special Inspection services applicable to this project and the identity of agencies to be retained for conducting these inspections and tests.
B. The Special Inspector shall keep records of all inspections and shall furnish inspection reports to the Building Official, the Architect and Structural Engineer of Record. Discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official, the Architect and SER. The Special Inspection program does not relieve the Contractor of his or her responsibilities.
C. Interim reports shall be submitted to the Building Official, Architect, and SER.
D. A Final Report of Special Inspections documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

3.04 TECHNICAL SECTIONS

A. **Section 31 2200 - Earthwork - Grading, Excavation Filling**
   1. (Not Used)
   2. Definitions
      a. Refer to PART 1 for standard definitions.
      b. Special Inspector – Technical
         1) Technical I: Technician shall be under the direct supervision of a Technical III. Work shall be performed in a qualified geotechnical/testing laboratory.
      c. Technical II: Technical with a minimum of 2 years experience, or a graduate engineer, and is an employee of a qualified and approved geotechnical/testing laboratory, under the direct supervision of a Technical III.
         1) Technical III: A civil/geotechnical engineer regularly engaged in this type of work with a minimum of 4 years experience, licensed in the State in which the project is located, and is an employee of a qualified and approved geotechnical/testing laboratory. This licensed engineer shall review and approve all final field reports.
   3. Structural Testing and Special Inspection Requirements (Item and Frequency and Qualifications)
      a. Classification of materials used and encountered during construction per ASTM:D2488 and ASTM:D2487. Technical I
      b. Performance of laboratory testing of materials, as needed (Proctor, Sieve Analysis,Atterberg Limits, Consolidation Test, etc.). Technical I
      c. Field Density Tests: Technical I
      d. Provide periodic results of field compaction and laboratory work for general compliance with Contract Documents and Geotechnical Reports. Technical I
      e. Observe all subgrades/excavation bases below footings and slabs and verify design bearing capacity is achieved. Technical II
      f. Document presence of groundwater within excavations. Technical I
      g. Provide reports of subgrade observations for general compliance with Contract Documents and Geotechnical Report. Technical II
      h. Verify cut and fill slopes as specified in the contract documents. Technical III
   4. Conventional Testing and Inspections Requirements
      a. Contractor shall verify that footings comply with frost depth requirements and shall report any variances to the SER in a timely manner.

END OF SECTION

SECTION 014000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.
B. Testing and inspection agencies and services.
C. Testing and inspection agencies and services.
D. Control of installation.
E. Tolerances.
F. Manufacturers' field services.
G. Defect Assessment.

1.02 RELATED REQUIREMENTS

A. Document 007200 - General Conditions: Inspections and approvals required by public authorities.
B. Section 013000 - Administrative Requirements: Submittal procedures.
C. Section 016000 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

1.04 REFERENCE STANDARDS

A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants 2008 (Reapproved 2023).
B. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants 2008 (Reapproved 2023).
C. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation 2017.
D. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation 2017.
E. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry 2023.
F. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry 2023.
G. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction 2019.
H. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction 2019.
I. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection 2021.
J. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection 2021.
K. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing 2021.
L. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing 2021.
M. ASTM E699 - Standard Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components 2016.
N. ASTM E699 - Standard Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components 2016.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. General: As indicated in individual specification sections.
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.\
D. Submittals must be reviewed by Subcontractor and Design Builder Superindendant to ensure submittals match the construction documents and include all required documentation. Incomplete submittals will be rejected by Architect and/or Engineer without review.
E. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
    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.

2. Test report submittals are 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.

F. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor 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.

G. 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.

H. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
1. Submit report in duplicate within 30 days of observation 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.

I. Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for Owner.
1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents.
2. Data indicating inappropriate or unacceptable Work may be subject to action by Architect or Owner.

1.06 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 Substantial Completion.

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

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

1.07 TESTING AND INSPECTION AGENCIES AND SERVICES

A. Owner will employ and pay for services of an independent testing agency to perform other specified testing and inspection.

1. Where indicated in individual specification sections the Contractor shall employ and pay for services of an independent testing agency to perform specified testing and inspection.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
C. Contractor Employed Agency:
   1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM E699, ASTM C1021, ASTM C1077, ASTM C1093, and ASTM D3740.
   2. Inspection agency: Comply with requirements of ASTM D3740 and ASTM E329.
   3. Laboratory: Authorized to operate in the State in which the Project is located.
   4. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
   5. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

1.08 TESTING AND INSPECTION AGENCIES AND SERVICES
1.09 TESTING AND INSPECTION AGENCIES AND SERVICES

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. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
C. Comply with manufacturers' instructions, including each step in sequence.
D. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
E. 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.
F. Have work performed by persons qualified to produce required and specified quality.
G. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
H. 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:
   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. 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.

E. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

F. Re-testing 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, start-up of equipment, test, adjust, and balance equipment, and _____ as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.05 DEFECT ASSESSMENT

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

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

END OF SECTION

END OF SECTION

SECTION 016000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.
B. Re-use of existing products.
C. Transportation, handling, storage and protection.
D. Product option requirements.
E. Base specified/scheduled products and design intent.
F. Inconsistencies.
G. Substitutions in general.
H. Substitution limitations.
I. Procedures for Owner-supplied products.
J. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 012500 - Substitution Procedures: Substitutions made during procurement and/or construction phases.
B. Section 01 3000 - Administrative Requirements: Submittals.
C. Section 014000 - Quality Requirements: Product quality monitoring.
D. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions: Requirements for VOC-restricted product categories.
E. Section 017419 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.
F. Section 220513 - Common Motor Requirements for Plumbing Equipment: Motors for plumbing equipment.
G. Section 230513 - Common Motor Requirements for HVAC Equipment: Motors for HVAC equipment.

1.03 REFERENCE STANDARDS

A. NEMA MG 1 - Motors and Generators 2021.
B. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
    1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

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. 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. The Contractor shall assure the Owner that all new equipment and materials are asbestos free. The Contractor, subcontractors, and material suppliers are required to provide letters of non-asbestos confirmation with supporting documentation prior to material installations. The Owner may select materials to test for asbestos at any time including prior to and/or after installation. If suspect asbestos materials are tested and found to contain asbestos, the materials shall be abated in accordance with asbestos regulations by an Owner approved consultant and abatement contractor. New asbestos free products shall be re-installed by the Contractor supplying such material. The Contractor shall be responsible for any and all new materials. If asbestos is found in the new materials, the cost for asbestos design, on-site monitoring, abatement, and replacement shall be the responsibility of the Contractor. Owner will collect and pay for the testing of any random suspect asbestos samples.

C. Use of products having any of the following characteristics is not permitted:
   1. Made using or containing CFC's or HCFC's.

D. Where other criteria are met, Contractor shall give preference to products that:
   1. If used on interior, have lower emissions, as defined in Section 016116.
   2. If wet-applied, have lower VOC content, as defined in Section 016116.
   3. Are extracted, harvested, and/or manufactured closer to the location of the project.
   4. Result in less construction waste. See Section 017419

E. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Size terminal lugs to NFPA 70, include lugs for terminal box.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
B. 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.
C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.
D. Products that do not meet project specifications may be rejected at any time during the project.
E. Cost associated with replacement product and delay in project schedule due to rejection shall be at sole expense of Contractor.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 BASE SPECIFIED/SCHEDULED PRODUCTS AND DESIGN INTENT

A. Certain specification sections will indicate a base manufacturer and will then list other acceptable manufacturers. Similarly, certain specification sections will list multiple acceptable manufacturers but only one of the manufacturers will be scheduled on a plan sheet. In these scenarios, the designer has designed the system with considerations for the base manufacturer or the product scheduled on the plan sheet. It is the responsibility of all bidders, contractors, suppliers to ensure that when bidding using an acceptable manufacturer other than the base manufacturer or the scheduled manufacturer that the design intent is met. Providing a product by an acceptable manufacturer other than the base specified or scheduled manufacturer constitutes a representation that the submitter:
   1. Has investigated supplied product and determined that it meets or exceeds the quality level of the base specified/scheduled product.
   2. Will provide the same warranty for the supplied product as for the base specified/scheduled product.
   3. As a result of differences between the base specified/scheduled product and the other acceptable manufacturers will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.

5. Will reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.
6. Will maintain dimensions, locations, clearances, accesses and other design intent shown on the plan or otherwise provided by the base specified/scheduled product.

3.02 INCONSISTENCIES

A. If there is an inconsistency in the quality and/or quantity of Work required by the Contract Documents, either the greater quality and/or quantity of Work indicated shall be provided in accordance with the Engineer/Architect's interpretation without change in the contract sum.

3.03 SUBSTITUTIONS IN GENERAL

A. Proposed substitutions are required to be equivalent in all aspects to the specified products including but not limited to appearance, quality, and performance.
B. When specified in individual sections actual samples shall be provided a minimum of 12 days prior to the bid due date for Architect's review and approval before products other than those scheduled or specified with be accepted; No Exceptions.

3.04 SUBSTITUTION LIMITATIONS

A. See Section 012500 - Substitution Procedures.
B. Where the Bid Documents stipulate a particular product, substitutions will be considered up to 10 days before receipt of bids.
C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
    1. The substantiating data shall provide a side by side comparison consisting of sufficient information to determine acceptability of such products.
D. A request for substitution 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.
    2. Agrees to provide the same warranty for the substitution as for the specified product.
    3. 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.
    4. Waives claims for additional costs or time extension that may subsequently become apparent.
    5. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.
E. Provide complete information on required changes to other Work to accommodate each proposed substitution.
F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
G. When a request to substitute a product is made, Architect may approve the substitution and will issue an Addendum to known bidders.
H. Substitution Submittal Procedure
    1. Transmit each substitution request with the Substitution Request cover letter attached to this specification section.
    2. PDFs by e-mail is the preferred method; coordinate with Architect's representative. Only submit paper copies where necessary as follows:
        a. Submit five copies of request for substitution for consideration.
    3. The submitter shall prepare a single PDF file when submitting by email so that all sheets of a submittal are included in one document. Only ONE major product per submittal is permitted. Each PDF shall contain Bookmarks set to the destination of separate items contained within the file. If the submitter elects to use their own transmittal sheet it shall be a separate attachment.
        a. Scans shall be in color, pages shall be oriented correctly, actual sheet sizes for the submittal shall be 11 by 17 inch or 8 1/2 by 11 inch whenever possible, and all content must be legible.
    4. Limit each request to one proposed substitution.

5. Multiple proposed substitutions submitted on one form will only be considered when products are directly related. Major products and components should be listed first.
6. Submit shop drawings, product data, certified test results, etc. attesting to the proposed product equivalence. Burden of proof is on proposer.
7. The Architect will reply with a decision to accept or reject request in a timely manner.

I. Substitution Submittal Procedure (after contract award):
1. Requests for Substitutions received after Bid Opening will not be considered except in such cases where it is necessary to make a substitution due to strikes, lockouts, bankruptcy, discontinuance of a product, and similar circumstances. Such Requests for Substitution of materials after Contract Award shall be made in writing to the Architect and shall be made within ten (10) days of the date that the Contractor ascertains they cannot obtain the material or equipment specified.
2. Requests for Substitution will not be considered when they are indicated or implied on Shop Drawings or Product Data submittals without a separate previously submitted Request for Substitution Form, or when acceptance will require substantial revision of the Contract Documents.
3. The Architect with approval by the Owner will be the judge of the acceptability of all Requests for Substitution received after Bid Opening.

3.05 OWNER-SUPPLIED PRODUCTS

A. 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.

B. 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.

3.06 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.

3.07 STORAGE AND PROTECTION

A. 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.
B. Store and protect products in accordance with manufacturers' instructions.
C. Store with seals and labels intact and legible.

D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
E. For exterior storage of fabricated products, place on sloped supports above ground.
F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
G. Comply with manufacturer's warranty conditions, if any.
H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
I. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
J. Prevent contact with material that may cause corrosion, discoloration, or staining.
K. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
L. 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

This page intentionally left blank

SECTION 017000
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.
B. Access panels required by trade.
C. Requirements for alterations work, including selective demolition, _____.
D. Pre-installation meetings.
E. Cutting and patching.
F. Surveying for laying out the work.
G. Cleaning and protection.
H. Starting of systems and equipment.
I. Demonstration and instruction of Owner personnel.
J. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
K. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 011000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
B. Section 013000 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
C. Section 015000 - Temporary Facilities and Controls: Temporary exterior enclosures.
D. Section 015000 - Temporary Facilities and Controls: Temporary interior partitions.
E. Section 017800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.
F. Section 078400 - Firestopping.
G. Individual Product Specification Sections:
    1. Advance notification to other sections of openings required in work of those sections.
    2. Limitations on cutting structural members.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
    1. On request, submit documentation verifying accuracy of survey work.
    2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
    3. Submit surveys and survey logs for the project record.
C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
    1. Structural integrity of any element of Project.
    2. Integrity of weather exposed or moisture resistant element.
    3. Efficiency, maintenance, or safety of any operational element.
    4. Visual qualities of sight exposed elements.
    5. Work of Owner or separate Contractor.
    6. Include in request:
        a. Identification of Project.
        b. Location and description of affected work.
        c. Necessity for cutting or alteration.
        d. Description of proposed work and products to be used.
        e. Alternatives to cutting and patching.
        f. Effect on work of Owner or separate Contractor.
        g. Written permission of affected separate Contractor.
        h. Date and time work will be executed.
D. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 QUALIFICATIONS

A. For demolition work, employ a firm specializing in the type of work required.
   1. Minimum of 5 years of documented experience.

B. For surveying work, employ a land surveyor registered in North Carolina 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,

C. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in North Carolina. Employ only individual(s) trained and experienced in establishing and maintaining horizontal and vertical control points necessary for laying out construction work on project of similar size, scope and/or complexity.

D. For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in North Carolina.

E. For construction surveying and building layout at the option of the contractor, employ ISG; Contact Dan Stueber; Phone: 507.387.6651.
   1. Scope: Building Staking; Curb and Gutter/Edge of Bituminous Staking; Watermain and Sanitary Sewer Staking; Other Miscellaneous Staking; and additional Field Crew Coordination Requirements. Refer to proposal for additional information.
   2. Bidding: Obtain proposal from ISG and include the amount in base bid.

1.05 PROJECT CONDITIONS

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

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

1.06 COORDINATION

A. 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.

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

C. 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.

D. 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.

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

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

G. 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 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
B. Require attendance of parties directly affecting, or affected by, work of the specific section.
C. Notify Architect four days 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 two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.
B. Promptly notify Architect of any discrepancies discovered.
C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.
F. Utilize recognized engineering survey practices.
G. 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; and _____.
    2. Grid or axis for structures.
    3. Building foundation, column locations, ground floor elevations, and _____.
H. Periodically verify layouts by same means.
I. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

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

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ACCESS PANELS REQUIRED BY TRADE

A. Trade requiring access shall provide and install access panels where not show or specified.
B. The finished appearance and function will be subject to approval by the Architect/Owner.
C. Provide panels that accommodate adjacent finishes in finished spaces.
D. Access panels shall meet all code requirements for each location they are installed and shall be sized appropriately

3.07 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 in locations indicated on drawings.
   2. Provide sound retardant partitions of construction indicated on drawings in locations indicated on drawings.

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 rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
   2. Remove items indicated on drawings.
   3. Relocate items indicated on drawings.
   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; remove existing finish if necessary 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 as closely as possible.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, Telecommunications, and _____): 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 systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
   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.
      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.

4. Verify that abandoned services serve only abandoned facilities.
5. 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.
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.
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.
2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

J. Clean existing systems and equipment.
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.
M. Comply with all other applicable requirements of this section.

3.08 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.
B. See Alterations article above for additional requirements.
C. Perform whatever cutting and patching is necessary 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.

D. 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 original condition.
E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
1. All other cutting and patching is to be performed by the responsible trade.

F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
G. Restore work with new products in accordance with requirements of Contract Documents.
H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 078400, to full thickness of the penetrated element.
J. 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.

3.09 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.
D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.10 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. 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.
G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.11 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.
B. 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.
C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
D. Verify that wiring and support components for equipment are complete and tested.
E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
F. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.12 DEMONSTRATION AND INSTRUCTION

A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.

3.13 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.14 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.
   1. The intent of final cleaning is to provide the Owner with a product that is free of all dust, dirt, and debris related to the Work, and in a like new condition.
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. Clean filters of operating equipment.
G. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, drainage systems, and _____.
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.
J. Wipe clean wood and laminate surfaces including doors, countertops, cabinets, windows, sills and all other similar surfaces.
K. Wipe clean all painted surfaces.
L. Clean all hard finish floors including tile and sealed concrete and all others according to manufacturer's instructions

3.15 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Architect and Owner.
B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
D. 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 Substantial Completion inspection.
E. Conduct Substantial 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.
F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.16 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.
B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

This page intentionally left blank

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: Submittals 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 with claim for final Application for Payment.
B. Preliminary Operation and Maintenance Manual: Submit preliminary draft of proposed format and outline of contents in a PDF format before start of Work. Architect will review draft and return with comments.
C. Final Operation and Maintenance Manual: Submit final manual and electronic copies with claim for final Application for Payment. Architect will retain one electronic copy. The original manual and one electronic copy will be provided to the Owner.
    1. At the option of the Owner provide only an electronic copy in PDF format.
D. Warranties and Bonds: Include originals and electronic copy of each in operation and maintenance manuals, indexed separately on Table of Contents.
E. Operation and Maintenance Data:
    1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
    2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
    3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
    4. Submit two sets of revised final documents in final form within 10 days after final inspection.
F. Warranties and Bonds:
    1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
    2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
    3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.
G. 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 ten days after acceptance.
    2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
    3. Submit two sets of revised final documents in final form within 10 days after final inspection.
H. Warranties and Bonds:
    1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.

2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of 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. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop 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.

3.02 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. 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.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 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. Additional information as specified in individual product specification sections.

D. 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.

3.04 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. 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.

D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

E. Provide servicing and lubrication schedule, and list of lubricants required.

F. Include manufacturer's printed operation and maintenance instructions.

G. Include sequence of operation by controls manufacturer.

H. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

I. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

J. Include test and balancing reports.

K. Additional Requirements: As specified in individual product specification sections.

3.05 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 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, shop drawings, and other submittals.
      c. Operation and maintenance data.
      d. Field quality control data.
      e. Original warranties and bonds.

K. Electronic Copy: Provide two copies of all operation and maintenance data in a PDF format on a flash drive. Locate storage devices in the front of the operation and maintenance manual. Label device with project name and substantial completion date.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 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 Substantial completion is determined.
B. Verify that documents are in proper form, contain full information, and are notarized.
C. Co-execute submittals when required.
D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SECTION 024100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.
B. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

A. Section 003100 - Available Project Information: Existing building survey conducted by Owner; information about known hazardous materials.
B. Section 011000 - Summary: Limitations on Contractor's use of site and premises.
C. Section 011000 - Summary: Description of items to be salvaged or removed for re-use by Contractor.
D. Section 015000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
E. Section 016000 - Product Requirements: Handling and storage of items removed for salvage and relocation.
F. Section 017000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
G. Section 312323 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 DEFINITIONS

A. Demolition: Dismantle, raze, destroy or wreck any building or structure or any part thereof.
B. Remove: Detach or dismantle items from existing construction and dispose of them off site, unless items are indicated to be salvaged or reinstalled.
C. Remove and Salvage: 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.
D. Remove and Reinstall: Detach or dismantle items from existing construction in a manner to prevent damage. Clean and prepare for reuse and reinstall where indicated.
E. Existing to Remain: Designation for existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1.04 REFERENCE STANDARDS

A. 29 CFR 1926 - Safety and Health Regulations for Construction Current Edition.
B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2022, with Errata (2021).

PART 3 EXECUTION

2.01 DEMOLITION

A. Remove paving and curbs required to accomplish new work.
B. Remove all other paving and curbs within site boundaries.
C. Remove concrete slabs on grade within site boundaries.
D. Remove fences and gates.
E. Remove other items indicated, for salvage, relocation, recycling, and _____.
F. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section 312200.

2.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
    1. Obtain required permits.
    2. Use of explosives is not permitted.
    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. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
7. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
8. 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.
9. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon, or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.
C. 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.
D. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

2.03 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.

2.04 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. Remove existing work as indicated and required to accomplish new work.
   1. Remove items indicated on drawings.
D. Services including, but not limited to, HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications: Remove existing systems and equipment as indicated.
   1. Maintain existing active systems to remain in operation, and maintain access to equipment and operational components.
   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.
   3. Verify that abandoned services serve only abandoned facilities before removal.

4. 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.

E. 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.

2.05 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.
B. Leave site in clean condition, ready for subsequent work.
C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

This page intentionally left blank

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Floors and slabs on grade.
B. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 031000 - Concrete Forming and Accessories: Forms and accessories for formwork.
B. Section 032000 - Concrete Reinforcing.
C. Section 079200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS

A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary 2019 (Reapproved 2022).
B. ACI PRC-211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide 2022.
C. ACI PRC-302.1 - Guide to Concrete Floor and Slab Construction 2015.
D. ACI PRC-304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).
E. ACI PRC-305 - Guide to Hot Weather Concreting 2020.
F. ACI PRC-306 - Guide to Cold Weather Concreting 2016.
G. ACI PRC-308 - Guide to External Curing of Concrete 2016.
H. ACI PRC-347 - Guide to Formwork for Concrete 2014 (Reapproved 2021).
I. ACI SPEC-117 - Specification for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).
J. ACI SPEC-301 - Specifications for Concrete Construction 2020.
K. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2022.
L. ASTM A767/A767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement 2019.
M. ASTM A884/A884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement 2019, with Editorial Revision (2020).
N. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2022.
O. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2023.
P. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2023.
Q. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens) 2021.
R. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.
S. ASTM C150/C150M - Standard Specification for Portland Cement 2022.
T. ASTM C157/C157M - Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete 2017.
U. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete 2020.
V. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method 2016.
W. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).
X. ASTM D994/D994M - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type) 2011 (Reapproved 2022).
Y. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) 2018.
Z. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers 2020.

AA. ASTM E1155M - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers (Metric) 2014.
BB. COE CRD-C 48 - Handbook for Concrete and Cement Standard Test Method for Water Permeability of Concrete 1992.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.
B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
C. Mix Design: Submit proposed concrete mix design.
    1. Indicate proposed mix design complies with requirements of ACI SPEC-301, Section 4 - Concrete Mixtures.
    2. Indicate proposed mix design complies with requirements of ACI CODE-318, Chapter 5 - Concrete Quality, Mixing and Placing.
D. Test Reports: Submit report for each test or series of tests specified.
E. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.
F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI SPEC-301 and ACI CODE-318.
B. Follow recommendations of ACI PRC-305 when concreting during hot weather.
C. Follow recommendations of ACI PRC-306 when concreting during cold weather.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 REINFORCEMENT MATERIALS

A. Comply with requirements of Section 032000.
B. Steel Welded Wire Reinforcement (WWR): REF. Civil.
    1. Form: REF. Civil.
    2. WWR Style: REF. Civil.

2.02 CONCRETE MATERIALS

A. REF. Civil drawings for Concrete Materials, finish and color.

2.03 ADMIXTURES

A. REF. Civil Drawings for admixtures.
B. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.04 ACCESSORY MATERIALS

A. REF Civil Drawings for Accessory Materials

2.05 CURING MATERIALS

A. REF. Civil Drawings for Curing Materials

2.06 CONCRETE MIX DESIGN

A. REF Civil Drawings for Concrete Mix Design
B. Admixtures: Add acceptable admixtures as recommended in ACI PRC-211.1 and at rates recommended or required by manufacturer.

