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END OF SECTION

SECTION 01 1000
SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Historic Heard County Jail Refurbishment.

B. Owner's Name: Heard County Board of Commissioners.

C. Architect's Name: Gardner Spencer Smith Tench and Jarbeau, PC.

D. Summary:
   1. Briefly and without force and effect on the requirements of the Contract Documents, the project and the work of the Contract can be described in summary as follows:
      a. Work included:
         1) Demolition and surgical removal of existing structures, windows and security bars.
         2) Installation of new brick structure, windows, security bars and paint.

1.02 OBLIGATIONS OF CONTRACTOR

A. Except as otherwise specifically noted, provide and pay for:
   1. Labor, materials and equipment;
   2. Tools, construction equipment and machinery;
   3. Temporary heat and utilities required for construction;
   4. Other temporary facilities and services necessary for proper execution and completion of work;
   5. Temporary facilities such as partitions, lights, barricades, walkways, steps, ladders, railings, etc. necessary to assure the safety of the workers, students and staff of the school as well as the general public;
   6. "As-Built" drawings.

B. Pay legally required sales, consumer and use taxes.

C. Make all applications, secure and pay for as may be required for proper execution and completion of the work, and as required by authorities having jurisdiction:
   1. Any Permits, Business Licenses, deposits and/or fees of any kind that are a prerequisite for doing any of the work of this Contract.
   2. Interim and final inspections of the Work and/or any portions of the Work.
   3. Post all bonds (and/or security deposits) that are a prerequisite for doing any of the work of this Contract.

D. Give required notices.

E. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities having jurisdiction over this work.

F. Promptly submit written notice to Gardner Spencer Smith Tench and Jarbeau, PC of any observed variance of Contract Documents from legal requirements.

G. The Contractor shall have a supervisor on the project anytime any work is taking place or when delivery of equipment is expected.

1.03 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 5200 - Agreement Form.

1.04 EXECUTIVE ORDERS

A. The Contractor, by signing the Contract, acknowledges that he is aware of and will comply with the contents and requirements of the following Acts and Executive Orders.

1.05 WORK/COSTS BY OWNER

A. Loose furnishings, not otherwise called for.

B. Items marked N.I.C. on the drawings.

1.06 WORK BY OWNER

A. Items noted NIC (Not in Contract) will be supplied and installed by Heard County Board of Commissioners before Substantial Completion. Some items include:

1.07 OWNER OCCUPANCY

A. Heard County Board of Commissioners intends to continue to occupy adjacent portions of the existing building during the entire construction period.

B. Heard County Board of Commissioners intends to occupy the Project upon Substantial Completion.

C. Cooperate with Heard County Board of Commissioners to minimize conflict and to facilitate Heard County Board of Commissioners's operations.

D. Schedule the Work to accommodate Heard County Board of Commissioners occupancy.

1.08 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.

B. Arrange use of site and premises to allow:
   1. Heard County Board of Commissioners occupancy.
      a. Heard County Board of Commissioners will endeavor to cooperate with the Contractor's operation when the Contractor has notified Heard County Board of Commissioners in advance of the need for changes in operations in order to accommodate construction operations.
      b. Conduct the work so as to cause the least interference with Heard County Board of Commissioners's operations.
   2. Work by Others.
   3. Work by Heard County Board of Commissioners.
   4. Use of site and premises by the public.

C. Obtain Heard County Board of Commissioners' approval of proposed routing of construction traffic and time of day access.

D. Provide access to and from site as required by law and by Heard County Board of Commissioners:
   1. Do not obstruct roadways, sidewalks, or other public ways without permit.

E. Storage and staging areas are limited but will be available on site.

F. Signs: Provide signs adequate to direct visitors and Heard County Board of Commissioners's personnel.
   1. Do not install, or allow to be installed, signs other than specified sign(s) and signs identifying the principal entities involved in the project, unless authorized by Heard County Board of Commissioners
   2. Do not install any signs in violation of local zoning ordinances.

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

H. Time Restrictions:
   1. Limit conduct of especially noisy, malodorous, and dusty exterior work to the hours of time mutually agreeable to the Contractor and Owner.

I. Utility Outages and Shutdown:
   1. Limit disruption of utility services to hours the building is unoccupied.

2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Heard County Board of Commissioners and authorities having jurisdiction.
3. Prevent accidental disruption of utility services to other facilities.

1.09 WORK SEQUENCE

A. Coordinate construction schedule and operations with Heard County Board of Commissioners.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 SECURITY AND SAFETY PROCEDURES

A. Coordinate construction security and safety measures with security and safety programs of the Heard County Board of Commissioners.
   1. Establish procedures and notification priority required for emergency action including, but not limited to, events involving fire, injury, and/or damage to property.
   2. Post and maintain current list of emergency numbers required for action or requested by the Heard County Board of Commissioners.

B. Do not allow any cameras or photography on site unless authorized by the Heard County Board of Commissioners.

C. Maintain log of workers and visitors accessing the site, available to the Heard County Board of Commissioners upon request.

D. Limit access to the site to persons involved in the work.

E. Provide secure storage for materials for which the Heard County Board of Commissioners has made payment and which are stored on site.

F. Secure completed work as required to prevent loss.

3.02 PROTECTION OF PUBLIC FROM INJURY

A. Due to the proximity of the work to the public and to the large number of school personnel in the vicinity of the construction area, the Contractor is cautioned to exercise special care in protecting the public from injury during all phases of the work. Contractor is directed to provide adequate protective barriers to restrain public access to all hazardous areas. Before commencing the Work, a safety plan shall be developed by Contractor. Contractor shall make provisions for enforcing protection of property and public including locations of barricades, construction signs, and exit signs.

B. As the development and implementation of the safety plan is the sole responsibility of Contractor, it shall not be reviewed by the Gardner Spencer Smith Tench and Jarbeau, PC.

3.03 SPECIAL REQUIREMENTS

A. There will be no tobacco use allowed on the property.

B. Attire: Proper attire shall be worn at all times.
   1. Shirts shall be worn while on school property at all times. No tank tops or undershirts will be permitted.
   2. Clothing displaying nudity, obscene language, obscene symbols or pro-drug slogans is prohibited.
   3. Any failure to follow these requirements will result in removal from the school grounds, without recourse.

3.04 COORDINATION

A. If necessary, inform each party involved, in writing, of procedures required for coordination; include requirements for giving notice, submitting reports, and attending meetings.
   1. Inform the Heard County Board of Commissioners when coordination of his work or activities is required.

B. When the following must be modified or in any way interrupted, provide alternate facilities acceptable to Heard County Board of Commissioners:
   1. Emergency means of egress.
   2. Utilities which must remain in operation.

C. See other requirements in other portions of the contract documents.

D. Prepare coordination drawings where limited space available may cause conflicts in the locations of installed products, and where required to coordinate installation of products.
   1. Where space is limited, show plan and cross-section dimension of space available, including structural obstructions and ceilings as applicable.
   2. Coordinate shop drawings prepared by separate entities.
   3. Show installation sequence when necessary for proper installation.

END OF SECTION

SECTION 01 3310
SUBMITTAL PRCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

1.02 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

1.03 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that requires sequential activity.
   2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
      a. Gardner Spencer Smith Tench and Jarbeau, PC reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Gardner Spencer Smith Tench and Jarbeau, PC's receipt of submittal.
   1. Initial Review: Allow 10 business days for initial review of each submittal. Allow additional time of processing must be delayed to permit coordination with subsequent submittals. Gardner Spencer Smith Tench and Jarbeau, PC will advise Contractor when a submittal being processed must be delayed for coordination.
   2. Concurrent Review: Where concurrent review of submittals by Gardner Spencer Smith Tench and Jarbeau, PC's consultants, Owner, or other parties is required, allow 15 business days for initial review of each submittal.
   3. If intermediate submittal is necessary, process it in same manner as initial submittal.
   4. Allow 10 business days for processing each resubmittal.
   5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

C. Identification: Place a permanent label or title block on each submittal for identification.
   1. Indicate name of firm or entity that prepared each submittal on label or title block.
   2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Gardner Spencer Smith Tench and Jarbeau, PC.
   3. Include the following information on label for processing and recording action taken:
      a. Project name.
      b. Date.
      c. Name and address of subcontractor.
      d. Name and address of supplier.
      e. Name of manufacturer.
      f. Unique identifier, including revision number.
      g. Number and title of appropriate Specification Section.
      h. Drawing number and detail references, as appropriate.

i. Other necessary identification.

D. Deviations: Highlight, encircle, or otherwise identify deviations from Contract Documents on submittals.

E. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Gardner Spencer Smith Tench and Jarbeau, PC will discard or notify Contractor if submittals are received from sources other than the Contractor.
   1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Gardner Spencer Smith Tench and Jarbeau, PC on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
   2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
   3. Transmittal Form: Provide locations of form for the following information:
      a. Project name.
      b. Date.
      c. Destination (To:).
      d. Source (From:).
      e. Names of subcontractor, manufacturer, and supplier.
      f. Category and type of submittal.
      g. Submittal and transmittal distribution record.
      h. Remarks.
      i. Signature of transmitter.