2.07 MIXING

A. REF. Civil Drawings for Mixing Requirements.
B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

3.03 PLACING CONCRETE

A. REF Civil Drawings for Placeing Concrete.
B. Place concrete in accordance with ACI PRC-304.
C. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
D. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
E. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.04 SLAB JOINTING

A. Locate joints as indicated on drawings.
B. Anchor joint fillers and devices to prevent movement during concrete placement.
C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
D. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.

3.05 SEPARATE FLOOR TOPPINGS

A. Prior to placing floor topping, roughen substrate concrete surface and remove deleterious material. Broom and vacuum clean.
B. Place required dividers, edge strips, reinforcing, and other items to be cast in.
C. Apply bonding agent to substrate in accordance with manufacturer's instructions.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Maximum Variation of Surface Flatness:
   1. Exposed Concrete Floors: 1/4 inch in 10 feet.
   2. Under Seamless Resilient Flooring: 1/4 inch in 10 feet.
   3. Under Carpeting: 1/4 inch in 10 feet.

B. Correct the slab surface if tolerances are less than specified.
C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 CONCRETE FINISHING

A. Concrete Slabs: Finish to requirements of ACI PRC-302.1 and as follows:
   1. Surfaces to Receive Thick Floor Coverings: "Wood float" as described in ACI PRC-302.1; thick floor coverings include quarry tile, ceramic tile, and Portland cement terrazzo with full bed setting system.
   2. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI PRC-302.1; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
   3. Other Surfaces to Be Left Exposed: Trowel as described in ACI PRC-302.1, minimizing burnish marks and other appearance defects.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI PRC-308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
   1. Normal concrete: Not less than seven days.

2. High early strength concrete: Not less than four days.

C. Surfaces Not in Contact with Forms:
   1. Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.
   2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   3. Final Curing: Begin after initial curing but before surface is dry.

3.09 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.
B. Provide free access to concrete operations at project site and cooperate with appointed firm.
C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
D. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.
E. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
F. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.
G. Slab Testing: Cooperate with manufacturer of specified moisture vapor reducing admixture (MVRA) to allow access for sampling and testing concrete for compliance with warranty requirements.

3.10 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.
B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

3.11 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

3.12 SCHEDULE - CONCRETE TYPES AND FINISHES

A. Foundation Walls: 3,000 pounds per square inch 28 day concrete, form finish with honeycomb filled surface.
B. Underside of Supported Floors and Structure Exposed to View: 4,000 pounds per square inch 28 day concrete, form finish with honeycomb filled surface.
C. Exposed Portico Structure: 4,000 pounds per square inch 28 day concrete, air entrained, smooth rubbed finish.

END OF SECTION

SECTION 081113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 087100 - Door Hardware.

1.02 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
B. ANSI/SDI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames 2019.
C. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors 2022.
D. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames 2020.
E. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100) 2023.
F. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames 2020.
G. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures Most Recent Edition Cited by Referring Code or Reference Standard.
H. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2023.
I. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable 2021a.
J. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2023.
K. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
L. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames 2017.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.
B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.
C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.
D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.
B. Maintain at project site copies of reference standards relating to installation of products specified.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
   1. Ceco Door, an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.

2. Curries, an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
3. Steelcraft, an Allegion brand; ____: www.allegion.com/#sle.
4. Substitutions: See Section 016000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:
   1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
   2. Accessibility: Comply with ICC A117.1 and ADA Standards.
   3. Door Edge Profile: Manufacturers standard for application indicated.
   4. Typical Door Face Sheets: Flush.
   5. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
      a. Based on SDI Standards: Provide at least A40/ZF120 (galvannealed) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvannealed) for corrosive locations.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.
C. Doors shall be compatible with shipping contiainter modular building construction.

2.03 HOLLOW METAL DOORS

A. Door Finish: Factory primed and field finished.
B. Type ___ , Exterior Doors: Thermally insulated.
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 1 - Standard-duty.
      b. Physical Performance Level C, 250,000 cycles; in accordance with ANSI/SDI A250.4.
      c. Model 1 - Full Flush.
      d. Door Face Metal Thickness: 20 gauge, 0.032 inch, minimum.
   2. Door Core Material: Vertical steel stiffeners with fiberglass batts.
   3. Door Thermal Resistance: R-Value of ___.
   4. Door Thickness: 1-3/4 inches, nominal.

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
B. Frame Finish: Factory primed and field finished.
C. Exterior Door Frames: Knock-down type.
   1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
   2. Weatherstripping: Separate, see Section 087100.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.
B. Factory Finish: Complying with ANSI/SDI A250.3, manufacturer's standard coating.
   1. Color: As indicated on drawings.

2.06 ACCESSORIES

A. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
B. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
B. Coordinate frame anchor placement with wall construction.
C. Install door hardware as specified in Section 087100.
D. Touch up damaged factory finishes.

3.02 TOLERANCES

A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.03 ADJUSTING

A. Adjust for smooth and balanced door movement.

3.04 SCHEDULE

A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION

This page intentionally left blank

SECTION 083100
ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall-mounted access units.

1.02 RELATED REQUIREMENTS

A. Section 087100 - Door Hardware: Mortise cylinder and core hardware.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.
B. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications 2023.
C. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes 2023.
D. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes 2021a.
E. FM (AG) - FM Approval Guide Current Edition.
F. ITS (DIR) - Directory of Listed Products Current Edition.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.
B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.
C. Shop Drawings: Indicate exact position of each access door and/or panel unit.
D. Manufacturer's Installation Instructions: Indicate installation requirements.
E. Installer's qualification statement.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

PART 2 PRODUCTS

2.01 ACCESS DOORS AND PANELS ASSEMBLIES

A. Wall-Mounted Units with Return Air Grille:
   1. Size: 12 by 12 inches.

B. Wall-Mounted Units in Wet Areas:
   1. Location: As indicated on drawings.
   2. Panel Material: Steel, hot-dipped zinc, or zinc-aluminum-alloy coated.
   3. Size: 12 by 12 inches.
   4. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.
   5. Wall Mounting Criteria: Provide surface-mounted face frame and door surface flush with frame surface.
   6. Acess Panels must be compatable with storage container modular construction.

C. Ceiling-Mounted Units with Return Air Grille:
   1. Location: As indicated on drawings.
   2. Panel Material: Aluminum extrusion with gypsum board inlay.
   3. Size - Lay-In Grid Ceilings: To match module of ceiling grid.
   4. Size - Other Ceilings: 12 by 12 inches.
   5. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.

2.02 WALL- AND CEILING-MOUNTED ACCESS UNITS

A. Manufacturers:
   1. Activar Construction Products Group, Inc. - JL Industries; _____: www.activarcpg.com/#sle.
      a. Multipurpose Access Panel: Activar/JL Industries TM.
   2. ACUDOR Products Inc: www.acudor.com/#sle.

3. Babcock-Davis; _____: www.babcockdavis.com/#sle.
4. BAUCO Access Panel Solutions Inc: www.accesspanelsolutions.com/#sle.
5. Best Access Doors: www.bestaccessdoors.com/#sle.
6. Cendrex, Inc: www.cendrex.com/#sle.

B. Wall- and Ceiling-Mounted Units: Factory-fabricated door and frame, fully assembled units with corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.
1. Style: As indicated on drawings.
2. Door Style: Single thickness with rolled or turned in edges.
3. Steel Finish: Primed.
4. Primed and Factory Finish: Polyester powder coat; color _____.
5. Door/Panel Size: As indicated on the drawings.
6. Hardware:
a. Hinges for Non-Fire-Rated Units: Concealed, constant force closure spring type.
b. Latch/Lock: Screw driver slot for quarter turn cam latch.

2.03 WALL-MOUNTED ACCESS UNITS WITH RETURN AIR GRILLES

PART 3 EXECUTION

3.01 PREPARATION

A. Clean surfaces thoroughly prior to proceeding with this work.
B. Prepare surfaces using methods recommended by manufacturer for applicable substrates in accordance with project conditions.

3.02 INSTALLATION

A. Install units in accordance with manufacturer's instructions.
B. Install frames plumb and level in openings, and secure units rigidly in place.
C. Position units to provide convenient access to concealed equipment when necessary.

END OF SECTION

SECTION 083313
COILING COUNTER DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated coiling counter doors and operating hardware.

1.02 RELATED REQUIREMENTS

A. Section 061000 - Rough Carpentry: Rough openings.
B. Section 079200 - Joint Sealants: Sealing joints between frames and adjacent construction.
C. Section 087100 - Door Hardware: Cylinder cores and keys.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.
B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2023.
D. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2023.
E. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2021.
F. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric) 2021.
G. ITS (DIR) - Directory of Listed Products Current Edition.
H. UL (DIR) - Online Certifications Directory Current Edition.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.
B. Product Data: Submit manufacturer's standard literature showing materials and details of construction and finish. Include data on electrical operation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Coiling Counter Doors:
   1. Alpine Overhead Doors, Inc; Counter Shutter - Rolling Shutters: www.alpinedoors.com/#sle.
   2. C.H.I. Overhead Doors; Model 6522 (steel): www.chiohd.com/#sle.
   3. Raynor Garage Doors; DuraShutter, Model ___: www.raynor.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

2.02 COILING COUNTER DOORS

A. Coiling Counter Metal Doors, Non-Fire-Rated: Aluminum slat curtain.
   1. Mounting: Between jambs, within prepared opening.
   2. Provide integral frame and sill of same material and finish.
   3. Nominal Slat Size: 1-1/4 inches wide.
   4. Slat Profile: Flat, perforated.
   5. Finish, Aluminum: Anodized.
   6. Guides: Formed track; same material and finish unless otherwise indicated.
   7. Hood Enclosure: Manufacturer's standard; primed steel.
   8. Manual hand chain lift operation.
   9. Locking Devices: Lock and latch handle on outside.

2.03 COMPONENTS

A. Metal Curtain Construction: Interlocking, single-thickness slats.
   1. Slat Ends: Alternate slats fitted with end locks to act as wearing surface in guides and to prevent lateral movement.

2. Curtain Bottom: Fitted with angles to provide reinforcement and positive contact in closed position.
3. Aluminum Slats: ASTM B221 (ASTM B221M), aluminum alloy Type 6063; minimum thickness 0.05 inch.

B. Guide Construction: Continuous, of profile to retain door in place, with mounting brackets of same metal.
   1. Aluminum Guides: Extruded aluminum channel, with wool pile runners along inside.

C. Hood Enclosure: Internally reinforced to maintain rigidity and shape.
D. Lock Hardware:
   1. Latch Handle: Manufacturer's standard.
   2. Manual Chain Lift: Provide padlockable chain keeper on guide.

E. Roller Shaft Counterbalance: Steel pipe and torsion steel spring system, capable of producing torque sufficient to ensure smooth operation of curtain from any position and capable of holding position at mid-travel; with adjustable spring tension; requiring 25 lb nominal force to operate.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that adjacent construction is suitable for door installation.
B. Verify that electrical services have been installed and are accessible.
C. Verify that door opening is plumb, header is level, and dimensions are correct.
D. Notify Architect of any unacceptable conditions or varying dimensions.
E. Commencement of installation indicates acceptance of substrate and door opening conditions.

3.02 INSTALLATION

A. Install units in accordance with manufacturer's instructions.
B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

3.03 TOLERANCES

A. Maintain dimensional tolerances and alignment with adjacent work.
B. Maximum Variation From Plumb: 1/16 inch.
C. Maximum Variation From Level: 1/16 inch.
D. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch per 10 ft straight edge.

3.04 ADJUSTING

A. Adjust operating assemblies for smooth and noiseless operation.

3.05 CLEANING

A. Clean installed components.
B. Remove labels and visible markings.

END OF SECTION

SECTION 087100
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardware for wood, aluminum, hollow metal, and _____ doors.
B. Lock cylinders for doors that hardware is specified in other sections.
C. Thresholds.
D. Weatherstripping and gasketing.
E. Gate locks.

1.02 RELATED REQUIREMENTS

A. Section 062000 - Finish Carpentry: Wood door frames.
B. Section 079200 - Joint Sealants: Sealants for setting exterior door thresholds.
C. Section 080671 - Door Hardware Schedule: Schedule of door hardware sets.
D. Section 081113 - Hollow Metal Doors and Frames.
E. Section 083323 - Overhead Coiling Doors: Door hardware, except cylinders.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
B. BHMA (CPD) - Certified Products Directory Current Edition.
C. BHMA A156.1 - Standard for Butts and Hinges 2021.
D. BHMA A156.2 - Bored and Preassembled Locks and Latches 2022.
E. BHMA A156.5 - Cylinders and Input Devices for Locks 2020.
F. BHMA A156.6 - Standard for Architectural Door Trim 2021.
G. BHMA A156.7 - Template Hinge Dimensions 2016.
H. BHMA A156.13 - Mortise Locks & Latches Series 1000 2022.
I. BHMA A156.16 - Auxiliary Hardware 2023.
J. BHMA A156.18 - Materials and Finishes 2020.
K. BHMA A156.21 - Thresholds 2019.
L. BHMA A156.22 - Standard for Gasketing 2021.
M. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames 2016.
N. DHI (H&S) - Sequence and Format for the Hardware Schedule 2019.
O. DHI (KSN) - Keying Systems and Nomenclature 2019.
P. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames 2004.
Q. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
R. ITS (DIR) - Directory of Listed Products Current Edition.
S. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2022.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.
B. Keying Requirements Meeting:
    1. Attendance Required:
    2. Agenda:
    3. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:
    4. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.
    5. Deliver established keying requirements to manufacturers.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.
B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.

C. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
   1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
   2. Provide complete description for each door listed.

D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

E. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
   1. Submit manufacturer's parts lists and templates.

F. Keying Schedule:
   1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.

G. Installer's qualification statement.

H. Specimen warranty.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

1.08 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer's Warranty: Provide warranty against defects in material and workmanship for period indicated. Complete forms in Owner's name and register with manufacturer.
   1. Locksets and Cylinders: Three years, minimum.
   2. Other Hardware: Two years, minimum.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

B. Provide individual items of single type, of same model, and by same manufacturer.

C. Provide door hardware products that comply with the following requirements:
   1. Applicable provisions of federal, state, and local codes.
   2. Accessibility: ADA Standards and ICC A117.1.
   3. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.

D. Lock Function: Provide lock and latch function numbers and descriptions of manufacturer's series. See Door Hardware Schedule.

E. Fasteners:
   1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
      a. Aluminum fasteners are not permitted.
      b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.
   2. Provide machine screws for attachment to reinforced hollow metal and aluminum frames.
      a. Self-drilling (Tek) type screws are not permitted.
   3. Provide spacers or sex bolts with sleeves for through bolting of hollow metal doors and frames.
   4. Fire-Rated Applications: Comply with NFPA 80.

a. Provide wood or machine screws for hinges mortised to doors or frames, strike plates to frames, and closers to doors and frames.
b. Provide steel through bolts for attachment of surface mounted closers, hinges, or exit devices to door panels unless proper door blocking is provided.

2.02 HINGES

A. Manufacturers:
1. McKinney; an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
2. Bommer Industries, Inc; _____: www.bommer.com/#sle.
3. D&D Technologies USA, Inc; SureClose ConcealFit: www.ddtech.com/#sle.
4. Hager Companies; _____: www.hagerco.com/#sle.
5. Stanley, dormakaba Group; _____: www.stanleyhardwarefordoors.com/#sle.

B. Hinges: Comply with BHMA A156.1, Grade 1.
1. Butt Hinges: Comply with BHMA A156.1 and BHMA A156.7 for templated hinges.
a. Provide hinge width required to clear surrounding trim.
2. Provide hinges on every swinging door.
3. Provide non-removable pins on exterior outswinging doors.
4. Provide following quantity of butt hinges for each door:
a. Doors From 60 inches High up to 90 inches High: Three hinges.

2.03 CYLINDRICAL LOCKS

A. Manufacturers:
1. Corbin Russwin, Sargent, or Yale; an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
2. Best, dormakaba Group; _____: www.bestaccess.com/#sle. (Owner Preferred)
3. DORMA USA, Inc; C300 Series, C500 Series, C800 Series, CL700 Series, and CK700 Series: www.dorma.com/#sle.
4. Hager Companies; _____: www.hagerco.com/#sle.
5. Pamex, Inc; Cylindrical Locks: www.pamexinc.com/#sle.
6. Schlage, an Allegion brand; _____: www.allegion.com/us/#sle.
7. Stanley, dormakaba Group; _____: www.stanleyhardwarefordoors.com/#sle.
8. Substitutions: See Section 016000 - Product Requirements.

B. Cylindrical Locks (Bored): Comply with BHMA A156.2, Grade 1, 4000 Series.
1. Bored Hole: 2-1/8 inch diameter.
2. Latchbolt Throw: 1/2 inch, minimum.
3. Backset: 2-3/4 inch unless otherwise indicated.
4. Strikes: Provide manufacturer's standard strike for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
a. Finish: To match lock or latch.
5. Provide a lock for each door, unless otherwise indicated that lock is not required.
6. Provide an office lockset for swinging door where hardware set is not indicated.

2.04 MORTISE LOCKS

A. Manufacturers:
1. Corbin Russwin, Sargent, or Yale; an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
2. Best, dormakaba Group; _____: www.bestaccess.com/#sle.
3. DORMA USA, Inc; M9000 Series: www.dorma.com/#sle.
4. Hager Companies; _____: www.hagerco.com/#sle.
5. Schlage, an Allegion brand; _____: www.allegion.com/us/#sle.
6. Stanley, dormakaba Group; _____: www.stanleyhardwarefordoors.com/#sle.
7. Substitutions: See Section 016000 - Product Requirements.

B. Mortise Locks: Comply with BHMA A156.13, Grade 1, Security, 1000 Series.
1. Latchbolt Throw: 3/4 inch, minimum.
2. Deadbolt Throw: 1 inch, minimum.
3. Backset: 2-3/4 inch unless otherwise indicated.

4. Strikes: Provide manufacturer's standard strike for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
    a. Finish: To match lock or latch.

2.05 DOOR PULLS AND PUSH PLATES

A. Manufacturers:
1. Basis of Design: _____.
2. Rockwood; an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
3. Forms+Surfaces; _____: www.forms-surfaces.com/#sle.
4. Hager Companies; _____: www.hagerco.com/#sle.
5. Hiawatha, Inc, division of Activar Construction Products Group, Inc; _____: www.activarcpg.com/hiawatha/#sle.
6. Pamex, Inc; Door Pulls and Push Plates: www.pamexinc.com/#sle.
7. Trimco; _____: www.trimcohardware.com/#sle.
8. Substitutions: See Section 016000 - Product Requirements.

B. Door Pulls and Push Plates: Comply with BHMA A156.6.
1. Pull Type: Straight, unless otherwise indicated.
2. Push Plate Type: Flat, with square corners, unless otherwise indicated.
    a. Edges: Beveled, unless otherwise indicated.
3. Material: Aluminum, unless otherwise indicated.

2.06 PROTECTION PLATES

A. Manufacturers:
1. Basis of Design: _____.
2. Rockwood; an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
3. Hager Companies; _____: www.hagerco.com/#sle.
4. Hiawatha, Inc, an Activar Construction Products Group company; _____: www.activarcpg.com/hiawatha/#sle.
5. Ives, an Allegion brand; _____: www.allegion.com/us/#sle.
6. Pamex, Inc; Protection Plates: www.pamexinc.com/#sle.
7. Trimco; _____: www.trimcohardware.com/#sle.
8. Substitutions: See Section 016000 - Product Requirements.

B. Protection Plates: Comply with BHMA A156.6.
C. Metal Properties: Aluminum material.
1. Metal, Heavy Duty: Thickness 0.062 inch, minimum.

D. Edges: Beveled, on four sides unless otherwise indicated.
E. Fasteners: Countersunk screw fasteners.
F. Provide clear anti-microbial coating that is silver ion-based in wet areas.
G. Drip Guard: Provide at head of exterior doors unless covered by roof or canopy.

2.07 WALL STOPS

A. Manufacturers:
1. Hager Companies; _____: www.hagerco.com/#sle.
2. Hiawatha, Inc, division of Activar Construction Products Group, Inc; _____: www.activarcpg.com/hiawatha/#sle.
3. Pamex, Inc; Wall Stops: www.pamexinc.com/#sle.
4. Standard Metal Hardware Manufacturing Ltd; Wall Stops: www.smhardware.com/#sle.
5. Trimco; _____: www.trimcohardware.com/#sle.

B. Wall Stops: Comply with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.
1. Provide wall stops to prevent damage to wall surface upon opening door.
2. Type: Bumper, concave, wall stop.
3. Material: Aluminum housing with rubber insert.

2.08 THRESHOLDS

A. Manufacturers:

1. Pemko; an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
2. Hager Companies; _____: www.hagerco.com/#sle.
3. National Guard Products, Inc; _____: www.ngpinc.com/#sle.
4. Reese Enterprises, Inc; _____: www.reeseusa.com/#sle.
5. Zero International, Inc; _____: www.zerointernational.com/#sle.
6. Substitutions: See Section 016000 - Product Requirements.

B. Thresholds: Comply with BHMA A156.21.
1. Provide threshold at each exterior door, unless otherwise indicated.
2. Type: Flat surface.
3. Material: Aluminum.
4. Threshold Surface: Fluted horizontal grooves across full width.
5. Field cut threshold to profile of frame and width of door sill for tight fit.
6. Provide non-corroding fasteners at exterior locations.

2.09 WEATHERSTRIPPING AND GASKETING

A. Manufacturers:
1. Pemko; an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
2. Hager Companies; _____: www.hagerco.com/#sle.
3. National Guard Products, Inc; _____: www.ngpinc.com/#sle.
4. Reese Enterprises, Inc; _____: www.reeseusa.com/#sle.
5. Zero International, Inc; _____: www.zerointernational.com/#sle.
6. Substitutions: See Section 016000 - Product Requirements.

B. Weatherstripping and Gasketing: Comply with BHMA A156.22.
1. Head and Jamb Type: Adjustable.
2. Door Sweep Type: Encased in retainer.
3. Material: Aluminum, with brush weatherstripping.
4. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated.
5. Provide door bottom sweep on each exterior door, unless otherwise indicated.

2.10 GATE LATCH

A. Manufacturers:
B. Gate Latch: Provide to secure a gate used for traffic control to prevent pedestrian traffic into an area, located on inside of gate with turn piece.
1. Material: Brass.

2.11 PADLOCKS

A. Manufacturers:
1. Basis of Design: _____.
2. Best, dormakaba Group; _____: www.bestaccess.com/#sle.
3. Substitutions: See Section 016000 - Product Requirements.

B. Padlocks: Solid extruded brass case with shackle that locks at heel and toe.
1. Shackle Height: 3/4 inch, and width of opening is 7/8 inch.
2. Shackle Material: Brass.
3. Shackle Diameter: 1/4 inch.
4. Finish: 606 - Satin Brass.
5. Keying: 7-pin SFIC (Small Format Interchangeable Core).
6. Lock Functions:
a. Key retained (T).
b. Weather cover (WC).

2.12 SIGNAGE

A. Manufacturers:
1. Rockwood; an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
2. Substitutions: See Section 016000 - Product Requirements.

B. Signage (Room Name Plates and Numbers): Provide on doors for individuals to easily identify room names and/or numbers.
   1. Text Required: "RESTROOM" with symbols and braille text.
   2. Material: In plastic or metal with paint used to create necessary text, adhered to door.