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

G. Use for Construction: Use only final submittals with mark indicating action taken by Gardner Spencer Smith Tench and Jarbeau, PC in connection with construction.

PART 2 PRODUCTS

2.01 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.
   1. Number of Copies: Submit three copies of each submittal, unless otherwise indicated. Gardner Spencer Smith Tench and Jarbeau, PC will return two copies. Mark up and retain one returned copy as a Project Record Document.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's written recommendations.
      b. Manufacturer's product specifications.
      c. Manufacturer's installation instructions.
      d. Standard color charts.
      e. Manufacturer's catalog cuts.
      f. Wiring diagram showing factory-installed wiring.
      g. Printed performance curves.
      h. Operational range diagrams.
      i. Mill reports.

j. Standard product operating and maintenance manuals.
k. Compliance with recognized trade association standards.
l. Compliance with recognized testing agency standards.
m. Application of testing agency labels and seals.
n. Notation of coordination requirements.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Include the following information, as applicable:
a. Dimensions.
b. Identification of products.
c. Fabrication and installation drawings.
d. Roughing-in and setting diagrams.
e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
f. Shop work manufacturing instructions.
g. Templates and patterns.
h. Schedules.
i. Design calculations.
j. Compliance with specified standards.
k. Notation of coordination requirements.
l. Notation of dimensions established by field measurement.
2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8 1/2 by 11 inches, but no longer than 30 by 40 inches.

D. Samples: Prepare physical units of materials or products, including the following:
1. Samples for Initial Selection: Submit manufacturer’s color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
2. Sample for Verification: Submit full-size units or Samples used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Gardner Spencer Smith Tench and Jarbeau, PC’s sample where so indicated. Attach label on unexposed side that includes the following:
a. Generic Description of Sample.
b. Product name or name manufacturer.
c. Sample source.
4. Additional Information: On an attached separate sheet, prepared on Contractor’s letterhead, provide the following:
a. Size limitations.
b. Compliance with recognized standards.
c. Availability.
d. Delivery time.
5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics between final submittal and actual component as delivered and installed.
a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least three sets of paired units that show approximate limits of the variations.

b. Refer to individual Specifications Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

6. Number of Samples for Initial Selection: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Gardner Spencer Smith Tench and Jarbeau, PC will return submittal with options selected.
7. Number of Samples for Verification: Submit three sets of Samples. Gardner Spencer Smith Tench and Jarbeau, PC will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
   a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
8. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

E. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tubular form:
   1. Name, address, and telephone number of entity performing subcontract or supplying products.
   2. Number and title of related Specification Section(s) covered by subcontract.

2.02 INFORMATIONAL SUBMITTALS

A. General: prepare and submit Informational Submittals required by other Specification Sections.
   1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Gardner Spencer Smith Tench and Jarbeau, PC will not return copies.
   2. Certificates and Certifications: Provide a notarized statement that includes signature of entry responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include list of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

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

D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

H. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

I. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

K. Field Test Reports: Prepare reports written by qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

M. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   1. Name of evaluation organization.
   2. Date of evaluation.
   3. Time period when report is in effect.
   4. Product and manufacturer's names.
   5. Description of product.
   6. Test procedures and results.
   7. Limitations of use.

N. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment.

O. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

P. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
   1. Preparation of substrates.
   2. Required substrate tolerances.
   3. Sequence of installation or erection.
   4. Required installation tolerances.
   5. Required adjustments.
   6. Recommendations for cleaning and protection.

Q. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
   1. Name, address, and telephone number of factory-authorized service representative making report.
   2. Statement on condition of substrates and their acceptability for installation of product.
   3. Statement that products at Project site comply with requirements.
   4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

PART 3 EXECUTION

4.01 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Gardner Spencer Smith Tench and Jarbeau, PC

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

4.02 ARCHITECTS ACTIONS

A. General: Gardner Spencer Smith Tench and Jarbeau, PC will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Gardner Spencer Smith Tench and Jarbeau, PC will review each submittal, make marks to indicate corrections or modifications required, and return it. Gardner Spencer Smith Tench and Jarbeau, PC will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
   1. Final Unrestricted Release: When the Gardner Spencer Smith Tench and Jarbeau, PC marks a submittal "Approved," the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents. Final payment depends on that compliance.
   2. Final-But-Restricted Release: When Gardner Spencer Smith Tench and Jarbeau, PC marks a submittal "Approved as Noted," the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents. Final payment depends on that compliance.
   3. Returned for Resubmittal: When Gardner Spencer Smith Tench and Jarbeau, PC marks a submittal "Rejected/Resubmit," do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay. Repeat if necessary to obtain different action mark.
      a. Do not use, or allow others to use, submittals marked "Rejected/Resubmit" at the Project Site or elsewhere where work is in progress.
   4. Other Action: Where a submittal is for information or record purposes or special processing or other activity, Gardner Spencer Smith Tench and Jarbeau, PC will return the submittal without action.