2.13 SILENCERS

A. Manufacturers:
   1. Ives, an Allegion brand; _____: www.allegion.com/us/#sle.
   2. Rockwood; an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
   3. Substitutions: See Section 016000 - Product Requirements.

B. Silencers: Provide at equal locations on door frame to mute sound of door's impact upon closing.
   1. Single Door: Provide three on strike jamb of frame.
   2. Pair of Doors: Provide two on head of frame, one for each door at latch side.
   3. Material: Rubber, gray color.

2.14 FIRE DEPARTMENT LOCK BOX

A. Manufacturers:
   1. Knox Company; Knox-Box Rapid Entry System, _____: www.knoxbox.com/#sle.
   2. Substitutions: See Section 016000 - Product Requirements.

B. Fire Department Lock Box:
   1. Heavy-duty, surface mounted, solid stainless-steel box with hinged door and interior gasket seal; single drill resistant lock with dust covers and tamper alarm.
   2. Capacity: Holds 10 keys.
   3. Finish: Manufacturer's standard dark bronze.

2.15 FINISHES

A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
   1. Primary Finish: 625; bright chromium plated over nickel, with brass or bronze base material (former US equivalent US26); BHMA A156.18.
   2. Secondary Finish: 626; satin chromium plated over nickel, with brass or bronze base material (former US equivalent US26D); BHMA A156.18.
      a. Use secondary finish in kitchens, bathrooms, and other spaces containing chrome or stainless steel finished appliances, fittings, and equipment; provide primary finish on one side of door and secondary finish on other side if necessary.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.
B. Use templates provided by hardware item manufacturer.
C. Do not install surface mounted items until application of finishes to substrate are fully completed.
D. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.
   1. For Steel Doors and Frames: Install in compliance with DHI (LOCS) recommendations.
   2. Mounting heights in compliance with ADA Standards:
      a. Locksets: 40-5/16 inch.
      b. Push Plates/Pull Bars: 42 inch.
      c. Deadlocks (Deadbolts): 48 inch.

E. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel

countersunk screws.

3.03 FIELD QUALITY CONTROL

A. Perform field inspection and testing under provisions of Section 014000 - Quality Requirements.

3.04 ADJUSTING

A. Adjust work under provisions of Section 017000 - Execution and Closeout Requirements.
B. Adjust hardware for smooth operation.
C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING

A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.
B. Clean adjacent surfaces soiled by hardware installation.
C. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.06 PROTECTION

A. Protect finished Work under provisions of Section 017000 - Execution and Closeout Requirements.
B. Do not permit adjacent work to damage hardware or finish.

END OF SECTION

This page intentionally left blank

SECTION 096723
RESINOUS FLOORING

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes:
   1. High-performance resinous flooring systems.

1.02 SUBMITTALS

A. Product Data: For each type of product indicated.
   1. Data must state that moisture testing is not required

B. Installer Certificates for Qualification: Signed by manufacturer certifying that installers comply with specified requirements.

C. Material Certificates: For each resinous flooring component, from manufacturer.

D. Material Test Reports: For each resinous flooring system.

E. Maintenance Data: For maintenance manuals.

F. Samples: Submit one sample of coating, indicating coating applied on horizontal surfaces. Sample shall illustrate transition from Resinous Flooring system. Provide sample which is a true representation of proposed field applied finish-created by the contractor; not laboratory applied finish. Provide minimum 12 feet by 4 feet field sample color and four (4) texture options for owner approval as a mockup at location designated by General Contractor for review and written approval prior to installation of any other areas.

G. Product Schedule: For resinous flooring.

1.03 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of flooring systems required for this Project.
   1. Engage an installer who is approved in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
   2. Installer Letter of Certification: Installer to provide letter stating that they have been in business for at least 10 years and listing 5 projects in the last 2 years of similar scope. For each project provide: project name, location, date of installation, contact information, size of project, and manufacturer of materials with system information.

B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.

C. Pre-installation Conference: Conduct conference at Project site before work and mockups begin.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

1.05 PROJECT CONDITIONS

A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.

B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.

C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application unless manufacturer recommends a longer period.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by:
   1. The Sherwin Williams Company, Cleveland, OH. swflooring@sherwin.com

B. Basis of Design: FasTop Multi Topfloor SL45
   1. Cove Base (Optional): FasTop Multi Cove Base, 15-20 linear feet per kit at 6” with 1” radius.
   2. Primer (Optional for outgassing): Resuflor Aqua 3477 at 250 sq. ft. per gallon.
   3. Slurry (1/4”): Fastop Multi SL45 @ 32-35 sq. ft. per unit.
   4. Broadcast: 5310 Dry Silica (20-40 mesh) into wet slurry.
   5. Topcoat: FasTop Multi T100, cementitious urethane topcoat, 15 mils.
   6. Total System Thickness 1/4” nominal.

2.02 MATERIALS

A. VOC Content of Resinous Flooring: Provide resinous flooring systems, for use inside the weatherproofing system, that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24)].
   1. Resinous Flooring: 100 g/L.

2.03 HIGH-PERFORMANCE RESINOUS FLOORING

A. Resinous Flooring: Abrasion-, impact- and chemical-resistant, high-performance, resin-based, monolithic floor surfacing designed to produce a seamless floor.

B. System Characteristics:
   1. Color and Pattern: As indicated from manufacturers listed above.
   2. Slip Resistance: Provide slip resistant finish.

PART 3 EXECUTION

3.01 PREPARATION

A. Inspection: Prior to commencing Work, thoroughly examine all underlying and adjoining work, surfaces and conditions upon which Work is in any way dependent for perfect results. Report all conditions which affect Work. No "waiver of responsibility" for incomplete, inadequate or defective underlaying and adjoining work, surfaces and conditions will be considered, unless notice of such unsatisfactory conditions has been filed and agreed to in writing before Work begins. Commencement of Work constitutes acceptance of surfaces.

B. USE ONLY MOISTURE INSENSITVE SYSTEMS, that require no moisture testing and warrantied by manufacturer. No systems allowed that require moisture testing.

C. Only installers approved by the manufacturer in writing shall perform installation of the material.

D. Surface Preparation: Remove all surface contamination, loose or weakly adherent particles, laitance, grease, oil, curing compounds, paint, dust and debris by blast track method or approved mechanical means (acid etch not allowed). If surface is questionable, try a test patch. Create a minimum surface profile for the system specified in accordance with the methods described in ICRI No. 03732 to achieve CSP 4.

3.02 ENVIRONMENTAL CONDITIONS

A. All applicators and all other personnel in the area of the RF installation shall take all required and necessary safety precautions. All manufacturers’ installation instructions shall be implicitly instructions shall be implicitly followed.

B. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.

C. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after

substrates pass testing.

D. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

E. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

F. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

3.03 APPLICATIONS

A. Install resinous floor over properly prepared concrete surface in strict accordance with the manufacturer's directions.
   1. Install the primer and/or base coats over thoroughly cleaned and prepared concrete.
   2. Install topcoat over flooring after excess aggregate has been removed.
   3. Maintain a slab temperature of 60°F to 80°F for 24 hours minimum before applying floor topping.

B. Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
   1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
   2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
   3. At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.

C. Sealant: Saw cut resinous floor topping at expansion joints in concrete slab. Fill sawcuts with sealant prior to final seal coat application. Follow manufacturer’s written recommendations.

D. Apply primer over prepared substrate at manufacturer's recommended spreading rate.

E. Slip Resistant Finish: Provide grit for slip resistance.

F. Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.

3.04 COMPLETED WORK

A. Cleaning: Upon completion of the Work, clean up and remove from the premises surplus materials, tools, appliances, empty cans, cartons and rubbish resulting from the Work. Clean off all spattering and drippings, and all resulting stains.

B. Protection: Protect Work in accordance with manufacturer's directions from damage and wear during the remainder of the construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.

C. Contractor shall insure that coating is protected from any traffic until it is fully cured to the satisfaction of the coating manufacturer.

END OF SECTION

This page intentionally left blank

SECTION 099123
INTERIOR PAINTING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes surface preparation and the application of paint systems on [interior substrates.] [the following interior substrates:]
   1. Concrete.
   2. Clay masonry.
   3. Concrete masonry units (CMU).
   4. Steel.
   5. Cast iron.
   6. Galvanized metal.
   7. Aluminum (not anodized or otherwise coated).
   8. Wood.
   9. Gypsum board.
   10. Plaster.
   11. Spray-textured ceilings.
   12. Cotton or canvas insulation covering.
   13. ASJ insulation covering.

B. Related Requirements:
   1. Section 051200 "Structural Steel Framing" for shop priming of metal substrates with primers specified in this section.
   2. Section 099113 "Exterior Painting" for surface preparation and the application of paint systems on exterior substrates.
   3. Section 099300 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on interior wood substrates.
   4. Section 099600 "High-Performance Coatings" for tile-like coatings.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.
   1. Indicate VOC content.

B. Sustainable Design Submittals:
   1. Product Data for LEED 2009 Credit EQ 4.2: For paints and coatings, showing printed statement of VOC content.
   2. Laboratory Test Reports: For paints and coatings, indicating compliance with LEED 2009 Credit EQ 4.2 requirements for low-emitting materials.

C. Samples for Initial Selection: For each type of topcoat product.

D. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
   1. Submit Samples on rigid backing, 8 inches (200 mm) square.
   2. Label each coat of each Sample.
   3. Label each Sample for location and application area.

E. Product List: For each product indicated, include the following:
   1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
   2. Indicate VOC content.

1.04 CLOSEOUT SUBMITTALS

1. Coating Maintenance Manual: Provide coating maintenance manual including area summary with finish schedule, area detail designating location where each product/color/finish was used, product data pages, material safety data sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.05 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 gal. (3.8 L)] of each material and color applied.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacturer’s label with the following information:
   1. Product name and type (description).
   2. Batch date.
   3. Color number.
   4. VOC content.
   5. Environmental handling requirements.
   6. Surface preparation requirements.
   7. Application instructions.

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

1.07 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

C. Lead Paint: It is not expected that lead paint will be encountered in the Work.
   1. If suspected lead paint is encountered, do not disturb; immediately notify Architect and Owner.

D. Lead Paint: Lead paint [is] [may be] present in buildings and structures to be painted. A report on the presence of lead paint is on file for review and use. Examine report to become aware of locations where lead paint is present.
   1. Do not disturb lead paint or items suspected of containing hazardous materials except under procedures specified.
   2. Perform preparation for painting of substrates known to include lead paint in accordance with EPA Renovation, Repair and Painting Rule and additional requirements of authorities having jurisdiction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); products indicated or comparable product from one of the following:

B. Comparable Products: Comparable products of approved manufacturers will be considered in accordance with Section 016000 "Product Requirements," and the following:
   1. Products are approved by manufacturer in writing for application specified.

2. Products meet performance and physical characteristics of basis of design product including published ratio of solids by volume, plus or minus two percent.

C. Source Limitations: Obtain paint materials from single source from single listed manufacturer.
1. Manufacturer's designations listed on a separate color schedule are for color reference only and do not indicate prior approval.

2.02 PAINT, GENERAL

A. 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.

B. VOC Content: For field applications that are inside the weatherproofing system, paints and coatings shall provide materials that 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.
4. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
5. Floor Coatings: 100 g/L.
6. Shellacs, Clear: 730 g/L.
7. Shellacs, Pigmented: 550 g/L.

C. 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."

D. Colors: [As selected by Architect from manufacturer's full range] [Match Architect's samples] [As indicated in a color schedule] .
1. [10] [20] [30] percent of surface area will be painted with deep tones.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.
1. Report, in writing, conditions that may affect application, appearance, or performance of paint.

B. Substrate Conditions:
1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
a. Concrete: 12 percent.
b. Masonry (Clay and CMU): 12 percent.
c. Wood: 15 percent.
d. Gypsum Board: 12 percent.
e. Plaster: 12 percent.
2. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
3. Plaster Substrates: Verify that plaster is fully cured.
4. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.

C. Proceed with coating application only after unsatisfactory conditions have been corrected; application of coating indicates acceptance of surfaces and conditions.

3.02 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
   1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
   1. Concrete Floors: Remove oil, dust, grease, dirt, and other foreign materials. Comply with SSPC-SP-13/NACE 6 or ICRI 03732.

E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.

F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer[.] [but not less than the following:]
   1. SSPC-SP 2, "Hand Tool Cleaning."
   2. SSPC-SP 3, "Power Tool Cleaning."
   3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
   4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."

G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

I. Aluminum Substrates: Remove loose surface oxidation.

J. Wood Substrates:
   1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
   2. Sand surfaces that will be exposed to view, and dust off.
   3. Prime edges, ends, faces, undersides, and backsides of wood.
   4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

K. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.03 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
   1. Use applicators and techniques suited for paint and substrate indicated.
   2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.

3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
1. Paint the following work where exposed in equipment rooms:
    a. Equipment, including panelboards[and switch gear].
    b. Uninsulated metal piping.
    c. Uninsulated plastic piping.
    d. Pipe hangers and supports.
    e. Metal conduit.
    f. Plastic conduit.
    g. Tanks that do not have factory-applied final finishes.
    h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    i. .
2. Paint the following work where exposed in occupied spaces:
    a. Equipment, including panelboards.
    b. Uninsulated metal piping.
    c. Uninsulated plastic piping.
    d. Pipe hangers and supports.
    e. Metal conduit.
    f. Plastic conduit.
    g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    h. Other items as directed by Architect.
    i. .
3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.04 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.05 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.06 INTERIOR MICROBICIDAL PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces[and Clay Masonry]:
   1. Microbicidal Latex Finish System: With topcoat EPA registered No. 64695-1.
      a. Prime Coat: Primer sealer, latex, interior:
         1) S-W Loxon Concrete & Masonry Primer Sealer, A24W8300, at 8.0 mils (0.203 mm) wet, 3.2 mils (0.081 mm) dry.
      b. First Coat: Microbicidal Latex, interior, matching topcoat.
      c. Topcoat: Microbicidal Latex, interior, eggshell:
         1) S-W Paint Shield Interior Latex Eg-Shel Microbicidal Paint, D12W51, at 4.0 mils (0.102 mm) wet, 1.8 mils (0.046 mm) dry, per coat. Brush and roll application only.

B. CMU Substrates:
   1. Microbicidal Latex Finish System: With topcoat EPA registered No. 64695-1.
      a. Block Filler: [One or two coats as required:] Block filler, latex, interior/exterior:
         1) S-W Loxon Block Surfacer, A24W200, at 10.0 mils (0.254 mm) wet, 8.0 mils (0.203 mm) dry, per coat.
      b. First Coat: Microbicidal Latex, interior, matching topcoat.
      c. Topcoat: Microbicidal Latex, interior, eggshell:
         1) S-W Paint Shield Interior Latex Eg-Shel Microbicidal Paint, D12W51, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat. Brush and roll application only.

C. Wood Substrates: Including exposed wood items not indicated to receive shop-applied finish.
   1. Microbicidal Latex Finish System: With topcoat EPA registered No. 64695-1.
      a. Prime Coat: Primer, latex, interior, anti-microbial:
         1) S-W PrepRite ProBlock Interior/Exterior Latex Primer/Sealer, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry.
      b. First Coat: Microbicidal Latex, interior, matching topcoat.
      c. Topcoat: Microbicidal Latex, interior, eggshell:
         1) S-W Paint Shield Interior Latex Eg-Shel Microbicidal Paint, D12W51, at 4.0 mils (0.102 mm) wet, 1.8 mils (0.046 mm) dry, per coat. Brush and roll application only.

D. [Gypsum Board] [Plaster] [and] [Spray-Texture Ceiling] Substrates:
   1. Microbicidal Latex Finish System: With topcoat EPA registered No. 64695-1.
      a. Prime Coat: Primer, latex, interior:
         1) S-W ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils (0.102 mm) wet, 1.0 mils (0.025 mm) dry.
      b. First Coat: Microbicidal Latex, interior, matching topcoat.
      c. Topcoat: Microbicidal Latex, interior, eggshell:
         1) S-W Paint Shield Interior Latex Eg-Shel Microbicidal Paint, D12W51, at 4.0 mils (0.102 mm) wet, 1.8 mils (0.046 mm) dry, per coat. Brush and roll application only.

3.07 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces[and Clay Masonry]:
   1. Latex System:
      a. Prime Coat: Primer, latex, interior.

1) S-W Loxon Concrete & Masonry Primer Sealer, A24W8300, at 8.0 mils (0.203 mm) wet, 3.2 mils (0.081 mm) dry.

b. Intermediate Coat: Latex, interior, matching topcoat.

c. Topcoat: Latex, interior, flat.

1) S-W ProMar 200 Zero VOC Latex Flat, B30-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.

d. Topcoat: Latex, interior, low sheen.

1) S-W ProMar 200 Zero VOC Latex Low Sheen Eg-Shel, B24-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.

e. Topcoat: Latex, interior, eggshell.

1) S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils (0.102 mm) wet, 1.7 mils (0.043 mm) dry, per coat .

f. Topcoat: Latex, interior, semi-gloss.

1) S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat .

g. Topcoat: Latex, interior, gloss.

1) S-W ProMar 200 Zero VOC Gloss, B21-12650 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry, per coat.

2. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer sealer, latex, interior:

1) S-W Loxon Concrete & Masonry Primer Sealer, A24W8300, at 8.0 mils (0.203 mm) wet, 3.2 mils (0.081 mm) dry.

b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.

c. Topcoat: Light industrial coating, interior, water based, eggshell:

1) S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.

d. Topcoat: Light industrial coating, interior, water based, semi-gloss:

1) S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.

3. Two-Component Epoxy and Epoxy High Build Systems for Non-Traffic Surfaces: Refer to Section 099600 "High-Performance Coatings."

4. Concrete Stain System (Water-based) for Vertical Surfaces:

a. First Coat:

1) S-W H&C Colortop Water-Based Solid Color Concrete Stain, at 50 to 300 sq. ft. per gal. (1.23 to 7.36 sq. m per liter).

b. Second Coat:

1) S-W H&C Colortop Water-Based Solid Color Concrete Stain, at 50 to 300 sq. ft. per gal. (1.23 to 7.36 sq. m per liter).

B. Concrete Substrates, Pedestrian Traffic Surfaces:

1. Latex Floor Enamel System:

a. First Coat: Floor paint, latex, slip-resistant, matching topcoat.

b. Topcoat: Floor paint, latex, slip-resistant, low gloss: S-W ArmorSeal Tread-Plex, B90 Series, at 1.5 to 2.0 mils (0.038 to 0.051 mm) dry per coat.

2. Clear Acrylic System, Gloss Finish:

a. First Coat:

1) S-W H&C Clarishield Water-Based Wet-Look Concrete Sealer, at 100 to 200 sq. ft. per gal. (2.45 to 4.91 sq. m per liter).

b. Second Coat:

1) S-W H&C Clarishield Water-Based Wet-Look Concrete Sealer, at 100 to 200 sq. ft. per gal. (2.45 to 4.91 sq. m per liter).

3. Concrete Stain System (Water-based):

a. First Coat: Low-luster opaque finish:

1) S-W H&C Colortop Water-Based Solid Color Concrete Stain, at 50 to 300 sq. ft. per gal. (1.23 to 7.36 sq. m per liter).

b. Second Coat: Low-luster opaque finish:
1) S-W H&C Colortop Water-Based Solid Color Concrete Stain, at 50 to 300 sq. ft. per gal. (1.23 to 7.36 sq. m per liter).

4. Epoxy and Urethane Coatings: Refer to Section 099600 "High-Performance Coatings."
5. Epoxy- and Urethane- Based Aggregate-Filled Floor Surfacing: Refer to Section 09 67 23 "Resinous Flooring."

C. CMU Substrates:
1. Latex System:
a. Block Filler: Block filler, latex, interior/exterior:
1) S-W PrepRite Block Filler, B25W25, at 75-125 sq. ft. per gal. (1.84 to 3.07 sq. m per liter).
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat:
1) S-W ProMar 200 Zero VOC Latex Flat, B30-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
d. Topcoat: Latex, interior, low sheen:
1) S-W ProMar 200 Zero VOC Latex Low Sheen Enamel, B24-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
e. Topcoat: Latex, interior, eggshell:
1) S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils (0.102 mm) wet, 1.7 mils (0.043 mm) dry, per coat.
f. Topcoat: Latex, interior, semi-gloss:
1) S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
g. Topcoat: Latex, interior, gloss:
1) S-W ProMar 200 Zero VOC Gloss, B21-12650 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
2. Water-Based Light Industrial Coating System:
a. Block Filler: Block filler, latex, interior/exterior:
1) S-W PrepRite Block Filler, B25W25, at 75-125 sq. ft. per gal. (1.84 to 3.07 sq. m per liter).
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based, eggshell:
1) S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
d. Topcoat: Light industrial coating, interior, water based, semi-gloss:
1) S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
3. Concrete Stain System (Water-based):
a. First Coat:
1) S-W H&C Colortop Water-Based Solid Color Concrete Stain, at 50 to 300 sq. ft. per gal. (1.23 to 7.36 sq. m per liter).
b. Second Coat:
1) S-W H&C Colortop Water-Based Solid Color Concrete Stain, at 50 to 300 sq. ft. per gal. (1.23 to 7.36 sq. m per liter).
4. Two-Component Epoxy and Epoxy High Build Systems for Non-Traffic Surfaces: Refer to Section 099600 "High-Performance Coatings."
5. Epoxy and Urethane Coatings: Refer to Section 099600 "High-Performance Coatings."

D. Metal Substrates (Aluminum, Steel, Galvanized Steel):
1. Latex System:
a. Prime Coat: Primer, rust-inhibitive, water based:
1) S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) wet, 2.0 to 4.0 mils (0.051 to 0.102 mm) dry.
b. Intermediate Coat: Water-based acrylic, interior, matching topcoat.

c. Topcoat: Water-based acrylic, semi-gloss:
1) S-W Pro Industrial Acrylic Semi-Gloss Coating, B66-650 Series, at 2.5 to 4.0 mils (0.064 to 0.102 mm) dry, per coat.
d. Topcoat: Water-based acrylic, gloss:
1) S-W Pro Industrial Acrylic Gloss Coating, B66-660 Series, at 2.5 to 4.0 mils (0.064 to 0.102 mm) dry, per coat.

2. Water-Based Dry-Fall System:
a. Top Coat: Dry-fall latex, flat:
1) S-W Pro Industrial Waterborne Acrylic Dryfall Flat, B42-181 Series, at 6.0 mils (0.152 mm) wet, 1.5 mils (0.038 mm) dry.
b. Top Coat: Dry-fall latex, eggshell:
1) S-W Pro Industrial Waterborne Acrylic DryFall Eg-Shel, B42-82, at 6.0 mils (0.152 mm) wet, 1.9 mils (0.048 mm) dry.
c. Top Coat: Dry-fall latex, semi-gloss:
1) S-W Pro Industrial Waterborne Acrylic DryFall Semi-Gloss, B42-83, at 5.8 mils (0.147 mm) wet, 2.3 mils (0.058 mm) dry.

3. Water-Based Light Industrial Coating System:
a. Prime Coat: Primer, rust-inhibitive, water based:
1) S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) wet, 2.0 to 4.0 mils (0.051 to 0.102 mm) dry.
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based, eggshell:
1) S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
d. Topcoat: Light industrial coating, interior, water based, semi-gloss:
1) S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.

4. Two-Component Epoxy and Epoxy High Build Systems: Refer to Section 099600 "High-Performance Coatings."

5. Waterbased/Alkyd Urethane System:
a. Prime Coat:
1) S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) wet, 2.0 to 4.0 mils (0.051 to 0.102 mm) dry.
b. Intermediate Coat: Water-based acrylic-alkyd, interior, matching topcoat.
c. Topcoat: Water-based alkyd-urethane, semi-gloss, interior:
1) S-W Pro Industrial Waterbased Alkyd Urethane Semi-Gloss, B53-1150 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry, per coat.
d. Topcoat: Water-based alkyd-urethane, gloss, interior:
1) S-W Pro Industrial Waterbased Alkyd Urethane Gloss, B53-1050 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry, per coat.

E. Wood Substrates: Including exposed wood items not indicated to receive shop-applied finish.
1. Latex System:
a. Prime Coat: Primer sealer, latex, interior:
1) S-W PrepRite ProBlock Primer Sealer, B51-620 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, eggshell:
1) S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils (0.102 mm) wet, 1.7 mils (0.043 mm) dry, per coat.
d. Topcoat: Latex, interior, semi-gloss:
1) S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
e. Topcoat: Latex, interior, gloss:

1) S-W ProMar 200 Zero VOC Gloss, B21-12650 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.

2. Waterbased/Alkyd Urethane System:
   a. Prime Coat: Primer sealer, latex, interior:
      1) S-W Premium Wall & Wood Primer, B28W8111, at 4.0 mils (0.102 mm) wet, 1.8 mils (0.046 mm) dry.
   b. Intermediate Coat: Water-based alkyd-urethane, interior, matching topcoat.
   c. Topcoat: Water-based alkyd-urethane, semi-gloss, interior:
      1) S-W Pro Industrial Waterbased Alkyd Urethane Semi-Gloss, B53-1150 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry, per coat.
   d. Topcoat: Water-based alkyd-urethane, gloss, interior:
      1) S-W Pro Industrial Waterbased Alkyd Urethane Gloss, B53-1050 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry, per coat.
3. Water-Based Light Industrial Coating System:
   a. Prime Coat: Primer sealer, latex, interior:
      1) S-W PrepRite ProBlock Primer Sealer, B51-620 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry.
   b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   c. Topcoat: Light industrial coating, interior, water based, eggshell:
      1) S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
   d. Topcoat: Light industrial coating, interior, water based, semi-gloss:
      1) S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
4. Two-Component Epoxy and Epoxy High Build Systems: Refer to Section 099600 "High-Performance Coatings."

F. Wood Substrates, Pedestrian Traffic Surfaces:
   1. Latex Floor Enamel System:
      a. First Coat: Floor paint, latex, slip-resistant, matching topcoat.
      b. Topcoat: Floor paint, latex, slip-resistant, low gloss:
         1) S-W ArmorSeal Tread-Plex, B90 Series, at 1.5 to 2.0 mils (0.038 to 0.051 mm) dry per coat.

G. [Gypsum Board] [Plaster] [and] [Spray-Texture Ceiling] Substrates:
   1. Latex System:
      a. Prime Coat: Primer, latex, interior:
         1) S-W ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils (0.102 mm) wet, 1.0 mils (0.025 mm) dry.
      b. Intermediate Coat: Latex, interior, matching topcoat.
      c. Topcoat: Latex, interior, flat:
         1) S-W ProMar 200 Zero VOC Latex Flat, B30-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
      d. Topcoat: Latex, interior, low sheen:
         1) S-W ProMar 200 Zero VOC Latex Low Sheen Enamel, B24-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
      e. Topcoat: Latex, interior, eggshell:
         1) S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils (0.102 mm) wet, 1.7 mils (0.043 mm) dry, per coat.
      f. Topcoat: Latex, interior, semi-gloss:
         1) S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
      g. Topcoat: Latex, interior, gloss:
         1) S-W ProMar 200 Zero VOC Gloss, B21-12650 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
   2. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer sealer, latex, interior:
   1) S-W ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils (0.102 mm) wet, 1.0 mils (0.025 mm) dry.
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based, eggshell:
   1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
d. Topcoat: Light industrial coating, interior, water based, semi-gloss:
   1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.

3. Two-Component Epoxy and Epoxy High Build Systems for Non-Traffic Surfaces: Refer to Section 099600 "High-Performance Coatings."

END OF SECTION

This page intentionally left blank

SECTION 099600
HIGH PERFORMANCE COATINGS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes surface preparation and the application of high-performance coating systems[.][on the following substrates:]
   1. Exterior Substrates:
      a. Concrete, horizontal surfaces.
      b. Concrete masonry units (CMU).
      c. Steel.
      d. Galvanized metal.
      e. Aluminum (not anodized or otherwise coated).
   2. Interior Substrates:
      a. Concrete, [vertical] [and] [horizontal] surfaces.
      b. Concrete masonry units (CMU).
      c. Steel.
      d. Galvanized metal.
      e. Aluminum (not anodized or otherwise coated).
      f. Gypsum board.

B. Related Requirements:
   1. Section 051200 "Structural Steel Framing" for shop priming of metal substrates with primers specified in this Section.
   2. Section 055213 "Pipe and Tube Railings" for shop [priming] [painting] pipe and tube railings with coatings specified in this Section.
   3. Section 099113 "Exterior Painting" for special-use coatings and general field painting.
   4. Section 099123 "Interior Painting" for special-use coatings and general field painting.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include preparation requirements and application instructions.
   1. Indicate VOC content.

B. Sustainable Design Submittals:
   1. Product Data for LEED 2009 Credit EQ 4.2: For paints and coatings, include printed statement of VOC content.
   2. Laboratory Test Reports for LEED 2009 Credit EQ 4.2: For paints and coatings, indicating compliance with requirements for low-emitting materials.

C. Samples for Initial Selection: For each type of topcoat product indicated.

D. Samples for Verification: For each type of coating system and in each color and gloss of topcoat indicated.
   1. Submit Samples on rigid backing, 8 inches (200 mm) square.
   2. Label each coat of each Sample.
   3. Label each Sample for location and application area.

E. Product List: For each product indicated, include the following:
   1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
   2. VOC content.

1.04 CLOSEOUT SUBMITTALS

A. Coating Maintenance Manual: Provide coating maintenance manual including area summary with finish schedule, area detail designating location where each product/color/finish was used, product data pages, material safety data sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.05 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 gal. (3.8 L)] of each material and color applied.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacture’s label with the following information:
   1. Product name and type (description).
   2. Batch date.
   3. Color number.
   4. VOC content.
   5. Environmental handling requirements.
   6. Surface preparation requirements.
   7. Application instructions.

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

1.07 FIELD CONDITIONS

A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply coatings when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

C. Do not apply exterior coatings in snow, rain, fog, or mist.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
   1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

E. Hazardous Materials: Hazardous materials including lead paint [are] [may be] present in buildings and structures to be painted. A report on the presence of known hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
   1. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified.
   2. Perform preparation for painting of substrates known to include lead paint in accordance with EPA Renovation, Repair and Painting Rule and additional requirements of authorities having jurisdiction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); products indicated or comparable product from one of the following:

B. Comparable Products: Comparable products of approved manufacturers will be considered in accordance with Section 016000 "Product Requirements," and the following:
   1. Products are approved by manufacturer in writing for application specified.
   2. Products meet performance and physical characteristics of basis of design product including published ratio of solids by volume, plus or minus two percent.

C. Source Limitations: Obtain paint materials from single source from single listed manufacturer.
   1. Manufacturer's designations listed on a separate color schedule are for color reference only and do not indicate prior approval.

2.02 HIGH-PERFORMANCE COATINGS, GENERAL

A. Material Compatibility:
   1. Provide materials for use within each coating 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 coating system, provide products recommended in writing by manufacturers of topcoat for use in coating system and on substrate indicated.
   3. Provide products of same manufacturer for each coat in a coating system.

B. VOC Content: For field applications that are inside the weatherproofing system, paints and coatings shall comply with VOC content limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC content 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.
   4. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
   5. Floor Coatings: 100 g/L.
   6. Shellacs, Clear: 730 g/L.
   7. Shellacs, Pigmented: 550 g/L.

C. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Service's "Standard Practice for the Testing of Volatile Organic Chemical Emissions from Various Sources Using Small Scale Environmental Chambers."

D. Colors: [As selected by Architect from manufacturer's full range] [Match Architect's samples] [As indicated in color schedule] .

2.03 SOURCE QUALITY CONTROL

A. Testing of Coating Materials: Owner reserves the right to invoke the following procedure:
   1. Owner will engage the services of a qualified testing agency to sample coating materials. Contractor will be notified in advance and may be present when samples are taken. If coating materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
   2. Testing agency will perform tests for compliance with product requirements.
   3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. Contractor will be required to remove rejected materials from previously coated surfaces if, on recoating with complying materials, the two coatings are incompatible.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify

suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.

1. Report in writing conditions that may affect application, appearance, or performance of paint.

B. Substrate Conditions:

1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
   a. Concrete: 12 percent.
   b. Concrete Masonry: 12 percent.
   c. Gypsum Board: 12 percent.
2. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
3. Plaster Substrates: Verify that plaster is fully cured.

C. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected; application of coating indicates acceptance of surfaces and conditions.

3.02 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. Clean substrates of substances that could impair bond of coatings, 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 coating systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.

1. Clean surfaces with pressurized water. Use pressure range of [1500 to 4000 psi (10 350 to 27 580 kPa)] [4000 to 10,000 psi (27 580 to 68 950 kPa)] at 6 to 12 inches (150 to 300 mm).
2. Abrasive blast clean surfaces to comply with SSPC-SP 7/NACE No. 4, "Brush-Off Blast Cleaning."

E. Masonry Substrates: Remove efflorescence and chalk. Do not coat surfaces if moisture content, or alkalinity of surfaces or if alkalinity of mortar joints exceeds that permitted in manufacturer's written instructions.

1. Clean surfaces with pressurized water. Use pressure range of [100 to 600 psi (690 to 4140 kPa)] [1500 to 4000 psi (10 350 to 27 580 kPa)] at 6 to 12 inches (150 to 300 mm).

F. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer[.][but not less than the following:]

1. SSPC-SP 7/NACE No. 4, "Brush-Off Blast Cleaning."
2. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
3. SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
4. SSPC-SP 10/NACE No. 2, "Near-White Blast Cleaning."
5. SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning."

G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied coatings.

I. Aluminum Substrates: Remove loose surface oxidation.

3.03 APPLICATION

A. Apply high-performance coatings according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
   1. Use applicators and techniques suited for coating and substrate indicated.
   2. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
   3. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
   4. Do not apply coatings over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.

D. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

3.04 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test coatings for dry film thickness.
   1. Contractor shall touch up and restore coated surfaces damaged by testing.
   2. If test results show that dry film thickness of applied coating does not comply with coating manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with coating manufacturer's written recommendations.

3.05 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

3.06 EXTERIOR HIGH-PERFORMANCE COATING SCHEDULE

A. Concrete Substrates, Horizontal Surfaces:
   1. Pigmented Polyurethane over Epoxy Slip-Resistant Deck Coating System:
      a. Prime Coat: Epoxy, gloss:
         1) S-W Armorseal 1000 HS, B67W2001 Series, at 3.0 to 5.0 mils (0.076 to 0.127 mm) dry, per coat.
      b. Intermediate: Polyurethane, gloss matching topcoat.
      c. Topcoat: Polyurethane, two-component, pigmented, gloss:

1) S-W Armorseal HS Polyurethane, B65W220 Series, at 2.0 to 3.0 mils (0.051 to 0.076 mm) dry, per coat, with manufacturer's recommended slip-resistant aggregate.

B. CMU Substrates:
1. Pigmented Polyurethane over High-Build Epoxy System:
a. Block Filler: Block filler, epoxy:
1) S-W Cement-Plex 875 Acrylic Block Filler B42 Series, at 10 to 20 mils (0.254 to 0.508 mm) dry, per coat.
b. Intermediate Coat: Epoxy, high-build, low gloss:
1) S-W Macropoxy 646-100, B58-600 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) dry, per coat.
c. Topcoat: Polyurethane, two-component, pigmented, gloss:
1) S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

C. Steel Substrates:
1. Pigmented Polyurethane System:
a. Prime Coat: Alkyd anti-corrosive, quick dry:
1) S-W Pro-Cryl Universal Primer, B66-310 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
b. Intermediate Coat: Polyurethane, two-component, pigmented, matching topcoat.
c. Topcoat: Polyurethane, two-component, pigmented, gloss:
1) S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
2. Pigmented Polyurethane over Epoxy System:
a. Prime Coat: Epoxy, high-build, low gloss:
1) S-W Macropoxy 646-100, B58-600 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) dry, per coat.
b. Intermediate Coat: Polyurethane, two-component, pigmented, matching topcoat.
c. Topcoat: Polyurethane, two-component, pigmented, gloss:
1) S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
3. Pigmented Polyurethane over Epoxy Zinc-Rich Primer System:
a. Prime Coat: Primer, zinc-rich, epoxy:
1) S-W Zinc Clad III HS 100, at 3.0 to 5.0 mils (0.076 to 0.127 mm) dry, per coat.
b. Intermediate Coat: Epoxy, high-build, low gloss:
1) S-W Macropoxy 646-100, B58-600 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) dry, per coat.
c. Topcoat: Polyurethane, two-component, pigmented, gloss:
1) S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

D. Galvanized-Metal Substrates:
1. Pigmented Polyurethane over Vinyl Wash Primer System:
a. Prime Coat: Primer, vinyl wash:
1) S-W DTM Wash Primer, B71Y1, at 0.7 to 1.3 mils (0.018 to 0.033 mm) dry, per coat.
b. First Topcoat: Polyurethane, two-component, pigmented, matching topcoat.
c. Second Topcoat: Polyurethane, two-component, pigmented, gloss:
1) S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

E. Aluminum (Not Anodized or Otherwise Coated) Substrates:
1. Pigmented Polyurethane System:
a. Prime Coat: Primer, vinyl wash:
1) S-W DTM Wash Primer, at 0.2 to 0.4 mils (0.005 to 0.010 mm) dry, per coat.

b. First Topcoat: Polyurethane, two-component, pigmented, matching topcoat.
c. Second Topcoat: Polyurethane, two-component, pigmented, gloss:
    1) S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

3.07 INTERIOR HIGH-PERFORMANCE COATING SCHEDULE

A. Concrete Substrates, Vertical Surfaces:
    1. Epoxy System:
        a. Prime Coat: Epoxy, matching topcoat.
        b. Topcoat: Epoxy, high-build, semi-gloss:
            1) S-W Macropoxy 646-100, B58-600 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) dry, per coat.
    2. Epoxy-Modified Latex System:
        a. Prime Coat: Epoxy-modified latex, interior, gloss matching topcoat.
        b. Topcoat: Epoxy-modified latex, interior, eggshell:
            1) S-W Pro Industrial Waterbased Catalyzed Epoxy Eggshell, B73-300 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
        c. Topcoat: Epoxy-modified latex, interior, gloss:
            1) S-W Pro Industrial Waterbased Catalyzed Epoxy Gloss, B73-300 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
    3. Pre-Catalyzed Waterbased Epoxy System:
        a. Prime Coat: Primer sealer, latex, interior:
            1) S-W Loxon Concrete & Masonry Primer Sealer, A24W8300, at 8.0 mils (0.203 mm) wet, 3.2 mils (0.081 mm) dry.
        b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
        c. Topcoat: Epoxy-modified latex, interior, eggshell:
            1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Eggshell, K45 Series, at 1.5 mils (0.038 mm) dry, per coat.
        d. Topcoat: Epoxy-modified latex, interior, semi-gloss:
            1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Semi-Gloss, K46 Series, at 1.5 mils (0.038 mm) dry, per coat.

B. Concrete Substrates, Horizontal Surfaces.
    1. Epoxy System:
        a. Prime Coat: Epoxy, matching topcoat.
        b. Topcoat: Epoxy, Gloss:
            1) S-W Armorseal 8100 Water Based Epoxy Floor Coating, B70 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

C. CMU Substrates:
    1. Epoxy System:
        a. Block Filler:
            1) S-W Cement-Plex 875 Acrylic Block Filler B42 Series, at 10 to 20 mils (0.254 to 0.508 mm) dry, per coat.
        b. Intermediate Coat: Epoxy, matching topcoat.
        c. Topcoat: Epoxy, high-build, semi-gloss:
            1) S-W Macropoxy 646-100, B58-600 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) dry, per coat.
    2. Epoxy-Modified Latex System:
        a. Block Filler: Block filler, latex, interior/exterior:
            1) S-W Pro Industrial Heavy Duty Block Filler, B42W150, at 10 mils (0.254 mm) dry, per coat.
        b. Intermediate Coat: Epoxy-modified latex, interior, gloss, matching topcoat.
        c. Topcoat: Epoxy-modified latex, interior, eggshell:
            1) S-W Pro Industrial Waterbased Catalyzed Epoxy Eggshell, B73-300 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

d. Topcoat: Epoxy-modified latex, interior, gloss:
    1) S-W Pro Industrial Waterbased Catalyzed Epoxy Gloss, B73-300 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

3. Pre-Catalyzed Waterbased Epoxy System:
    a. Block Filler: Block filler, latex, interior/exterior:
        1) S-W Pro Industrial Heavy Duty Block Filler, B42W150Series, at 10 mils (0.254 mm) dry, per coat.
    b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    c. Topcoat: Epoxy-modified latex, interior, eggshell:
        1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Eggshell, K45 Series, at 1.5 mils (0.038 mm) dry, per coat.
    d. Topcoat: Epoxy-modified latex, interior, semi-gloss:
        1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Semi-Gloss, K46 Series, at 1.5 mils (0.038 mm) dry, per coat.

D. Steel Substrates:
1. Epoxy-Modified Latex System:
    a. Prime Coat: Primer, rust-inhibitive, water based:
        1) S-W Pro-Cryl Universal Primer, B66-310 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
    b. Intermediate Coat: Epoxy-modified latex, interior, gloss matching topcoat.
    c. Topcoat: Epoxy-modified latex, interior, eggshell:
        1) S-W Pro Industrial Waterbased Catalyzed Epoxy Eggshell, B73-300 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
    d. Topcoat: Epoxy-modified latex, interior, gloss:
        1) S-W Pro Industrial Waterbased Catalyzed Epoxy Gloss, B73-300 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
2. Pre-Catalyzed Waterbased Epoxy System:
    a. Prime Coat: Primer, rust-inhibitive, water based:
        1) S-W Pro-Cryl Universal Primer, B66-310 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
    b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    c. Topcoat: Epoxy-modified latex, interior, eggshell:
        1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Eggshell, K45 Series, at 1.5 mils (0.038 mm) dry, per coat.
    d. Topcoat: Epoxy-modified latex, interior, semi-gloss:
        1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Semi-Gloss, K46 Series, at 1.5 mils (0.038 mm) dry, per coat.
3. Pigmented Polyurethane over Epoxy Primer System:
    a. Prime Coat: Primer, epoxy, anti-corrosive, for metal:
        1) S-W Macropoxy 646-100, B58-600 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) dry, per coat.
    b. Intermediate Coat: Polyurethane, two-component, pigmented, matching topcoat.
    c. Topcoat: Polyurethane, two-component, pigmented, gloss:
        1) S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
4. Pigmented Polyurethane over Epoxy Zinc-Rich Primer System:
    a. Prime Coat: Primer, zinc-rich, epoxy:
        1) S-W Zinc Clad III HS 100, at 3.0 to 5.0 mils (0.076 to 0.127 mm) dry, per coat.
    b. Intermediate Coat: Primer, epoxy, anti-corrosive, for metal:
        1) S-W Macropoxy 646-100, B58-600 Series, B73-620 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) dry, per coat.
    c. Topcoat: Polyurethane, two-component, pigmented, gloss:
        1) S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

E. Galvanized-Metal Substrates:
   1. Pre-Catalyzed Waterbased Epoxy System:
      a. Prime Coat: Primer, rust-inhibitive, water based:
         1) S-W Pro-Cryl Universal Primer, B66-310 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
      b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
      c. Topcoat: Epoxy-modified latex, interior, eggshell:
         1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Eggshell, K45 Series, at 1.5 mils (0.038 mm) dry, per coat.
      d. Topcoat: Epoxy-modified latex, interior, semi-gloss:
         1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Semi-Gloss, K46 Series, at 1.5 mils (0.038 mm) dry, per coat.
   2. Pigmented Polyurethane System:
      a. Prime Coat: Primer, vinyl wash:
         1) S-W DTM Wash Primer, B71Y1, at 0.7 to 1.3 mils (0.018 to 0.033 mm) dry, per coat.
      b. Intermediate Coat: Polyurethane, two-component, pigmented, matching topcoat.
      c. Topcoat: Polyurethane, two-component, pigmented, gloss:
         1) S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

F. Aluminum (Not Anodized or Otherwise Coated) Substrates:
   1. Pigmented Polyurethane System:
      a. Prime Coat: Primer, vinyl wash:
         1) S-W DTM Wash Primer, B71Y1, at 0.7 to 1.3 mils (0.018 to 0.033 mm) dry, per coat.
      b. Intermediate Coat: Polyurethane, two-component, pigmented, matching topcoat.
      c. Topcoat: Polyurethane, two-component, pigmented, gloss:
         1) S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

G. [Gypsum Board] [Plaster] Substrates:
   1. Epoxy System:
      a. Prime Coat: Primer sealer, latex, interior:
         1) S-W ProMar 200 Zero VOC Interior Latex Primer, B28W2600, at 1.0 mils (0.025 mm) dry, per coat.
      b. Intermediate Coat: Epoxy, gloss matching topcoat.
      c. Topcoat: Epoxy, semi-gloss:
         1) S-W Macropoxy 646-100, B58-600 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) dry, per coat.
   2. Epoxy-Modified Latex System:
      a. Prime Coat: Primer sealer, latex, interior:
         1) S-W ProMar 200 Zero VOC Interior Latex Primer, B28W2600, at 1.0 mils (0.025 mm) dry, per coat.
      b. Intermediate Coat: Epoxy-modified latex, interior, matching topcoat.
      c. Topcoat: Epoxy-modified latex, interior, eggshell:
         1) S-W Pro Industrial Waterbased Catalyzed Epoxy Eggshell, B73-360 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.
      d. Topcoat: Epoxy-modified latex, interior, gloss:
         1) S-W Pro Industrial Waterbased Catalyzed Epoxy Gloss, B73-300 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat
   3. Pre-Catalyzed Waterbased Epoxy System:
      a. Prime Coat: Primer sealer, latex, interior:
         1) S-W ProMar 200 Zero VOC Interior Latex Primer, B28W2600, at 1.0 mils (0.025 mm) dry, per coat.

b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Epoxy-modified latex, interior, eggshell:
    1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Eggshell, K45 Series, at 1.5 mils (0.038 mm) dry, per coat.
d. Topcoat: Epoxy-modified latex, interior, semi-gloss:
    1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Semi-Gloss, K46 Series, at 1.5 mils (0.038 mm) dry, per coat.

END OF SECTION

This page intentionally left blank

SECTION 101419
DIMENSIONAL LETTER SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Dimensional letter signage.

B. Illumination system.

1.02 PRICE AND PAYMENT PROCEDURES

A. Allowances:
   1. See Section 012100 - Allowances for cash allowances affecting this section.
   2. Include cash allowance for purchase and delivery but not installation.

1.03 REFERENCE STANDARDS

A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines current edition.

B. ADA Standards - 2010 ADA Standards for Accessible Design 2010.

C. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

D. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. UL 879 - Electric Sign Components Current Edition, Including All Revisions.

1.04 SUBMITTALS

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

B. Product Data: Manufacturer's product literature for each type of dimensional letter sign, indicating style, font, colors, locations, and overall dimensions of each sign.