END OF SECTION

SECTION 01 7310
CUTTING AND PATCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for cutting and patching.

1.02 RELATED REQUIREMENTS

A. Divisions for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

B. Section 01 1000 - Summary: Contract descriptions, description of alterations work, work by others, future work, occupancy conditions, use of site and premises, work sequence.

1.03 DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.04 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
   1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
   2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
   3. Products: List products to be used and firms or entities that will perform the Work.
   4. Dates: Indicate when cutting and patching will be performed.
   5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
   6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.

B. Request for Utility Interruption: Where utilities are to be interrupted, submit the "Request for Department - Utility Interruption" form, at the end of this section for review and approval by the Heard County Board of Commissioners.

1.05 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch the following operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
   1. Primary operational systems and equipment.
   2. Air or smoke barriers.
   3. Fire-protection systems.
   4. Control systems.
   5. Communication systems.
   6. Electrical wiring systems.

C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
   1. Water, moisture, or vapor barriers.
   2. Membranes and flashings.
   3. Equipment supports.
   4. Piping and equipment.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Gardner Spencer Smith Tench and Jarbeau, PC's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
   1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.
      a. Processed concrete finishes.
      b. Stonework and stone masonry.
      c. Ornamental metal.
      d. Roofing.
      e. Firestopping..

1.06 WARRANTY

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

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.

B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
   1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.02 PREPARATION

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

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

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.03 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
   1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to the original condition.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding , not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
   3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
   4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
   5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
   6. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
   1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
   2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
   3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
      a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
   4. Ceilings: Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
   5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

3.04 CLEANING

A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged coverings to their original condition.

END OF SECTION

SECTION 01 7800
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.
   1. Record drawings.
   2. Record project manual (specifications).
   3. Record submittals:
      a. Shop drawings.
      b. Product data.

B. Operation and Maintenance Data.

C. Warranties and bonds.

D. Final cleaning.

1.02 RELATED REQUIREMENTS

A. Individual Product Sections: Specific requirements for operation and maintenance data.

B. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Gardner Spencer Smith Tench and Jarbeau, PC with claim for final Application for Payment.
   1. Record drawings: Submit in form of opaque bond prints.
      a. Submit original marked-up set.
      b. Submit three (3) additional opaque bond print copy sets.
      c. Sets shall include all drawings whether changed or not.
   2. Other record documents: Submit originals or good quality photocopies.

B. Maintenance Data:
   1. Submit two sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Heard County Board of Commissioners'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.

1.04 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
   1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
   2. Advise Heard County Board of Commissioners of pending insurance changeover requirements.
   3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

4. Obtain and submit releases permitting Heard County Board of Commissioners unrestricted Use of the. Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
6. Terminate and remove temporary facilities from Project site, along with mockups, Project signs, construction tools, and similar elements.
7. Advise Heard County Board of Commissioners of changeover in heat and other utilities.
8. Submit changeover information related to Heard County Board of Commissioners's occupancy, use, operation, and maintenance.
9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finished to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Gardner Spencer Smith Tench and Jarbeau, PC will either proceed with inspection or notify Contractor of unfulfilled requirements. Gardner Spencer Smith Tench and Jarbeau, PC will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Gardner Spencer Smith Tench and Jarbeau, PC, that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
   2. Results of completed inspection will form the basis of requirements for Final Completion.

1.05 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
   1. Submit a final Application for Payment
   2. Submit certified copy of Gardner Spencer Smith Tench and Jarbeau, PC's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Gardner Spencer Smith Tench and Jarbeau, PC. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   4. Instruct Heard County Board of Commissioners's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Gardner Spencer Smith Tench and Jarbeau, PC will either proceed with inspection or notify Contractor of unfulfilled requirements.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.06 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
   2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
   3. Include the following information at the top of each page:
      a. Project name.
      b. Date.

c. Name of Architect.
d. Name of Contractor.
e. Page number.