C. Shop Drawings:
   1. Include dimensions, locations, elevations, materials, text and graphic layout, and attachment details.
   2. Show locations of electrical service connections.
   3. Include diagrams for power, signal, and control wiring.

D. Manufacturer's Installation Instructions: Include installation templates and attachment devices.

E. Manufacturer's qualification statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package dimensional letter signs as required to prevent damage before installation.

B. Store under cover and elevated above grade.

C. Store tape adhesive at a normal room temperature of 68 to 72 degrees F.

1.07 FIELD CONDITIONS

A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.

B. Maintain minimum ambient temperature during and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Dimensional Letter Signs:
   1. Fastsigns; https://www.fastsigns.com/greenville-nc
   2. Signs Now Greensville; https://www.signsnow.com/greenville

3. Signworks Inc.; https://signworks.us/

2.02 REGULATORY REQUIREMENTS

A. Accessibility Requirements: Comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most restrictive requirements.

2.03 DIMENSIONAL LETTERS

A. Plastic Letters:
   1. Material: Injection molded plastic.
   2. Thickness: 1/8 inch minimum.
   3. Letter Height: Coordinate with Owner.
   4. Text and Typeface:
      a. Character Font: Coordinate with Owner.
   5. Finish: As selected by Architect from manufacturer's full range.
   6. Color: Coordinate with Owner.
   7. Mounting: Concealed or exposed screws.
   8. Illumination System: Illuminated embossed panel box letters.
      a. Provide products that are listed and labeled as complying with UL 879, where applicable.
      b. Power: 120 V, 60 Hz, 1 phase, 15 A.

2.04 ACCESSORIES

A. Concealed Screws: Noncorroding metal; stainless steel, galvanized steel, chrome plated, or other.

B. Exposed Screws: Stainless steel.

C. Electrical Components and Devices: Listed and labeled as defined in NFPA 70 by a qualified testing agency.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify that electrical service is correctly sized and located to accommodate dimensional letter signs.

C. Notify Architect if conditions are not suitable for installation of signs; do not proceed until conditions are satisfactory.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install with horizontal edges level.

C. Locate dimensional letter signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.

D. Protect from damage until 01-22-2024; repair or replace damaged items.

END OF SECTION

This page intentionally left blank

SECTION 129000
STADIUM SEAT COVERS

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes requirements for stadium seat covers including materials, installation, and related work as indicated on the drawings and specified herein.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section.

1.03 REFERENCES

A. Applicable references include:
B. [List relevant references or standards if applicable]

PART 2 - PRODUCTS

2.01 MATERIALS

A. Stadium seat covers shall be of high-quality materials suitable for outdoor use in the intended environment. Materials shall be resistant to fading, weathering, and damage from UV radiation.
B. Provide color and material samples for approval by the Architect or Engineer prior to procurement and installation.

2.02 FABRICATION

A. Fabricate stadium seat covers to the dimensions and specifications indicated on the drawings.
B. Ensure proper stitching, seaming, and reinforcement to withstand the stresses and strains of use in a stadium environment.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that the substrate and existing seating structure are in suitable condition to receive seat covers. Any defects or deficiencies in the substrate should be corrected prior to installation.

3.02 INSTALLATION

A. Install stadium seat covers in accordance with the manufacturer's recommendations and approved shop drawings.
B. Ensure proper alignment and tension to avoid wrinkles or sagging while maintaining a neat and uniform appearance.
C. Securely attach seat covers to the seating structure using approved methods. Ensure that attachment points are evenly distributed to prevent stress concentrations.

3.03 CLEANING AND MAINTENANCE

A. Provide maintenance guidelines to the Owner, including cleaning procedures and recommended cleaning agents for the seat covers.
B. Advise the Owner on the frequency of cleaning and maintenance required to preserve the appearance and longevity of the seat covers.

3.04 WARRANTY

A. The Contractor shall provide a warranty for the stadium seat covers for a specified period (e.g., 5 years) from the date of substantial completion. The warranty shall cover defects in materials and workmanship, including fading, tearing, and UV damage.
B. B. During the warranty period, the Contractor shall promptly address and rectify any issues covered under the warranty at no additional cost to the Owner.

END OF SECTION

This page intentionally left blank

SECTION 133416
BLEACHERS SPECIFICATION PART

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Perminant Open Deck Bleacher Seating includes, multiple-tiered seating rows of seats, deck components, understructure that permits raising or lowering (Tip & Roll) without requiring dismantling, into a used mobile or stored configuration.
   1. Typical applications include the following:
      a. Multiple bleacher seating sections used concurrently. (A seating bank)

B. Qualifications and Capabilities:
   1. BIDDER QUALIFICATIONS:
      a. Bidders are further advised that only standard production models or standard options will be acceptable for award. Equipment offered shall be currently manufactured on an active assembly line. The Owner is only interested in proven equipment; provided, installed, and serviced by Authorized Dealers capable of providing references.
   2. SERVICE CAPABILITY:
      a. The Bleacher Contractor must be able to show proof of full time service capability by factory certified technicians directly employed by the Bleacher Contractor. Sub-Contractors of the Bleacher Contractor or Factory Technicians located outside of the State do not qualify under this service response requirement. Adequate and satisfactory availability of repair parts and supplies, and ability to meet warranty and service requirements are a requirement of this Invitation to Bid. The State reserves the right to satisfy itself by inquiry or otherwise as to bidder's capabilities in this regard. A four (4) to eight (8) hour maximum on-site repair response is required during normal working hours, 8 a.m. to 5 p.m. weekdays (excluding holidays) All Full Time Service Personnel shall be Factory Authorized and Trained. Proof of Service Capability along with a listing of service parts regularly maintained in inventory shall be provided along with the Invitation for Bid. Failure to provide this information shall result in rejection of bid.

1.02 REFERENCE

A. International Building Code (IBC)
B. ICC 300 – Standard for Bleachers, Folding and Telescopic Seating and Grandstands
C. Aluminum Association (AA):
D. AA - Aluminum Structures, Construction Manual Series.
E. American Society for Testing Materials (ASTM):
F. ASTM - Standard Specification for Properties of Materials.
G. National Forest Products Association (NFoPA):
H. NFoPA - National Design Specification for Wood Construction.
I. Southern Pine Inspection Bureau (SPIB):
J. SPIB - Standard Grading Rules for Southern Pine.

1.03 NATIONAL BUREAU OF STANDARDS/PRODUCTS STANDARD (NBS/PS):

A. PS1 - Construction and Industrial Plywood.
B. Americans with Disability Act (ADA)
C. ADA - Standards for Accessible Design.

1.04 MANUFACTURER'S SYSTEM ENGINEERING DESCRIPTION

A. Structural Performance: Engineer, fabricate and install outdoor bleacher seating systems to the following structural loads without exceeding allowable design working stresses of materials involved, including anchors and connections. Apply each load to produce maximum stress in each respective component of each gym seat unit.
   1. Design Loads: Comply with ICC 300 – 2012 Edition

B. Manufacturer's System Design Criteria:

1. Outdoor seat assembly; Design to support and resist, in addition to it's own weight, the following forces:
2. Live load of 120 lbs per linear foot [162.69 N/m] on seats and decking
3. Uniformly distributed live load of not less than 100 lbs per sq. ft. [135.58N/m] of gross horizontal projection.
4. Parallel sway load of 24 lbs. [32.53 N/m] per linear foot of row combined with (b.) above
5. Perpendicular sway load of 10 lbs. [13.56 N-m] per linear foot of row combined with (b.) above

C. Member Sizes and Connections: Design criteria (current edition) of the following shall be the basis for calculation of member sizes and connections:
   1. AA: Specification for Aluminum Structures
   2. NFOPA: National Design Guide For Wood Construction.

1.05 SUBMITTIALS

A. Section Cross-Reference: Required submittals in accordance with "Conditions of the Contract" and Division 1 General Requirements sections of this "Project Manual."
B. Project Data: Manufacturer's product data for each system. Include the following:
   1. Project list: Ten(10) seating projects of similar size, complexity and in service for at least five (5) years.
   2. Deviations: List of deviations from these project specifications, if any.
C. Shop Drawings: Indicate Portable Bleacher Seat assembly layout. Show seat heights, row spacing and rise, and locations, assembly dimensions, material types and finishes..
   1. Graphics Layout Drawings: Indicate pattern of contrasting or matching seat colors
D. Manufacturer Qualifications: Certification of insurance coverage and manufacturing experience of manufacturer,
E. Installer Qualifications: Installer qualifications indicating capability, experience, and official Certification Card issued by manufacturer of bleacher seating.

1.06 OPERATING/MAINTENANCE MANUALS: PROVIDE TO OWNER MAINTENANCE MANUALS. DEMONSTRATE OPERATING PROCEDURES, RECOMMENDED MAINTENANCE AND INSPECTION PROGRAM.

A. Warranty: Manufacturers standard warranty documents.

1.07 QUALITY ASSURANCE

A. Seating Layout: Comply with ICCC 300 -2012 Standard for Bleachers, Open bleacher seating, except where additional requirements are indicated or imposed by authorities having jurisdiction.
B. Insurance Qualifications: Mandatory that each bidder submit with his bid an insurance certificate from the manufacturer evidencing the following insurance coverage:
C. Workers Compensation - including Employers Liability with the following limits:
   1. $500,000.00 (US) Each Accident
   2. $500,000.00 (US) Disease - Policy Limit
   3. $500,000.00 (US) Disease - Each Employee
D. Commercial General Liability - including premises/ operations, independent contractors and products completed operations liability. Limits of liability shall not be less than $5,000,000.00 (US).
E. Installer Qualifications: Engage experienced Installer who has specialized in installation of telescoping gym seat types similar to types required for this project and who carries an official Certification Card issued by telescoping gym seat manufacturer.

1.08 DELIVERY, STORAGE AND HANDLING

A. Deliver product fully assembled or Select Field Assembly;
B. Deliver outdoor bleacher seats in manufacturers packaging clearly labeled with manufacturer name and content.
C. Handle seating equipment in a manner to prevent damage.
D. Deliver the seating at a scheduled time for installation that will not interfere with other trades operating on site.

1.09 PROJECT CONDITIONS

A. Field Measurements: Coordinate actual dimensions of construction affecting portable bleachers installation by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid delay of Work.

1.10 WARRANTY

A. Manufacturer's Product Warranty: Submit manufacturer's standard warranty form for outdoor bleachers. This warranty is in addition to, and not a limitation of other rights Owner may have under Contract Documents.
   1. Warranty Period: Five years from Date of Acceptance.
   2. Beneficiary: Issue warranty in legal name of project Owner.
   3. Warranty Acceptance: Owner is sole authority who will determine acceptance of warranty documents.

1.11 MAINTENANCE AND OPERATION

A. Instructions: Both operation and maintenance shall be transmitted to the Owner by the manufacturer of the seating or his representative.
B. Service: Maintenance and operation of the seating system shall be the responsibility of the Owner or his duly authorized representative, and shall include the following:
   1. Operation of the Seating System shall be supervised by responsible personnel who will assure that the operation is in accordance with the manufacturer's instructions.
   2. Only attachments specifically approved by the manufacturer for the specific installation shall be attached to the seating.
   3. An annual inspection and required maintenance of each seating system shall be performed to assure safe conditions. At least biannually the inspection shall be performed by a professional engineer or factory qualified service personnel.

PART 2 – PRODUCTS EDITORS NOTE:

2.01 MANUFACTURERS

A. Manufacturer (BOD): Belson Outdoors
   1. Address: 627 Amersale Drive, Naperville, IL 60563
   2. Telephone: (800) 323-5664 ext. 60225; Fax: (207) 676-9690
   3. Contact: Vickie Nitto (vickie@belson.com)
   4. Product: Bleacher, 10 Row x 33'-0"L, (10" Nominal Seat Planks, 10" Nominal Tread Planks, 17" Front Row Seat Height, 8" Rise, 24" Tread), Aluminum Frame, Double Footboards, Aluminum Picket Guardrail, Aisle, 4 ADA Accessible Spots On First Row
   5. Model: BD-U1033V
   6. Dimensional Data: In-Use:
      a. 10 Row x 33'-0"L, (10" Nominal Seat Planks, 10" Nominal Tread Planks, 17" Front Row Seat Height, 8" Rise, 24" Tread),
      b. Seat Type: Aluminum bleacher seats throughout.
   7. Product Description/Criteria
      a. Bank Length: Ref. Drawings
      b. Number of Tiers: Number of Tiers: Ref Drawings
      c. Row Spacing(s): Ref Drawings
      d. Used Dimension: Ref Drawings
      e. Stored Dimension: N/A
      f. Overall Unit Height: Ref Drawings
      g. Net Capacity per seat (18" [457]): Ref Drawings

B. Miscellaneous Product Accessories:
   1. Seat Numbers
   2. Row numbers
   3. Splice (PR) 2x10 With Hardware
   4. Splice 1x4, 1x6 And 1x8 Riser With Hardware
   5. Internal Pipe Splice For 1 1/4" Pipe With Pop Rivets

6. X-Brace Angle And Flat Bar, 3'-6 1/2", With Hardware
7. X-Brace Angle And Flat Bar, 3'-9 3/4", With Hardware
8. X-Brace Angle And Flat Bar, 3'-2", With Hardware

C. Other Acceptable Manufacturers: Will be considered if in compliance with these specifications. Deviations must be submitted with bid in order that a fair and proper evaluation be made. Those bidders not submitting a list of deviations will be presumed to have bid as specified.

2.02 MATERIALS

A. Lumber: ANSI/Voluntary Product 20, B & B Southern Pine
B. Plywood: ANSI/Voluntary Product PS1, APA A-C Exterior Grade.
C. Uncoated Aluminum Strip: Seat Risers: Aluminum Alloy 5052, ASTM B209
D. Structural Tubing: Aluminum 6061 T6, ASTM B221-13
E. Fasteners: Vibration-proof, of size and material standard with manufacturer.

2.03 UNDERSTRUCTURE FABRICATION

A. Frame System: Ref Drawings and Manufacturer's Shop Drawings
B. Deck System: Ref Drawings and Manufacturer's Shop

2.04 SEAT FABRICATION:

A. Aluminum Bleacher Seats: Ref Drawings and Manufacturer's Shop Drawings

2.05 SHOP FINISHES

A. Aluminum Finish: per Manufacturer's standards and practices.

2.06 FASTENINGS

A. Structural Connections: per Manufacturer's standards and practices.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Verify area to receive Outdoor Bleacher Seating are free of impediments interfering with installation and condition of installation substrates are acceptable to receive Outdoor Open Deck Bleacher System in accordance with Outdoor Open Deck Bleacher System manufacturer's recommendations. Do not commence installation until conditions are satisfactory.

3.02 INSTALLATION

A. Manufacturer's Recommendations: Comply with Outdoor Open Deck Bleacher System manufacturer's recommendations for product installation requirements.
B. General: Manufacturer’s Certified Installers to install outdoor bleacher seats in accordance with manufacturer's installation instructions and final shop drawings. Provide accessories, anchors, fasteners, inserts and other items for installation of outdoor bleacher seats and for permanent attachment to adjoining construction.

3.03 ADJUSTMENT AND CLEANING

A. Adjustment: After installation completion, test and adjust each Outdoor Open Deck Bleacher System assembly to operate in compliance with manufacturer's operations manual.
B. Cleaning: Clean installed Outdoor Open Deck Bleacher System on both exposed and semi-exposed surfaces. Touch-up finishes restoring damage or soiled surfaces.

3.04 PROTECTION

A. General: Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer to ensure outdoor bleacher seats are without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 133500
SHIPPING CONTAINER MODULAR CONSTRUCTION

PART 1 GENERAL

1.01 SCOPE

A. THIS SPECIFICATION WILL COVER THE DESIGN, CONSTRUCTION, MATERIALS, TESTING AND INSPECTION PERFORMANCES OF 40' X 8' X 8'6" ISO 1AA TYPE STEEL DRY CARGO CONTAINERS.
B. This specification will cover the design, construction, materials, testing and inspection performances of 40' x 8' x 8'6" ISO 1AA type steel dry cargo containers.

1.02 SUBMITTALS

A. Shop drawings of final container design based on Construction Documents.
B. Shop Drawings: Indicate rough and actual opening dimensions, anchorage methods, hardware locations, and installation details.

1.03 OPERATIONAL ENVIRONMENT

A. The container will be designed and constructed for carriage of general cargo by marine (on or below deck), road and rail throughout the world. All materials used in the construction will be to withstand extremes of temperature range from -30OC (-22OF) to +80OC (+176OF) without effect on the strength of the basic structure and watertightness.

1.04 STANDARDS AND REGULATIONS

A. The container will satisfy the following requirements and regulations in their latest editions, unless otherwise mentioned in this specification.
B. ISO Container Standards (1AA type)
   1. **ISO 668**-- Series 1 freight containers - Classification external dimensions and ratings
   2. **ISO 830** -- Terminology in relation to freight container
   3. **ISO 1161** -- Series 1 freight containers - Corner fittings Specification
   4. **ISO 1496-**1 -- Series 1 freight containers - Specification and testing.part 1: General cargo containers for general purposes
   5. **ISO 6346**-- Freight containers - coding, identification and marking
C. T.I.R. Certification
   1. All the containers will be certified and comply with "The Customs Convention on the International Transport of Goods under the cover of T.I.R. Carnets." or "The Customs Convention on Containers."
D. C.S.C. Certification
   1. All the containers will be certified and comply with the requirements of the "International Convention for the Safe Containers."
E. T.C.T. Certification
   1. All exposed wooden components used for container will be treated to comply with the requirements of "Cargo Containers - Quarantine Aspects and Procedures" of the Commonwealth Department of Health, Australia.
F. Classification society
   1. All the containers will be certified for design type and individually inspected by classification society which will be nominated by the buyer in written before production.

1.05 HANDLING

A. The container will be constructed to be capable of being handled without any permanent deformation under the following conditions:
   1. Lifting, full or empty, at top corner fittings vertically by means of spreaders fitted with hooks, shackles or twistlocks.
   2. Lifting, full or empty, at bottom corner fittings using slings with terminal fittings at any angles between vertical and 30 degrees to the horizontal.

1.06 TRANSPORTATION

A. The container will be constructed to be suitable for transportation in the following modes:
   1. **Marine** - In the ship cell guides of vessels, seven (7) high stacked with MGW 30,480kg. On the deck of vessels, four (4) high stacked and secured by vertical and diagonal wire lashings.
   2. **Road** - On flat bed or skeletal chassis, secured by twistlocks or equivalent at the bottom corner fittings.
   3. **Rail** - On flat cars or special container cars secured by twistlocks or equivalent at the bottom corner fittings.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. 805 Container Co. - Shipping Container Fabricator - https://www.805containerco.com/ - Preston Maloney (prestonmaloney@yahoo.com)
B. Falcon Structures - Shipping Container Fabricator - https://www.falconstructures.com - Stephen Shang (stephen@falconstructures.com)

PART 3 DIMENSIONS AND RATINGS

3.01 EXTERNAL DIMENSIONS

LENGTH	**12,192 + 0MM**	**40'**	**+0**
	-10MM		**-3/8"**
WIDTH	**2,438 + 0MM**	**8'**	**+0**
	-5MM		**-3/16"**
HEIGHT	**2,591 + 0MM**	**8'-6"**	**+0**
	-5MM		**-3/16"**

A. No part of the container will protrude beyond the external dimensions mentioned above.
B. Maximum allowable differences between two diagonals on anyone of the following surfaces will be as follows:

ROOF, BOTTOM AND SIDE DIAGONALS	19MM	3/4"
FRONT AND REAR DIAGONALS	10MM	3/8"

3.02 INTERNAL DIMENSIONS

LENGTH	**12,034 + 0MM**	**39' 5 13/16'**	**+0**
	-10MM		**-25/64"**
WIDTH	**2,352 + 0MM**	**7' 8 19/32'**	**+0**
	-5MM		**-3/16"**
HEIGHT	**2,393 + 0MM**	**7' 5 49/64"**	**+0**
	-5MM		**-3/16"**

3.03 DOOR OPENING DIMENSIONS

LENGTH	**2,340 + 0MM**	**7' 8 1/8"**	**+0**
	-5MM		**-3/16"**
WIDTH	**2,280 + 0MM**	**7' 5 49/64"**	**+0**
	-5MM		**-3/16"**

3.04 INTERNAL CUBIC CAPACITY (NOMINAL)

VOLUME	**67.7 CU. M.**	**2,390 CU. FT.**

3.05 GOOSENECK TUNNEL

LENGTH	**3,315 MM**	**10' 10 33/64"**
WIDTH	**1,029 +3MM**	**3'-4 1/2" +1/8"**
	-0MM	**-0**
HEIGHT	**120 +0MM**	**4 23/32" +0**
	-3MM	**-1/8"**

A. RATINGS

MAX GROSS WEIGHT	30,480 kgs	67,200 lbs
TARE WEIGHT (DESIGN) (T)	3,600 kgs	7,935 lbs
MAX PAYLOAD (P)	26,880 kgs	59,265 lbs
TARE WEIGHT TOLERENCE 2%		

PART 4 MATERIALS

4.01 GENERAL

A. The following materials will be used in the construction of containers.

4.02 PART SPECIFICATION

	PARTS	MATERIALS BY JIS
1.)	ROOF PANELS DOOR PANELS SIDE PANELS FRONT PANELS BOTTOM SIDE RAILS CROSS MEMBERS GOOSENECK TUNNEL REAR CORNER POSTS (OUTER) DOOR SILL DOOR HEADER DOOR VERTICAL FRAMES DOOR HORIZONTAL FRAMES TOP SIDE RAILS FRONT CORNER POSTS FRONT BOTTOM END RAIL (UPPER) FRONT TOP END RAIL UPPER & LOWER PLATES OF FORKLIFT POCKETS	ANTI-CORROSIVE STEEL: CORTEN A, SPA-H, B480 OR EQUIVALENT MATERIAL Y.P. : 35 KG/SQ. MM T.S. : 49 KG/SQ. MM
2.)	FRONT BOTTOM END RAIL (LOWER)	STRUCTURAL STEEL: SS400 Y.P. : 25 KG/SQ.MM T.S. : 41 KG/SQ.MM
3.)	REAR CORNER POSTS (INNER)	ROLLED HIGH TENSILE STEEL: SM490A OR EQUIVALENT MATERIAL Y.P. : 33 KG/SQ. MM T.S. : 50 KG/SQ. MM
4.)	DOOR LOCKING BARS	STRUCTURAL STEEL ROUND PIPE: STK41 Y.P. : 24 KG/SQ. MM T.S. : 41 KG/SQ. MM
5.)	CORNER FITTING	CASTED WELDABLE STEEL: SCW480 Y.P. : 28 KG/SQ. MM T.S. : 49 KG/SQ. MM
6.)	LOCKING GEAR CAMS AND KEEPERS	FORGED WELDABLE STEEL: S20C Y.P. : 23 KG/SQ. MM T.S. : 44 KG/SQ. MM
7.)	DOOR HINGE PINS DOOR GASKET RETAINER	STAINLESS STEEL: SUS304
8.)	DOOR GASKET	EPDM
9.)	FLOOR BOARD	HARDWOOD PLYWOOD, MIN.19-PLY
10.)	VENTILATOR	ABS RESIN LABYRINTH TYPE
	Y.P. - YIELDING POINT T.S. - TENSILE STRENGTH	

PART 5 CONSTRUCTION

5.01 *GENERAL*

A. The container will be constructed with steel frames, fully vertical-corrugated steel sides and front wall, horizontal-corrugated steel double doors at rear end, die-stamped steel roof and corner fittings.
B. All welds of exterior including the base frames will be continuous welding using CO_2 gas, but inner part of each bottom side rail will be fastened by staggered stitch welding.
C. Interior welds - when needed - will be stitched with a minimum length of 15mm.
D. Gaps between adjacent components to be welded will not exceed 3mm or the thickness of the parts being welded.
E. Chloroprene or waterborne sealant is to be applied at periphery of floor surface and inside unwelded seams, butyl sealant is used to caulk at invisible seam of floor joint area and between door gasket and frame.
F. The wooden floor will be fixed to the base frames by zinc plated self-tapping screws.

5.02 PROTRUSION

A. The plane formed by the lower faces of the bottom side rails and all transverse members shall be positioned by 12.5mm +5/-1.5mm above the plane formed by the lower faces of the bottom corner fittings.
B. The top corner fittings are to protrude a minimum of 6mm above the highest point of the roof.
C. The outside faces of the corner fittings will protrude from the outside faces of the corner posts by nominal 4mm.
D. The outside faces of the corner fittings will protrude from the outside faces of the sides and front wall by nominal 8mm.
E. Under maximum payload, no part of the container will protrude below the plane formed by the lower faces of the bottom corner fittings at the time of maximum deflection.
F. Under 1.8 x maximum gross weight, no part of the container will protrude more than 6.0mm below the plane formed by the lower faces of the bottom corner fittings at the time of maximum deflection.

5.03 CORNER FITTINGS

A. The corner fittings will be designed in accordance with ISO 1161 (Amd.1990) and manufactured at the works approved by classification society.

5.04 BASE FRAME STRUCTURE

A. Base frame will be composed of two (2) bottom side rails, twenty-eight (28) cross members, a set of forklift pockets(empty lifting) and a gooseneck tunnel

5.05 BOTTOM SIDE RAIL

A. Each bottom side rail is built of 52x30x155x28xt4.5mm thick cold-formed double “Z” section steel made in one piece. The lower flange of the bottom side rail is outward so as to facilitate easy removal of the cross members during repair and of less susceptible corrosion.Reinforcement plates are to be made of 4.0mm thick angle section steels. The angle steels are welded to bottom corner fitting.

5.06 CROSS MEMBER

A. The cross members are made of pressed channel section steel with a dimension of 45x122x45x4.0mm for the normal areas and 75x122x45x4.0mm for the floor butt joints. The cross members are placed fully to withstand floor strength and welded to each bottom side rail.Three (3) pieces of 4.0mm gussets to be fully welded at each inside of floor joint cross-member.

5.07 GOOSENECK TUNNEL

A. The gooseneck tunnel consists of 4.0mm thick pressed hat section steel plate, twelve 4.5mm thick pressed channel section bows which are welded to the top plate, one 4.5mm thick opened section tunnel rear bolster reinforced by four gussets, and sixteen 4.0mm thick tunnel outriggers. The gooseneck tunnel is designed in accordance with ISO requirements.

5.08 FORKLIFT POCKETS (ONLY FOR EMPTY LIFTING)

A. Each forklift pocket is built of 3.0mm thick full depth flat steel top plate and two 200mm deep x 6.0mm thick flat lower end plates between two channel section cross members.The one set of forklift pockets is designed in accordance with ISO requirements.

5.09 FLOORING

A. The floor will consist of twelve pieces plywood boards, floor center rail, and self-tapping screws.

5.10 FLOOR

A. The wooden floor to be constructed with 28mm thick min.19-ply hardwood plywood boards which is the first three layers on top/bottom the grain should be in longitudinal direction are laid longitudinally on the transverse members and the floor centre rail of 4.0mm thick flat bar painted with internal paint system. The floorboards are tightly secured to each member by self-tapping screws, and all butt joint areas and peripheries of the floorboards are caulked with sealant.

1,)	Wood species	Apitong ,Tropical combination hardwood plywood or bamboo, or wood composite.
2.)	Glue	Phenol-formaldehyde resin.
3.)	Treatment	
	a.) Preservative	MEGANIUM 2000 or others in accordance with Australian Health Department Regulations.
	b.) Average moisture content	will be 12% before installation

5.11 SELF TAPPING SCREW

A. Each floor board is fixed to the transverse members by zinc plated self-tapping screws that are 8.0mm dia. shank x 16mm dia. head x 45mm length, and fastened by four screws per cross member but five screws at joint areas. Screw heads are to be countersunk through about 2mm below the floor top surface.

5.12 REAR FRAME STRUCTURE

A. The rear frame will be composed of one door sill, two corner posts, one door header and four corner fittings, which will be welded together to make the door-way.

5.13 DOOR SILL

A. The door sill to be made of a 4.5mm thick pressed open section steel is reinforced by four internal gussets at the back of each locking cam keeper location. The upper face of the door sill has a 10mm slope for better drainage.A 200 x 75mm section is cut out at each end of the door sill and reinforced by a 200 x 75mm channel steel as a protection against handling equipment damages.

5.14 REAR CORNER POST

A. Each rear corner post of hollow section is fabricated with pressed, 6.0mm thick, steel outer part and 40x113x10mm hot-rolled channel section steel inner part, which are welded continuously together to ensure a maximum width of the door opening and to give a sufficient strength against stacking and racking forces.Four (4) sets of hinge pin lugs are welded to each rear corner post.

5.15 DOOR HEADER

A. The door header is constructed with a 4.0mm thick pressed "U" section steel outer part having four internal gussets at the back of each locking cam keeper location and a 3.0mm thick pressed steel inner part, which are formed into box section by continuous welding.

5.16 DOOR

A. Each container will have double wing doors at rear end frame, and each door will be capable of swinging approximately 270 degrees.
B. Each door is constructed with 3.0mm thick pressed channel section steel horizontal frames for the top and bottom, 100x50x3.2mm rectangular hollow section vertical frames for the post side and center side of door respectively, 2.0mm thick horizontally corrugated steel door panel,

which are continuously welded within frames.

C. Two sets of galvanized locking assemblies which is the same model with "SL-F/1" 、"HH-ET" or "SJ-66M" with steel handles (two point custom sealing system) are fitted to left door (right door only one set) wing using high tensile zinc plated steel bolts according to TIR requirements. Locking bar retainers are fitted with nylon bushings at the top, bottom and intermediate bracket. The locking handle would be forged type for left door leaf, while the right door locking handle is longer pressed handle, a small rubber grip(can just be some black rubber tube / hose with 200mm length) must be applied on the door handle. Locking gears should be assembled after painting and not to be painted.
D. The left-hand door can not be opened without opening the right-hand door when the container is sealed in accordance with TIR requirements.
E. The door hold-back of nylon rope is provided to the centre locking bar on each door and a hook of steel bar is welded to each bottom side rail.
F. Each door is suspended by four hinges provided with stainless steel pins, self-lubricating nylon bushings and brass washers, which are placed at the hinge lugs of the rear corner posts.

5.17 ROOF STRUCTURE

A. The roof will be constructed with eleven five-corrugated (die-stamped) steel panels and four corner protection plates.

5.18 ROOF PANEL

A. The roof panel is constructed with 2.0mm thick die-stamped steel sheets having about 5.0mm upward smooth camber, which are welded together to form one panel and continuously welded to the top side rails and top end rails. All overlapped joints of inside unwelded seams are caulked with sealant.

5.19 PROTECTION PLATE

A. Each corner of the roof in the vicinity of top corner fitting is reinforced by 3.0mm thick rectangular steel plate to prevent the damage caused by mishandling of lifting equipment.

5.20 TOP SIDE RAIL

A. Each top side rail is made of a 60x60x3.0mm thick square hollow section steel.

5.21 SIDE WALL

A. The trapezium section side wall is constructed with 1.6mm thick fully vertically continuous-corrugated steel panels at the intermediate area and both ends which are butt welded together to form one panel and continuously welded to the side rails and corner posts. All overlapped joints of inside are caulked with sealant.

5.22 FRONT STRUCTURE

A. Front end structure will be composed of one bottom end rail, two corner posts, one top end rail, four corner fittings and an end wall, which are welded together.

5.23 BOTTOM END RAIL

A. The bottom end rail is made of 60x60x3.0mm full width square hollow section, and reinforced by four stiffener plates. In which two 6.0mm thick plates are welded with gooseneck tunnel end and other two 9.0mm thick plates are welded with bottom corner fittings, two 3.0mm thick pressed angle section steel plates for floor board support.

5.24 FRONT CORNER POST

A. Each corner post is made of 6.0mm thick pressed open section steel in a single piece, and designed to give a sufficient strength against stacking and racking forces.

5.25 TOP END RAIL

A. The top end rail is constructed with 4.0mm thick “Z” section pressed steel.

5.26 FRONT WALL

A. The trapezium section front wall is constructed with 2.0mm thick vertically corrugated steel panels, butt welded together to form one panel, and continuously welded to front end rails and corner posts. All overlapped joints of inside are caulked with sealant.

5.27 FRONT CORNER POST FLOOR SUPPORT

A. Front corner post floor support to be made of polypropylene. The colour of polypropylene is gray.

5.28 SPECIAL FEATURE

5.29 CUSTOMS SEAL PROVISIONS

A. Customs seal and padlock provisions are made on each locking handle retainer to cover the sealed area in accordance with TIR requirements.

5.30 LASHING FITTINGS

A. Ten (10) Φ 12 lashing hoop rings are welded to each top and bottom side rail at recessed corrugations of side panels but not extruded any cargo space (total 40 rings). Each lashing point is designed to provide a "1,500 kgs pull load in any direction" without any permanent deformation of lashing ring and surrounding area.
B. Two (2) Φ 10 lashing rods are welded to each corner post. Each lashing rod on the corner post is designed to provide a "1,000 kgs pull load in any direction" without any permanent deformation.

5.31 SHORING SLOT

A. A shoring slot, having a size of 60mm width x 40mm depth is provided on each rear corner post so that 2 1/4" thick battens can be arranged to be able to prevent doors from damage due to shifting cargo.

5.32 VENTILATOR

A. Each container will have two small plastic ventilators with EPDM gasket of labyrinth type. Each ventilator is fixed to the right-upper part of each side wall by three 5.0mm dia. aluminum huck bolts in accordance with TIR requirements after drying of top coating, and caulked with sealant around the entire periphery except underside to prevent the leakage of water.

PART 6 SURFACE PRESERVATION

6.01 SURFACE PREPARATION

A. All steel surfaces - prior to forming or after - will be fully abrasive shot blasted conforming to Swedish Standard SA2 1/2 to remove all rust, dirt, mill scale and all other foreign materials.
B. All door hardware will be hot-dipping zinc galvanized with approximately 75 microns thickness.
C. All fasteners such as self-tapping screws and bolts, nuts, hinges, cam keepers and lashing fittings will be electro-galvanized with approximately 13 microns thickness

6.02 COATING

6.03 THE TOTAL DRY FILM WILL BE (MICRONS):

	EXT.	INT.	BASE
1ST SHOP PRIMER	10	10	10
WATERBORNE EPOXY ZINC PRIMER	20	20	20
WATERBORNE EPOXY MIDDLE COAT	40		
WATERBORNE EPOXY TOP COAT		40	
WATERBORNE ACRYLIC TOP COAT	40		
WATERBORNE UNDERCOATING			200
TOTAL	110	70	230

Note: The equivalent effect waterborne paint and waterborne undercoating will be applied. The paint system and supplier (inclusive of undercoating) will be submitted to customer’s approval in advance before production.

PART 7 MARKING

7.01 ARRANGEMENT

A. The container will be marked in accordance with ISO, TCT, CSC and TIR requirements, owner's marking specifications and other required regulations.

7.02 MATERIALS

Decal	Self-adhesive, high tensile PVC film for seven (7) years guarantee without peeling off, tenting or colour fading.
Certification Plate Treated by Enamel	18-8 type stainless steel plates to be chemically etched by acid and treated by enamel.

7.03 SPECIFICATIONS

A. Identification plates such as consolidated data plate consisting of CSC, TIR and TCT will be riveted on the door permanently by stainless steel blind rivets. The entire periphery except underside will be caulked with sealant.
B. The owner's serial numbers and manufacturer's serial numbers will be stamped into the top plane of rear lower-left corner fitting.

PART 8 TESTING AND INSPECTIONS

8.01 TESTING
8.02 PROTOTYPE TESTING
8.03 THE PROTOTYPE CONTAINER TO BE MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION WILL BE TESTED BY MANUFACTURER UNDER THE SUPERVISION OF CLASSIFICATION SOCIETY.

1.)	Stacking Internal load : 1.8R-T Test load: 86,400kg/post	Hydraulic cylinder load will be applied to each corner post through top corner fittings. Offset: 25.4 mm lateral 38.0 mm longitudinal
2.)	Lifting (from top corner fittings) Internal load : 2R-T	Lifting vertically. Time duration : 5 minutes
3.)	Lifting (from bottom corner fittings) Internal load : 2R-T	Lifting 30 degree to the horizontal. Time duration : 5 minutes
4.)	Restraint (longitudinal) Internal load : R-T Test load : 2R	Hydraulic cylinder load will be applied to the bottom side rails.
5.)	Floor strength Test load : 7,260 kgs (16,000 lbs)	Use of a special truck. Total contact area: 284 sq. cm Wheel width : 180 mm Wheel centre : 760 mm
6.)	Wall strength (front) Test load : 0.4(R-T)=0.4P	Compressed air bag will be used.
7.)	Wall strength (side) Test load : 0.6(R-T)=0.6P	Compressed air bag will be used on one side only. moreover ,one air bag will be used only.
8.)	Wall strength (door) Test load : 0.4(R-T)=0.4P	Same as front wall strength test.
9.)	Roof strength (weakest part) Test load : 300 kgs	Applied area will be 600x300mm longitudinal and transverse.
10.)	Racking (transverse) Test load : 150,000 newtons	Hydraulic cylinder load will be applied to the header rail through top corner fittings.
11.)	Racking (longitudinal) Test load : 7,620 kgs	Hydraulic cylinder load will be applied to the top side rail through top corner fitting on one side only. Two times for pulling and pushing.
12.)	Operation of door	After completion of test, the operation of doors, locks, hinges, etc. will be checked.
13.)	Dimensions and weight	After completion of test, the dimensions and weight will be checked.
14.)	Weatherproofness	Inside dia. of nozzle : 12.5mm

		Distance : 1.5 m Speed : 100 mm/sec. Pressure : 1 kg/sq.cm
	Note: R = Maximum Gross Weight T = Tare Weight P = Maximum Payload	

PART 9 GUARANTEE

9.01 *STRUCTURE*

A. *All the containers shall be guaranteed by manufacturer to be free from defects in materials, workmanship and structure for a period of one (1) year, from the date of acceptance of the container by the buyer.*

9.02 *PAINTING*

A. The paint system coated on the container surface shall be guaranteed to be free from corrosion and failure for a period of five (5) years, from the date of acceptance of the container by the buyer.
B. Corrosion is defined as rusting which exceeds RE3 (European Scale of degree of Rusting) on at least ten (10) percent of the total container surface, excluding that resulting from impact or abrasion damage, contact with solvents or corrosive chemicals and abnormal use.
C. If the corrosion exceeds RE3 as defined above within the guarantee period, inspection of the corrosion shall be carried out by the buyer, CXIC and paint manufacturer to detect the cause. As the result of the inspection, if it is mutually agreed and accepted that the corrosion has caused for the defective paint quality and/or poor workmanship, CXIC and/or paint manufacturer shall correct the defect on their accounts.

9.03 DECALS

A. Decals applied on the container shall be guaranteed for a period of seven (7) years without peeling off, tenting or colour fading if decals are supplied by CXIC. CXIC shall not be liable for any consequential damage or expenses occasioned by any defects for whatsoever reason or any loss of time due to repair or correction.

PART 10 REVISIONS

10.01 THIS SPECIFICATION (CX10-4012/1-S REVISED DATE: JUN 19, 2017) BASES ON PREVIOUS SPECIFICATION (CX10-4012/1-S), MAIN DIFFERENCES IS AS FOLLOWINGS:

A. Chloroprene or waterborne sealant will be applied interior.
B. Update floorboard material.
C. The solvent paint system has changed to waterborne paint system.

10.02 THIS SPECIFICATION (CX10-4012/1-S/R REVISED DATE: SEP 29, 2018) BASES ON PREVIOUS SPECIFICATION (CX10-4012/1-S REVISED DATE: JUN 19, 2017), MAIN DIFFERENCES IS AS FOLLOWINGS:

A. 1. The lock lever is changed to three lock bars, the third lock bar is lengthened with rubber insulation sleeve.

10.03 THIS SPECIFICATION (CX10-4012/1-S/R1 REVISED DATE: NOV 22, 2018) BASES ON PREVIOUS SPECIFICATION (CX10-4012/1-S/R REVISED DATE: SEP 29, 2018), MAIN DIFFERENCES IS AS FOLLOWINGS:

A. 1. The height of locking handle has changed to 1000mm.

END OF SECTION

This page intentionally left blank

SECTION 220719.11
UNDER-LAVATORY PIPE AND SUPPLY COVERS - PLUMBEREX

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Under-lavatory pipe and supply covers.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

A. 28 CFR 36 - Nondiscrimination by Public Accommodations and in Commercial Facilities; Final Rule; Department of Justice current edition.
B. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines current edition.
C. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
D. ASME A112.18.9 - Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures 2011 (Reaffirmed 2022).
E. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus 2019, with Editorial Revision (2023).
F. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2021.
G. ASTM C1822 - Standard Specification for Insulating Covers on Accessible Lavatory Piping 2021.
H. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023b.
I. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi 2015, with Editorial Revision (2021).
J. IAPMO (UPC) - Uniform Plumbing Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
K. ICC (IBC) - International Building Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
L. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
M. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide catalog illustrations of covers, sizes, and finishes.
C. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 UNDER-LAVATORY PIPE AND SUPPLY COVERS

A. Basis of Design: Plumberex Specialty Products, Inc; www.plumberex.com/#sle.
   1. Fusion Molded Under-Lavatory Insulators (Non-Sewn): Plumberex Handy-Shield Maxx.
   2. Slim Fit Under-Lavatory Insulators (Non-Sewn): Plumberex Trap Gear.
   3. Under-Lavatory Covers with Snap-Lock Fasteners (Molded): Plumberex Pro-Extreme.
B. General:
   1. Insulate exposed drainage piping including hot, cold, and tempered water supplies under lavatories or sinks per ADA Standards.

2. Adhesives, sewing threads, and two-ply laminated materials are prohibited.
3. Exterior Surfaces: Smooth nonabsorbent with no finger recessed indentations for easy cleaning.
4. Construction: 1/8 inch PVC with antimicrobial, antifungal, and ultraviolet light (UV) resistant properties.
    a. Comply with ASTM C1822 for covers on accessible lavatory piping.
    b. Microbial and Fungal Resistance for Interior and Exterior: Comply with ASTM G21.

C. ASTM E84 Compliant, Under-Lavatory Insulators:
1. Manufacturers:
    a. Plumberex Specialty Products, Inc: Plumberex Trap Gear; www.plumberex.com/#sle.
2. Construction: Soft, non-laminated, flexible PVC with antimicrobial, antifungal, and UV-resistant properties. Fusion molded one piece universal design for multiple P-trap configurations. Adhesives, sewing threads, and two ply laminated materials shall not be allowed. Exterior surfaces shall be smooth nonabsorbent with no finger recessed indentations for easy cleaning. Supply riser shall be flexible and a minimum of 15 inches inches in length.
3. Provide with weep hole for condensation drainage and ventilation.
4. Comply with:
    a. ASTM E84/UL 723 to comply with flame spread and smoke development rating of 25/450.
    b. ASTM C1822 Type I.
    c. ADA Standards.
    d. 36 CFR 1191.
    e. ICC A117.1.
5. Color: High gloss color to match fixture.

D. Under-Lavatory Covers with Snap-Lock Fasteners:
1. Manufacturers:
    a. Plumberex Specialty Products, Inc: Plumberex Pro-Extreme; www.plumberex.com/#sle.
2. Construction: PVC with antimicrobial, antifungal, and UV-resistant properties, one piece injected molded design with internal bridge at top of J-bend to prevent separating.
3. Fasteners: Reusable, snap-locking fasteners with no sharp or abrasive external surfaces. No cable ties allowed.
4. Maintenance: Valve and supply cover shall be accessible for maintenance without removal and with removable, reusable access cap.
5. Comply with:
    a. ASTM C1822 Type III.
    b. ADA Standards.
    c. 36 CFR 1191.
    d. ICC A117.1.
    e. Requirement to protect against contact with sharp or abrasive surfaces.
6. Provide with weep hole for condensation drainage and ventilation.
7. Vandal Resistance: Internal line grooves for trimming not easily torn by hand. All trim line grooves shall require tool cutting only.
8. Color: High gloss white.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that walls, floor finishes, lavatories, and piping are prepared and ready for installation of under-lavatory guards.
B. Confirm location and size of fixtures and piping before installation.

3.02 INSTALLATION

A. Install under-lavatory guards according to manufacturer's written instructions..

3.03 CLEANING

A. Clean installed under-lavatory guards.

3.04 PROTECTION

A. Protect installed products from damage due to subsequent construction operations.
B. Repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

This page intentionally left blank

SECTION 224000
PLUMBING FIXTURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush valve water closets.

B. Wall hung urinals.

C. Lavatories.

D. Sinks.

E. Under-lavatory pipe supply covers.

F. Mop sinks.

1.02 RELATED REQUIREMENTS

A. Section 011000 - Summary: Owner-furnished fixtures.

B. Section 114000 - Foodservice Equipment: Food service sinks.

C. Section 123600 - Countertops: Counters for sinks and lavatories.

D. Section 223000 - Plumbing Equipment.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.

B. ASHRAE Std 18 - Methods of Testing for Rating Drinking-Water Coolers with Self-Contained Mechanical Refrigeration 2008 (Reaffirmed 2013).

C. ASME A112.6.1M - Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use 1997 (Reaffirmed 2017).

D. ASME A112.18.1 - Plumbing Supply Fittings 2018, with Errata.

E. ASME A112.18.9 - Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures 2011 (Reaffirmed 2022).

F. ASME A112.19.1 - Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures 2018.

G. ASME A112.19.2 - Ceramic Plumbing Fixtures 2018, with Errata.

H. ASME A112.19.3 - Stainless Steel Plumbing Fixtures 2022.

I. ASME A112.19.4M - Porcelain Enameled Formed Steel Plumbing Fixtures 1994 (Reaffirmed 2009).

J. ASME A112.19.5 - Flush Valves and Spuds for Water Closets, Urinals, and Tanks 2022.

K. ASSE 1070 - Performance Requirements for Water Temperature Limiting Devices 2020.

L. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus 2019, with Editorial Revision (2023).

M. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2021.

N. ASTM C1822 - Standard Specification for Insulating Covers on Accessible Lavatory Piping 2021.

O. ASTM D570 - Standard Test Method for Water Absorption of Plastics 2022.

P. ASTM D638 - Standard Test Method for Tensile Properties of Plastics 2022.

Q. ASTM D696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between −30°C and 30°C with a Vitreous Silica Dilatometer 2016.

R. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023.

S. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi 2015, with Editorial Revision (2021).

T. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

U. ITS (DIR) - Directory of Listed Products Current Edition.

V. NSF 61 - Drinking Water System Components - Health Effects 2022, with Errata.

W. NSF 372 - Drinking Water System Components - Lead Content 2022.

1.04 SUBMITTALS

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

B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.

C. Manufacturer's Instructions: Indicate installation methods and procedures.

D. Maintenance Data: Include fixture trim exploded view and replacement parts lists.

E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept fixtures on-site in factory packaging. Inspect for damage.

B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.07 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Provide five year manufacturer warranty for electric water cooler.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

B. Maximum Fixture or Faucet Supply Pressure: 60 psi unless stated otherwise.

2.02 REGULATORY REQUIREMENTS

A. Comply with applicable codes for installation of plumbing systems.

B. Perform work in accordance with local health department regulations.

2.03 FLUSH VALVE WATER CLOSETS

A. Water Closets:
   1. Vitreous china, ASME A112.19.2, floor mounted, siphon jet flush action, china bolt caps.
   2. Bowl: ASME A112.19.2; 16.5 inches high with elongated rim.
   3. Flush Valve: Exposed (top spud).
   4. Flush Operation: Sensor operated.
   5. Handle Height: 44 inches or less.
   6. Inlet Size: 1-1/2 inches.
   7. Trapway Outlet: 4 inch.
   8. Color: White.
   9. Manufacturers:
      a. Advanced Modern Technologies Corporation; _____: www.amtcorporation.com/#sle.

b. American Standard, Inc; Baby Devoro, 2-Piece Gravity: www.americanstandard-us.com/#sle.
c. Gerber Plumbing Fixtures LLC; _____: www.gerberonline.com/#sle.
d. Kohler Company; _____: www.kohler.com/#sle.
e. PROFLO; Commercial - Wall-Mount, Rear Inlet Spud: www.ferguson.com/#sle.
f. Zurn Industries, LLC; _____: www.zurn.com/#sle.
g. Substitutions: See Section 016000 - Product Requirements.

B. Flush Valves:
1. Valve Supply Size: 1 inch.
2. Valve Outlet Size: 1-1/2 inches.
3. Manufacturers:
a. Advanced Modern Technologies Corporation; _____: www.amtcorporation.com/#sle.
b. American Standard, Inc; _____: www.americanstandard-us.com/#sle.
c. Delany Products; _____: www.delanyproducts.com/#sle.
d. Sloan Valve Company; _____: www.sloanvalve.com/#sle.
e. Stern Engineering; Noble Series: www.sternfaucets.com/#sle.
f. Zurn Industries, LLC; ZEMS Series: www.zurn.com/#sle.
g. Substitutions: See Section 016000 - Product Requirements.
4. Manual Operated:
a. Type: ASME A112.18.1 or ASME A112.19.5; diaphragm type complete with vacuum breaker stops, and accessories.
b. Supplied Volume Capacity: 1.5 gal per flush.
5. Sensor-Operated:
a. Type: ASME A112.19.5; chloramine-resistant clog-resistant dual-seat diaphragm valve complete with vacuum breaker, stops and accessories.
b. Mechanism: Solenoid-operated piston or electronic motor-actuated operator with low-voltage powered infrared sensor, and mechanical override or override push button.
c. Supplied Volume Capacity: 1.2 gal per flush.
d. Metering: Provide wireless communications into monitoring and logging application.
6. Concealed Type: Rough brass, exposed parts chrome-plated, wall escutcheon, wheel handle stop.
7. Exposed Type: Chrome-plated, escutcheon, integral screwdriver stop.
8. Metering Type: Easily accessible adjustment nut.

C. Toilet Seats:
1. Manufacturers:
a. American Standard, Inc; _____: www.americanstandard-us.com/#sle.
b. Bemis Manufacturing Company; _____: www.bemismfg.com/#sle.
c. Church Seat Company; _____: www.churchseats.com/#sle.
d. Olsonite; _____: www.olsonite.com/#sle.
e. PROFLO; Commercial - Baby Bowls, Open Front: www.ferguson.com/#sle.
f. Zurn Industries, LLC; _____: www.zurn.com/#sle.
g. Substitutions: See Section 016000 - Product Requirements.
2. Plastic: Solid, white finish, enlongated shape, closed front, slow-closing hinged seat cover, and brass bolts with covers.
3. Plastic: Solid, white finish, enlongated shape, open front, slow-closing hinged seat cover, extended back complete with self-sustaining hinges, and brass bolts with covers.
4. Plastic: White finish, open front, extended back, self-sustaining hinge, brass bolts, with cover.

2.04 WALL HUNG URINALS

A. Manufacturers:
1. Advanced Modern Technologies Corporation; _____: www.amtcorporation.com/#sle.

2. American Standard, Inc; _____: www.americanstandard-us.com/#sle.
3. Gerber Plumbing Fixtures LLC; _____: www.gerberonline.com/#sle.
4. Kohler Company; _____: www.kohler.com/#sle.
5. PROFLO; 1800 Series - Half Stall, Rear Outlet: www.ferguson.com/#sle.
6. Zurn Industries, LLC; _____: www.zurn.com/#sle.
7. Substitutions: See Section 016000 - Product Requirements.

B. Vitreous china, ASME A112.19.2, wall hung with side shields and concealed carrier.
1. Consumption Volume: 1.0 gal per flush, maximum.
2. Flush Valve: Exposed (top spud).
3. Flush Operation: Sensor operated.
4. Trapway Outlet: Integral.

C. Flush Valves:
1. Manufacturers:
a. Advanced Modern Technologies Corporation; AEF-800 Series: www.amtcorporation.com/#sle.
b. American Standard, Inc; _____: www.americanstandard-us.com/#sle.
c. Delany Products; _____: www.delanyproducts.com/#sle.
d. Sloan Valve Company; _____: www.sloanvalve.com/#sle.
e. Stern Engineering; Noble Series: www.sternfaucets.com/#sle.
f. Zurn Industries, LLC; ZEMS Series: www.zurn.com/#sle.
g. Substitutions: See Section 016000 - Product Requirements.
2. Manual Operated:
a. Type: ASME A112.18.1 or ASME A112.19.5; diaphragm type, complete with vacuum breaker stops, and accessories.
b. Supplied Volume Capacity: 1.5 gal per flush.
3. Sensor-Operated:
a. Type: ASME A112.19.5; chloramine-resistant, clog-resistant dual-seat diaphragm valve with vacuum breaker, stops and accessories.
b. Mechanism: Solenoid-operated piston or electronic motor-actuated operator with low-voltage powered infrared sensor, and mechanical override or override push button.
c. Supplied Volume Capacity: 1.2 gal per flush.
d. Metering: Provide wireless communications into monitoring and logging application.
4. Exposed Type: Chrome-plated, escutcheon, integral screwdriver stop.

D. Urinal Carriers:
1. Manufacturers:
a. Jay R. Smith Manufacturing Company; _____: www.jrsmith.com/#sle.
b. JOSAM Company; _____: www.josam.com/#sle.
c. Zurn Industries, LLC; Z1221: www.zurn.com/#sle.
d. Substitutions: See Section 016000 - Product Requirements.
2. ASME A112.6.1M; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded fixture studs for fixture hanger, bearing studs.

2.05 LAVATORIES

A. Manufacturers:
1. American Standard, Inc; _____: www.americanstandard-us.com/#sle.
2. Gerber Plumbing Fixtures LLC; _____: www.gerberonline.com/#sle.
3. Kohler Company; _____: www.kohler.com/#sle.
4. Zurn Industries, LLC; _____: www.zurn.com/#sle.
5. Substitutions: See Section 016000 - Product Requirements.

B. Wall-Hung Basin:
1. Porcelain-Enamelled Cast Iron: ASME A112.19.1; white, rectangular basin with splash lip, front overflow, soap depression, and hanger. Size as indicated on drawings with 4-inch

centerset spacing.

2. Vitreous China: ASME A112.19.2; white, rectangular basin with splash lip, front overflow, soap depression, and hanger. Size as indicated on drawings with 4-inch centerset spacing.
3. Products:
   a. PROFLO; Commercial - 19 x 17, Rectangular: www.ferguson.com/#sle.
   b. Substitutions: See Section 016000 - Product Requirements.
4. Carrier:
   a. ASME A112.6.1M; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded studs for fixture hanger, bearing plate and studs.
   b. Manufacturers:
      1) Jay R. Smith MFG. Co; _____: www.jrsmith.com/#sle.
      2) JOSAM Company; _____: www.josam.com/#sle.
      3) Zurn Industries, LLC; Z1231: www.zurn.com/#sle.
      4) Substitutions: See Section 016000 - Product Requirements.

C. Sensor Operated Faucet:
1. Cast brass, chrome plated, deck mounted with sensor located on neck of spout.
2. Spout Style: Standard.
3. Mixing Valve: None, single line for tempered water.
4. Water Supply: 3/8 inch compression connections.
5. Aerator: Vandal resistant, 0.5 gpm, laminar flow device.
6. Automatic Shut-off: 30 seconds.
7. Sensor Range: Automatically adjusts.
8. Finish: Polished chrome.
9. Accessory: 4 inch deck plate.
10. Lead Content: Extra low; maximum 0.25 percent by weighed average.
11. Manufacturers:
    a. Advanced Modern Technologies Corporation; _____: www.amtcorporation.com/#sle.
    b. Chicago Faucet Company; _____: www.chicagofaucets.com/#sle.
    c. Gerber Plumbing Fixtures LLC; _____: www.gerberonline.com/#sle.
    d. Grohe America, Inc; _____: www.grohe.com/us/#sle.
    e. Moen Incorporated; _____: www.moen.com/#sle.
    f. Powers Controls; _____: www.powerscontrols.com/#sle.
    g. Sloan Valve Company; _____: www.sloanvalve.com/#sle.
    h. Toto USA; _____: www.totousa.com/#sle.
    i. Zurn Industries, LLC; _____: www.zurn.com/#sle.
    j. Substitutions: See Section 016000 - Product Requirements.

2.06 SINKS

A. Manufacturers:
1. American Bath Group; _____: www.americanbathgroup.com/#sle.
2. American Standard, Inc; _____: www.americanstandard-us.com/#sle.
3. Jay R. Smith Manufacturing Company; _____: www.jrsmith.com/#sle.
4. Kohler Company; _____: www.kohler.com/#sle.
5. Meganite, Inc; _____: www.meganite.com/#sle.
6. Relang International, LLC; DURASEIN: www.duraseinusa.com/#sle.
7. Trueform Concrete; _____: www.trueformconcrete.com/#sle.
8. Substitutions: See Section 016000 - Product Requirements.

B. Single Compartment Bowl
1. ASME A112.19.3; _____ by _____ by _____ inch outside dimensions 20 gauge, 0.0359 inch thick, Type 302 stainless steel, self rimming and undercoated, with ledge back drilled for trim.
2. Drain: 1-1/2 inch chromed brass.

3. Drain: 3-1/2 inch crumb cup and tailpiece.

2.07 UNDER-LAVATORY PIPE SUPPLY COVERS

A. Manufacturers:
   1. Plumberex Specialty Products, Inc; _____: www.plumberex.com/#sle.
   2. Substitutions: See Section 016000 - Product Requirements.

B. Basis of Design: Plumberex Specialty Products, Inc; www.plumberex.com/#sle.
   1. Fusion Molded Under-Lavatory Insulators (Non-Sewn): Plumberex Handy-Shield Maxx.
   2. Slim Fit Under-Lavatory Insulators (Non-Sewn): Plumberex Trap Gear.
   3. Under-Lavatory Covers with Snap-Lock Fasteners (Molded): Plumberex Pro-Extreme.

C. General:
   1. Insulate exposed drainage piping including hot, cold and tempered water supplies under lavatories or sinks per ADA Standards.
   2. Adhesives, sewing threads and two ply laminated materials are prohibited.
   3. Exterior Surfaces: Smooth nonabsorbent with no finger recessed indentations for easy cleaning.
   4. Construction: 1/8 inch PVC with antimicrobial, antifungal and UV resistant properties.
      a. Provide one piece injected molded design with internal bridge at top of J-bend to prevent separating.
      b. Comply with ASTM E84 for flame and smoke development.
      c. Comply with ASTM C1822 Type III for covers on accessible lavatory piping.
      d. Comply with ASME A112.18.9 for covers on accessible lavatory piping.
      e. Comply with ICC A117.1.
      f. Thermal Resistance: R value of 0.504 or lower when tested by ASTM C177.
      g. Thermal Conductivity: K value of 0.358 or density of 21.61 pcf per ASTM C518.
      h. Microbial and Fungal Resistance for Interior and Exterior: Comply with ASTM G21.
   5. Color: High gloss white.
   6. Fasteners: Reusable, snap-locking fasteners with no sharp or abrasive external surfaces. No cable ties allowed.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.

B. Verify that electric power is available and of the correct characteristics.

C. Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

3.02 PREPARATION

A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION

A. Install each fixture with trap, easily removable for servicing and cleaning.

B. Provide chrome-plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.

C. Install components level and plumb.

D. Install and secure fixtures in place with wall supports and bolts.

E. Solidly attach water closets to floor with lag screws. Lead flashing is not intended to hold fixture in place.

3.04 INTERFACE WITH WORK OF OTHER SECTIONS

A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

3.05 ADJUSTING

A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.06 CLEANING

A. Clean plumbing fixtures and equipment.

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

3.07 PROTECTION

A. Protect installed products from damage due to subsequent construction operations.

B. Do not permit use of fixtures by construction personnel.

C. Repair or replace damaged products before Date of Substantial Completion.

3.08 SCHEDULES

A. Fixture Heights: Install fixtures to heights above finished floor as indicated.
   1. Water Closet:
      a. Standard: 15 inches to top of bowl rim.
      b. Accessible: 18 inches to top of seat.
   2. Water Closet Flush Valves:
      a. Standard: 11 inches min. above bowl rim.
      b. Recessed: 10 inches min. above bowl rim.
   3. Urinal:
      a. Standard: 22 inches to top of bowl rim.
      b. Accessible: 17 inches to top of bowl rim.
   4. Lavatory:
      a. Standard: 31 inches to top of basin rim.
      b. Accessible: 34 inches to top of basin rim.
   5. Drinking Fountain:
      a. Child: 30 inches to top of basin rim.
      b. Standard Adult: 40 inches to top of basin rim.
      c. Accessible: 36 inches to top of spout.

B. Fixture Rough-In
   1. Water Closet (Flush Valve Type):
      a. Cold Water: 1 Inch.
      b. Waste: 4 Inch.
      c. Vent: 2 Inch.
   2. Water Closet (Tank Type):
      a. Cold Water: 1/2 Inch.
      b. Waste: 4 Inch.
      c. Vent: 2 Inch.
   3. Urinal (Flush Valve Type):
      a. Cold Water: 3/4 Inch.
      b. Waste: 2 Inch.
      c. Vent: 1-1/2 Inch.
   4. Lavatory:
      a. Hot Water: 1/2 Inch.
      b. Cold Water: 1/2 Inch.
      c. Waste: 1-1/2 Inch.
      d. Vent: 1-1/4 Inch.
   5. Sink:
      a. Hot Water: 1/2 Inch.
      b. Cold Water: 1/2 Inch.

c. Waste: 1-1/2 Inch.
d. Vent: 1-1/4 Inch.

END OF SECTION

This page intentionally left blank

SECTION 233813
COMMERCIAL-KITCHEN HOODS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cooking hoods.

1.02 REFERENCE STANDARDS

A. ASSE 1001 - Performance Requirements for Atmospheric Type Vacuum Breakers 2021.
B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2023.
C. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations 2024.
D. NSF 2 - Food Equipment 2022.
E. SMACNA (KVS) - Kitchen Ventilation Systems and Food Service Equipment Fabrication and Installation Guidelines 2001.
F. UL 710 - Standard for Exhaust Hoods for Commercial Cooking Equipment Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation instructions, adjusting and balancing methods.
   4. Specimen warranty.
C. Shop Drawings: For each custom fabricated unit, provide drawings showing details of construction, dimensions, and interfaces with adjacent construction.
D. Test Reports for Grease Extracting Hoods: Provide test reports substantiating exhaust volume ratings and grease extraction performance.
E. Operation and Maintenance Data.
F. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. At least five years experience in the design and manufacture of products of similar type to those specified.
   2. For grease extracting hoods, able to provide test data showing performance of hoods to be provided.
   3. Having at least one factory-authorized service agency located within 50 miles of project site.
   4. Able to provide service to project site within 24 hours after receiving a service call.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Grease Extracting Hoods:
   1. Ansul, a brand of Tyco Fire Protection Products; ____: www.ansul.com/#sle.
   2. Grease Master; _____: www.greasemaster.com/#sle.
   3. Greenheck Fan Corporation; _____: www.greenheck.com/#sle.
   4. Halton, Halton Food Service Group; _____: www.halton.com/#sle.
   5. Substitutions: See Section 016000 - Product Requirements.
B. Other Hoods:
   1. Same manufacturer as for grease extracting hoods.

2.02 HOOD APPLICATIONS

A. Canopy-Style Cooking Hoods Type II:
   1. Style: Wall-attached canopy.
   2. Type: Grease extracting type, with water wash system.
   3. See Mechanical drawings for hood requirements.
   4. Mounting Height: Bottom rim at ____ inches above finished floor.

2.03 HOOD CONSTRUCTION

A. Provide products that comply with NFPA 96, the requirements and recommendations of SMACNA (KVS), and the requirements of the Authorities Having Jurisdiction.

B. Cooking Hoods: Provide Type I hoods, with all external joints and seams continuously welded, liquid-tight, and all internal joints, seams, and attachments sealed liquid-tight and grease-tight.
   1. Provide fire extinguishing system for all cooking hoods.
   2. Provide complete assemblies listed and labeled by UL under UL 710 for its intended use.
   3. Provide hoods and exhaust ducts rated for zero clearance to combustible construction.
   4. Provide complete assemblies certified and labeled by NSF under NSF 2.

C. Construction: Materials, inside and out, are stainless steel complying with ASTM A666, Type 304, stretcher leveled; unless otherwise indicated.
   1. Sheet Thickness: 18 gauge, 0.048 inch, minimum.
   2. Fabrication: Fabricate each individual hood in one piece, with all welds ground and finished to match (inside and out); fabricate flat surfaces exposed to view as double-pan formed panels with internal stiffener members.
   3. Finish on Surfaces Exposed to View: No.4 (brushed directional); provide stainless steel faces on all sides exposed to view.
   4. Finish on Concealed Surfaces: No.4 or No.2B (dull, matte).
   5. Duct Collars: For exhaust and make-up air openings, provide duct collar welded to hood unit; minimum of 8 inches extension from top or back face of unit, with minimum one inch 90 degree flange, unless otherwise indicated.
   6. Access Panels: Provide removable or hinged access panels sufficient for maintenance and replacement of operating components inside unit; maximum width of 40 inches.
   7. Electrical: Run electrical wiring in conduit or raceways, factory pre-wired, with single connection point per hood.
   8. Supports: Stainless steel mounting brackets, struts, and threaded hanger rods.
      a. Hanger Rods: 3/8 inch diameter, minimum.
      b. Hanger Spacing: 48 inches on center, maximum.
      c. Attachment to Structure: Mechanical fittings or inserts, stainless steel.
   9. Accessory Panels: Where indicated, provide filler and closure panels of same construction as hoods, to close spaces between hoods and adjacent construction; mount with panel face flush with face of hood.
      a. Where top of ceiling hung hood is lower than the finished ceiling, provide panels to close space between top of hood and ceiling.
      b. Where back of hood must be set away from wall, provide filler panels to close space between hood and wall.

D. Exhaust Air Volume Control: For balancing; provide either built-in volume control damper or separate damper in exhaust duct.

E. Make-Up Air System: Provide volume damper at inlet, accessible for balancing.
   1. Diffusers: Louvered register with opposed blade dampers.
   2. Plenum: Insulated with one inch thick foil-face fiberglass insulation, on inside of plenum.

F. Fire Dampers: All stainless steel, positive closing with fully-enclosed spring assist.
   1. Reset Handle: Reset after actuation by pull handle located not more than 84 inches above finished floor and not requiring removal of access panel.
   2. Fail-safe actuation by fusible link rated at 286 degrees F.
   3. Additional actuation as specified.
   4. Provide fire dampers at exhaust outlets and make-up air inlets.

2.04 GREASE EXTRACTING HOODS

A. Grease Extracting Hoods: Pre-engineered, factory-fabricated standard products; high-velocity centrifugal grease extraction without requiring filters, cartridges, moving parts, removable parts, or constantly running water, with grease collected in gutter piped to drain, and as specified above.
   1. Performance: Remove 95 percent of extraneous matter in air stream at rated air velocity; provide substantiation.
   2. Grease Extracting Baffles: Non-removable, adjustable for balancing.
   3. Access Panels: Provide removable panels, with handles, for access to exhaust plenum for cleaning.
   4. Label: Provide permanent label indicating rated exhaust performance.

B. Internal Water Wash System: Hot water spray to wash down all interior surfaces of entire exhaust plenum; collect wash water inside hood and pipe to point indicated for indirect connection to building drainage system.
   1. Water Temperature: 140 degrees F.
   2. Water Pressure: 40 psi.
   3. Detergent: Inject or pump detergent into wash water lines.
   4. Supply Plumbing: Brass or stainless steel spray heads or nozzles and stainless steel distribution manifolds; factory installed, with one connection point per hood.
   5. Drain Plumbing: Drain fittings welded to bottom of plenum; interconnect multiple hoods for single drain connection.

C. Plumbing Equipment: Include the following in control panel:
   1. Water solenoid valve.
   2. Pressure reducing valve, if supply exceeds 50 psi.
   3. Shutoff valve, ball type.
   4. Check valve.
   5. Line strainer.
   6. Temperature/pressure gauge.
   7. Shock absorber.
   8. Vacuum breaker, ASSE 1001, in water supply line between control panel and hood.
   9. Detergent pump or injector; pump test switch.
   10. Detergent inlet with check valve.
   11. Detergent reservoir; minimum one gallon capacity.
   12. Wash controls.

D. Control Panel: Provide a single enclosure for all plumbing components, wash controls, and fan controls for a particular hood.

E. Wash Controls:
   1. Provide cleaning cycle duration timer; adjustable between 0 and 15 minutes.
   2. Shut off fan(s), if running, before starting cleaning cycle.
   3. Start wash cycle upon actuation of exhaust fire damper.
   4. Manual Actuation: Provide pushbuttons on control panel.
   5. Timed Actuation: Provide solid state, programmable controls with 24-hour, 7 day clock to set cleaning cycle duration and interval and fan on and off times.
   6. Automatic Actuation: In case of fire.
   7. Wash Zones: Provide controls capable of controlling up to 5 wash zones independently with minimum of three programmable auxiliary outputs to control user-specified devices.
   8. Provide indicator lights on control panel door indicating status of wash cycle.

2.05 HOOD ACCESSORIES

A. Fire Extinguishing Systems:
   1. Manufacturers:
      a. Amerex; _____: www.amerex-fire.com/#sle.
      b. Ansul, a Tyco Business; _____: www.ansul.com/#sle.
      c. Grease Master; _____: www.greasemaster.com/#sle.
      d. Substitutions: See Section 016000 - Product Requirements.

2. Fire extinguishing system to comply with NFPA 96.
3. Type: Dry-chemical type.
4. Exposed Piping Under Hood: Stainless steel or chrome plated.
5. Exposed Piping Outside Hood: Not permitted.
6. Nozzles: Stainless steel or chrome plated brass.
7. Electrical Components: Provide all components required for properly operating system, including but not limited to wiring, raceways, contactors, circuit breakers, switches and solenoids.
8. Manual Actuators: Wall-mounted pull stations; provide one near each hood and one near exit door.

B. Controls:
1. Fans: Provide manual push button controls for starting and stopping fans and labeled indicator lights showing fan status.
2. Fans: Provide controls for fan operation by time clock, programmable by the week, capable of maintaining time cycle after operation of manual push buttons.
3. Cooking Equipment: Provide manual shutoff and reset button located where indicated; combine with fire extinguishing actuation.
4. Fire Dampers: Provide thermostatic actuation of fire damper at 350 degrees F air temperature in exhaust duct; upon actuation of fire damper, automatically:
    a. Shut off fans serving that hood.
    b. Shut off fuel source to equipment under hood; actuate solenoid gas valves provided as part of gas piping work.
    c. Shut off electric power to equipment under hood; actuate contactors or switches provided as part of electrical work.
    d. Initiate automatic wash system and continue operation for 5 minutes after temperature falls below actuation temperature.
    e. Signal building fire alarm system; normally-open contacts.
5. Fire Extinguishing System: Provide automatic actuation complying with NFPA 96; provide local and remote manual actuating stations clearly labeled "Hood Fire Protection"; upon actuation of fire extinguishing system, automatically:
    a. Shut off fans serving that hood.
    b. Shut off fuel source to equipment under hood; actuate solenoid gas valves provided as part of gas piping work.
    c. Shut off electric power to equipment under hood; actuate contactors or switches provided as part of electrical work.
    d. Signal building fire alarm system; normally-open contacts.
6. Internal Water Wash System: Provide interlock to shut off fan(s) prior to starting wash cycle; provide wash controls as specified.

C. Control Panels: Factory assembled and pre-wired, ready for utility connections.
1. UL listed for use with specific hood.
2. Provide a single control panel combining all control functions for a particular hood, unless otherwise indicated.
3. Provide a single control panel for each group of hoods served by a single exhaust fan.
4. Enclosures: Flush-mounted; stainless steel, to match hood.
5. Provide indicator lights on control panel door showing status of fans and power supply.

D. Lights Inside Hoods: Fluorescent and incandescent in quantity and locations indicated, in UL listed vapor-proof fixtures, pre-wired to junction box on top of hood.
1. Fluorescent: Standard bi-pin base; recessed or surface mounted.
    a. Tube Color: Cool white.
    b. Tube Diameter: 1-1/2 inch.
    c. Tube Length: 48 inches.
2. Locate switch for operating lights in locations indicated.

E. Exhaust Ducts: 18 gauge, 0.048 inch stainless steel sheet, ; with external seams welded continuously, liquid-tight; see drawings for extent, location, and size of exhaust ducts.

1. Where ducts penetrate ceilings or walls, provide stainless steel angle flange trim with welded corners, 16 gauge, 0.06 inch minimum thickness.
2. Where ducts penetrate hood body, provide stainless steel angle flange trim with welded corners and seal joints liquid-tight.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that overhead supports are installed in correct locations.
B. Do not begin installation until substrates have been properly prepared.
C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.
B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions and NFPA 96.
B. Install hoods level and plumb, securely fastened, with seismic restraints as specified, and free of vibration during normal operation.
C. Weld hood duct collars to ductwork, liquid-tight.
D. Connect to utilities.

3.04 SYSTEM STARTUP

A. Obtain the services of the manufacturer's representative experienced in the installation, adjustment, and operation of the equipment to supervise the starting and adjusting of equipment.
B. Prepare equipment for startup, start and operate equipment for sufficient period to verify proper operation; correct equipment not operating correctly.
C. Test liquid carrying components for leaks.
D. Adjust volume dampers as required for proper air flow after building air handling systems have been balanced and adjusted.
E. Demonstrate operation to Owner's designated personnel.
F. Demonstrate operation to authorities having jurisdiction if required by them; comply with their requirements for demonstration.
G. Report deficiencies in writing to Architect.

3.05 CLOSEOUT ACTIVITIES

A. See Section 017800 - Closeout Submittals, for closeout submittals.
B. Conduct training of Owner's designated personnel in the operation and maintenance of equipment.
C. Perform at least 2 hours of training, for minimum of 2 people, at project site.
D. Arrange training sessions with Owner at least 2 weeks in advance.
E. Have operation and maintenance data on hand for training sessions.

3.06 CLEANING

A. Clean surfaces of equipment.

END OF SECTION

This page intentionally left blank

SECTION 265100
INTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior luminaires.

B. Emergency lighting units.

C. Exit signs.

D. Ballasts and drivers.

E. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 260529 - Hangers and Supports for Electrical Systems.

B. Section 260533.16 - Boxes for Electrical Systems.

C. Section 260923 - Lighting Control Devices.
   1. Includes automatic controls for lighting including occupancy sensors, outdoor motion sensors, time switches, outdoor photo controls, and daylighting controls.
   2. Includes lighting contactors.

D. Section 262726 - Wiring Devices: Manual wall switches and wall dimmers.

E. Section 265600 - Exterior Lighting.

1.03 REFERENCE STANDARDS

A. IEC 60529 - Degrees of Protection Provided by Enclosures (IP Code) 1989 (Corrigendum 2019).

B. IEEE C62.41.2 - IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits 2002 (Corrigendum 2012).

C. IES LM-63 - Approved Method: IES Standard File Format for the Electronic Transfer of Photometric Data and Related Information 2019.

D. IES LM-79 - Approved Method: Optical and Electrical Measurements of Solid-State Lighting Products 2019.

E. IES LM-80 - Approved Method: Measuring Maintenance of Light Output Characteristics of Solid-State Light Sources 2021.

F. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

G. NECA/IESNA 500 - Standard for Installing Indoor Lighting Systems 2006.

H. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems 2006.

I. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

J. NFPA 101 - Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

K. UL 924 - Emergency Lighting and Power Equipment Current Edition, Including All Revisions.

L. UL 1598 - Luminaires Current Edition, Including All Revisions.

M. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.

2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
3. Coordinate the placement of exit signs with furniture, equipment, signage or other potential obstructions to visibility installed under other sections or by others.
4. Notify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

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

B. Shop Drawings:
1. Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
2. Provide photometric calculations where luminaires are proposed for substitution upon request.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.
1. LED Luminaires:
a. Include estimated useful life, calculated based on IES LM-80 test data.
2. Ballasts: Include wiring diagrams and list of compatible lamp configurations.
3. Fluorescent Emergency Power Supply Unit: Include list of compatible lamp configurations and associated lumen output.

D. Field quality control reports.

E. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

F. Operation and Maintenance Data: Instructions for each product including information on replacement parts.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
1. See Section 016000 - Product Requirements, for additional provisions.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Receive, handle, and store products according to NECA/IESNA 500 (commercial lighting), NECA/IESNA 502 (industrial lighting), and manufacturer's written instructions.

B. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

1.08 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.09 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

B. Provide 3-year manufacturer warranty for LED luminaires, including drivers.

C. Provide 2-year manufacturer warranty for linear fluorescent ballasts.

D. Provide 5-year pro-rata warranty for batteries for emergency lighting units.

E. Provide 10-year pro-rata warranty for batteries for self-powered exit signs.

F. Provide 3-year full warranty for fluorescent emergency power supply units.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

A. Furnish products as indicated in luminaire schedule included on the drawings.

B. Substitutions: See Section 016000 - Product Requirements.

2.02 LUMINAIRES

A. Manufacturers:
1. Acuity Brands, Inc: www.acuitybrands.com/#sle.
2. Alloy LED; _____: www.alloyled.com/#sle.
3. California Accent Lighting, Inc; _____: www.calilighting.com/#sle.
4. Cooper Lighting, a division of Cooper Industries: www.cooperindustries.com/#sle.
5. Electro-Matic Visual, Inc; _____: www.empvisual.com/#sle.
6. Hubbell Lighting, Inc; _____: www.hubbelllighting.com/#sle.
7. KURTZON Lighting, Inc; _____; www.kurtzon.com/#sle.
8. Lutron Electronics Company, Inc; _____: www.lutron.com/#sle.
9. Paraflex; _____: www.paraflex.com/#sle.
10. Philips Lighting North America Corporation; _____: www.lightingproducts.philips.com/#sle.
11. RAB Lighting, Inc; _____: www.rablighting.com/#sle.
12. Substitutions: See Section 016000 - Product Requirements.

B. Provide products that comply with requirements of NFPA 70.

C. Provide products that are listed and labeled as complying with UL 1598, where applicable.

D. Provide products listed, classified, and labeled as suitable for the purpose intended.

E. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.

F. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.

G. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

H. LED Luminaires:
1. Components: UL 8750 recognized or listed as applicable.
2. Tested in accordance with IES LM-79 and IES LM-80.
3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

I. LED Tape Lighting Systems: Provide all power supplies, drivers, cables, connectors, channels, covers, mounting accessories, and interfaces as necessary to complete installation.
1. LED Tape - General Requirements:
   a. Listed.
   b. Designed for field cutting in accordance with listing.
   c. Wet Location Applications: IEC 60529, IP 68 (waterproof) rated.
2. White LED Tape:

2.03 EMERGENCY LIGHTING UNITS

A. Manufacturers:
   1. Acuity Brands, Inc; _____: www.acuitybrands.com/#sle.
   2. Cooper Lighting, a division of Cooper Industries; _____: www.cooperindustries.com/#sle.
   3. Hubbell Lighting, Inc; _____: www.hubbelllighting.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

B. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.

C. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.

D. Battery:
   1. Size battery to supply all connected lamps, including emergency remote heads where indicated.

E. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.

F. Provide low-voltage disconnect to prevent battery damage from deep discharge.

G. Accessories:
   1. Provide compatible accessory mounting brackets where indicated or required to complete installation.
   2. Provide compatible accessory high impact polycarbonate vandal shields where indicated.

2.04 EXIT SIGNS

A. Description: Exit signs complying with NFPA 101 and applicable state and local codes, and listed and labeled as complying with UL 924.
   1. Number of Faces: Single- or double-face as indicated or as required for installed location.
   2. Directional Arrows: As indicated or as required for installed location.

B. Powered Exit Signs: Internally illuminated with LEDs unless otherwise indicated.
   1. Manufacturers:
      a. Acuity Brands, Inc; _____: www.acuitybrands.com/#sle.
      b. Cooper Lighting, a division of Cooper Industries; _____: www.cooperindustries.com/#sle.
      c. Hubbell Lighting, Inc; _____: www.hubbelllighting.com/#sle.
      d. Philips Lighting North America Corporation; _____: www.lightingproducts.philips.com/#sle.
      e. Substitutions: See Section 016000 - Product Requirements.
   2. Self-Powered Exit Signs:
      a. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
      b. Battery: Sealed, maintenance-free, nickel cadmium unless otherwise indicated.
      c. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.
      d. Provide low-voltage disconnect to prevent battery damage from deep discharge.

2.05 BALLASTS AND DRIVERS

A. Manufacturers:
   1. Alloy LED; _____: www.alloyled.com/#sle.
   2. California Accent Lighting, Inc; _____: www.calilighting.com/#sle.

3. General Electric Company/GE Lighting; _____: www.gelighting.com/#sle.
4. Lutron Electronics Company, Inc; _____: www.lutron.com/#sle.
5. OSRAM Sylvania, Inc; _____: www.osram.us/ds/#sle.
6. Philips Lighting North America Corporation; _____: www.usa.lighting.philips.com/#sle.
7. _____.
8. Substitutions: See Section 016000 - Product Requirements.
9. Manufacturer Limitations: Where possible, for each type of luminaire provide ballasts produced by a single manufacturer.
10. Where a specific manufacturer or model is indicated elsewhere in the luminaire schedule or on the drawings, substitutions are not permitted unless explicitly indicated.

B. Ballasts/Drivers - General Requirements:
1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.

2.06 ACCESSORIES

A. Stems for Suspended Luminaires: Steel tubing, minimum 1/2" size, factory finished to match luminaire or field-painted as directed.

B. Threaded Rods for Suspended Luminaires: Zinc-plated steel, minimum 1/4" size, field-painted as directed.

C. Tube Guards for Linear Fluorescent Lamps: Provide clear virgin polycarbonate sleeves with endcaps where indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.

C. Verify that suitable support frames are installed where required.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 260533.16 as required for installation of luminaires provided under this section.

B. Install products in accordance with manufacturer's instructions.

C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting) and NECA 502 (industrial lighting).

D. Provide required support and attachment in accordance with Section 260529.

E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

F. Suspended Luminaires:
1. Unless otherwise indicated, specified mounting heights are to bottom of luminaire.
2. Install using the suspension method indicated, with support lengths and accessories as required for specified mounting height.

3. Provide minimum of two supports for each luminaire equal to or exceeding 4 feet nominal length, with no more than 4 feet between supports.
4. Install canopies tight to mounting surface.
5. Unless otherwise indicated, support pendants from swivel hangers.

G. Install accessories furnished with each luminaire.

H. Bond products and metal accessories to branch circuit equipment grounding conductor.

I. Emergency Lighting Units:
1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
2. Install lock-on device on branch circuit breaker serving units.

J. Exit Signs:
1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
2. Install lock-on device on branch circuit breaker serving units.

K. Install lamps in each luminaire.

L. Lamp Burn-In: Operate lamps at full output for prescribed period per manufacturer's recommendations prior to use with any dimming controls. Replace lamps that fail prematurely due to improper lamp burn-in.

3.04 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Inspect each product for damage and defects.

C. Operate each luminaire after installation and connection to verify proper operation.

D. Test self-powered exit signs, emergency lighting units, and fluorescent emergency power supply units to verify proper operation upon loss of normal power supply.

E. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Architect.

3.05 ADJUSTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Architect. Secure locking fittings in place.

B. Aim and position adjustable emergency lighting unit lamps to achieve optimum illumination of egress path as required or as directed by Architect or authority having jurisdiction.

C. Exit Signs with Field-Selectable Directional Arrows: Set as indicated or as required to properly designate egress path as directed by Architect or authority having jurisdiction.

3.06 CLEANING

A. Clean surfaces according to NECA 500 (commercial lighting), NECA 502 (industrial lighting), and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.07 CLOSEOUT ACTIVITIES

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

B. Just prior to Substantial Completion, replace all lamps that have failed.

3.08 PROTECTION

A. Protect installed luminaires from subsequent construction operations.

3.09 ATTACHMENTS

A. Luminaire schedule.

B. Luminaire cut sheets.

END OF SECTION

This page intentionally left blank

SECTION 323113
CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Posts, rails, and frames.
B. Wire fabric.
C. Concrete.
D. Manual gates with related hardware.
E. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 033000 - Cast-in-Place Concrete: Concrete anchorage for posts.

1.03 REFERENCE STANDARDS

A. ASTM A121 - Standard Specification for Metallic-Coated Carbon Steel Barbed Wire 2022.
B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2023.
D. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric 2011a (Reapproved 2022).
E. ASTM A428/A428M - Standard Test Method for Weight [Mass] of Coating on Aluminum-Coated Iron or Steel Articles 2021.
F. ASTM A491 - Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric 2011 (Reapproved 2022).
G. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2023.
H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2023.
I. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2023.
J. ASTM F567 - Standard Practice for Installation of Chain-Link Fence 2023.
K. ASTM F668 - Standard Specification for Polyvinyl Chloride (PVC), Polyolefin and Other Polymer-Coated Steel Chain Link Fence Fabric 2017 (Reapproved 2022).
L. ASTM F1043 - Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework 2018 (Reapproved 2022).
M. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures 2018 (Reapproved 2022).
N. ASTM F1665 - Standard Specification for Poly(Vinyl Chloride) (PVC) and Other Conforming Organic Polymer-Coated Steel Barbed Wire Used with Chain-Link Fence 2008 (Reapproved 2022).
O. ASTM F2200 - Standard Specification for Automated Vehicular Gate Construction 2020.
P. BHMA A156.3 - Exit Devices 2020.
Q. CLFMI CLF-FIG0111 - Field Inspection Guide 2014.
R. CLFMI CLF-PM0610 - Product Manual 2017.
S. CLFMI CLF-SFR0111 - Security Fencing Recommendations 2014.
T. CLFMI WLG 2445 - Wind Load Guide for the Selection of Line Post and Line Post Spacing 2023.
U. FS RR-F-191/1D - Fencing, Wire and Post Metal (Chain-Link Fence Fabric) 1990.
V. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.
W. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
X. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.
Y. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.

Z. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.
C. Design Calculations: For high wind load areas, provide calculations for fence fabric and accessory selection as well as line post spacing and foundation details. See CLFMI WLG 2445 for line post and spacing guidance.
D. Manufacturer's Installation Instructions: Indicate installation requirements, post foundation anchor bolt templates, and _____.
E. Fence Installer Qualification Statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
B. Fence Installer: Company with demonstrated successful experience installing similar projects and products, with not less than five years of documented experience.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Chain Link Fences and Gates:
B. Sports Field Specialties bjaeger@sportsfield.com

2.02 COMPONENTS

A. Line Posts: REF. Civil inch diameter.
B. Corner and Terminal Posts: REF. Civil inch diameter.
C. Fabric (where shown on drawings): high-density woven polypropylene material designed for outdoor use in harsh weather conditions. The material shall be resistant to UV radiation, moisture, and mildew growth.
D. . The fence block shall provide a minimum of 98% privacy blockage when properly installed.

2.03 PRODUCTS

A. A. Fence block shall be supplied by a manufacturer with a proven track record of producing quality products that meet or exceed industry standards.
B. Tension Wire: 6 gauge, 0.1920 inch thick steel, single strand.
C. Tie Wire: Aluminum alloy steel wire.

2.04 MATERIALS

A. Posts, Rails, and Frames: Per Civil Drawings:
   1. Line Posts: Type I round in accordance with FS RR-F-191/1D.
   2. Terminal, Corner, Rail, Brace, and Gate Posts: Type I round in accordance with FS RR-F-191/1D.
B. Wire Fabric: REF. Civil:
C. Gates: REF. Civil Drawings for sizes and details.
   1. For 20' Gates use Hoover Fence's - Commercial Chainlink Fence Double Gates. All 1-5/8" Galvanized HF20 Frame - 6'H x 20'W for basis of design.
D. Concrete: Ref. Civil Drawings:

2.05 MANUAL GATES AND RELATED HARDWARE

A. Ref Civil Drawings
B. Latches: Finished to match fence components.
   1. Ref Civil Drawings

2.06 ACCESSORIES

A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.
C. Where new fencing is on adjacent to field of play match existing safty accessories.

2.07 FINISHES

A. Components (Other than Fabric): Galvanized in accordance with ASTM A123/A123M, at 1.7 ounces per square foot. Match existing. Reference Civil Drawings.

PART 3 EXECUTION

3.01 PREPARATION

A. Removal: Obstructions or debris.
B. Ground Preparation:
   1. Grading Ref Civil Drawings.

3.02 INSTALLATION

A. Install framework, fabric, accessories and gates in accordance with ASTM F567.
B. Place fabric on inside of posts and rails.
C. . Install the fence block in accordance with the manufacturer's recommendations and approved shop drawings.
D. Fence block shall be securely attached to the fence structure using appropriate fasteners or attachment methods. Ensure that attachment points are evenly distributed to prevent stress concentrations.
E. Maintain a consistent and level installation of the fence block to ensure a professional appearance. Trim or adjust the fence block as necessary to fit the fencing layout
F. Line Post Footing Depth Below Finish Grade: ASTM F567.
G. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: ASTM F567.
H. Do not stretch fabric until concrete foundation has cured 28 days.
I. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.
J. Position bottom of fabric 2 inches above finished grade.
K. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.
L. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
M. Do not attach the hinged side of gate to building wall; provide gate posts.
N. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.
O. Peen all bolts upon installation.
P. Perform three random field inspections confirming proper installation.
Q. Install operator in accordance with manufacturer's instructions and in accordance with NFPA 70.

3.03 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch.
B. Maximum Offset From True Position: 1 inch.
C. Do not infringe on adjacent property lines.

3.04 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for additional requirements.
B. Layout: Verify that fence installation markings are accurate to design, paying attention to gate locations, underground utilities, and property lines.
C. Post Settings: Randomly inspect three locations against design for:
   1. Hole diameter.
   2. Hole depth.
   3. Hole spacing.
D. Fence Height: Randomly measure fence height at three locations or at areas that appear out of compliance with design. Ref Civil Drawings for Heights.
E. Gates: Inspect for level, plumb, and alignment.

F. Workmanship: Verify neat installation free of defects. See CLFMI CLF-FIG0111 for field inspection guidance.

3.05 CLEANING

A. Leave immediate work area neat at end of each work day.
B. Clean jobsite of excess materials; scatter excess material from post hole excavations uniformly away from posts. Remove excess material if required.
C. Clean fence with mild household detergent and clean water rinse well.
D. Remove mortar from exposed posts and other fencing material using a 10 percent solution of muriatic acid followed immediately by several rinses with clean water.
E. Touch up scratched surfaces using materials recommended by manufacturer. Match touched-up paint color to factory-applied finish.
F. See Section 017419 - Construction Waste Management and Disposal, for additional requirements.
G. . Provide maintenance guidelines to the Owner, including cleaning procedures and recommended cleaning agents for the fence block.
H. Advise the Owner on the frequency of cleaning and maintenance required to preserve the appearance and effectiveness of the fence block.

3.06 CLOSEOUT ACTIVITIES

A. See Section 017800 - Closeout Submittals, for closeout submittals.
B. Demonstrate proper operation of equipment to Owner's designated representative.
C. Demonstration: Demonstrate operation of system to Owner's personnel.
    1. Use operation and maintenance data as reference during demonstration.
    2. Conduct walking tour of project.
    3. Briefly describe function, operation, and maintenance of each component.

3.07 WARRENTY

A. The Contractor shall provide a warranty for the fence block with 98% privacy blockage for a specified period (e.g., 5 years) from the date of substantial completion. The warranty shall cover defects in materials and workmanship, including UV degradation, tearing, and fading.
B. During the warranty period, the Contractor shall promptly address and rectify any issues covered under the warranty at no additional cost to the Owner

END OF SECTION

SECTION 329000
EXISTING GRASS SALVAGE

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes requirements for salvaging and preserving existing grass as indicated on the drawings and as specified herein.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section.

1.03 REFERENCES

A. Applicable references include:
   1. [List relevant references or standards if applicable]

PART 2 - PRODUCTS

2.01 MATERIALS

A. No additional materials are required for salvaging existing grass. The existing grass will be salvaged as is, without modification.

PART 3 - EXECUTION

3.01 EXISTING GRASS SALVAGE

A. Prior to any construction activities, carefully remove existing grass in areas designated on the drawings or as directed by the Engineer. Salvage the grass in a manner that preserves its integrity and ensures successful transplantation.
B. Use appropriate equipment and methods to minimize damage to the grass during removal. The grass shall be carefully lifted to maintain intact root systems.
C. Transport salvaged grass to the designated storage area or relocation site. Handle salvaged grass with care to prevent damage.
D. Store salvaged grass in a shaded area with adequate moisture until it can be replanted or reinstalled. Regularly water and maintain the salvaged grass to ensure its health.
E. Coordinate with the landscape architect or horticulturist to determine the appropriate timing and methods for replanting or reinstallation of the salvaged grass.

3.02 PROTECTION

A. Protect salvaged grass from foot traffic, construction activities, and adverse weather conditions during storage and transportation.
B. Take measures to prevent the drying out or wilting of salvaged grass during storage and transportation.

3.03 WARRANTY

A. The Contractor shall provide a warranty for a specified period (e.g., 90 days) from the date of replanting or reinstallation, ensuring the survival and establishment of the salvaged grass. During this period, the Contractor shall replace any dead or unsatisfactory grass with healthy, compatible replacement material at no additional cost.

END OF SECTION