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.
a. Keep drawings in labelled, bound sets.
1) Mark with red pencil.
2) Mark work of separate contracts with different colors of pencils.
3) Incorporate new drawings into existing sets, as they are issued.
b. When the contractor is required by a provision of a modification to prepare a new drawing, rather than to revise existing drawings, obtain instruction from Gardner Spencer Smith Tench and Jarbeau, PC for drawing scale and information required.
2. Specifications.
a. Maintain a complete copy of the project manual, marked to show changes.
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 Heard County Board of Commissioners.

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 locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
a. Actual routings of piping and conduits.
b. Revisions to electrical circuits.
c. Sizes and routings of ducts.
d. Actual equipment locations.
2. Particulars on concealed products which will not be easy to identify later.
3. Field changes of dimension and detail.
4. Details not on original Contract drawings.
a. Note changes made by modifications to the contract; include identification numbers if applicable.
5. New information which may be useful to the Owner, but which was not shown in either the contract documents or submittals.

G. Record Submittals
1. Maintain a complete set of all submittals made during construction, marked to show changes.
a. Maintain submittals in cardboard file boxes, labeled to show contents.

b. Sort submittals by applicable specification section and file in order of submittal an identification number.

2. Record Shop Drawings: Record the types of information specified for all record documents.
   a. Mark changes on record shop drawings only when contract drawing would not be capable of showing the change clearly or completely.
   b. Mark changes in manner specified for record drawings.
3. Record Product Data Submittals: Record the types of information specified for all record documents.
   a. In addition, record the following types of information:
      1) Changes in the products as delivered to the site.
      2) Changes in manufacturer's instructions or recommendations for installation.
4. Record Coordination Drawings: Record the types of information required for all record documents.
   a. Mark up in the manner specified for record drawings.

H. Gardner Spencer Smith Tench and Jarbeau, PC will make the original contract drawings available to the Contractor for printing.

I. Where record drawings are also required as part of maintenance data submittals, make copies from the original record drawing set.

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 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble maintenance data into durable manuals for Heard County Board of Commissioners' 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. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

D. Prepare data in the form of an instructional manual.

E. 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.
   1. In addition to binders, all Operation & Maintenance documentation will be submitted on CD.

F. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

G. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Gardner Spencer Smith Tench and Jarbeau, PC, Consultants, Contractor and subcontractors, with names of responsible parties.

H. 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.

I. 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.

J. Text: Manufacturer's printed data.

K. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

L. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

M. Contents: Prepare a Table of Contents for each volume, with each product or system description identified.

N. Provide a listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

O. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Gardner Spencer Smith Tench and Jarbeau, PC , Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

3.04 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 Heard County Board of Commissioners'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.

E. Manual: Bind in commercial quality 8-1/2 by 11 inch three D side ring binders with durable plastic covers.
   1. In addition to binders, all Warranty, Guarantee, and Bond documentation will be submitted on CD.

F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

3.05 DEMONSTRATION AND TRAINING

A. Instruction: Instruct Heard County Board of Commissioners's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
   1. Provide instructors experienced in operation and maintenance procedures.
   2. Schedule training with Heard County Board of Commissioners, through Gardner Spencer Smith Tench and Jarbeau, PC with at least seven days' advance notice.

3. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

B. Contractor to provide an agenda of instruction for each system.

C. Contractor to provide an "Acknowledgement of Instruction" sign-in sheet for each system. Submit triplicate copies for file.

D. Contractor will video all Owner training sessions and submit two (2) CD's of each training session with Closeout Documents.

3.06 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits. Pressure wash as required to remove stains.
    c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    e. Remove snow and ice to provide safe access to building.
    f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    h. Sweep concrete floors broom clean in unoccupied spaces.
    i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible sailor stains remain.
    j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
    k. Remove labels that are not permanent.
    l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
        1) Do not paint over "UL" and similar labels, including mechanical and electrical name plates.
    m. Replace parts subject to unusual operating conditions.
    n. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
    o. Leave Project clean and ready for occupancy.

END OF SECTION

SECTION 01 7875
FINAL CLEANING

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Contract descriptions, description of alterations work, work by others, future work, occupancy conditions, use of site and premises, work sequence.

B. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance (O&M) data, warranties and bonds.

1.02 DEFINITIONS

A. Final Cleaning is hereby defined to include the general requirements near the end of the Contract Time, in preparation for final acceptance, final payment, normal termination of the Contract, occupancy by the Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in the sections.The time of final cleaning is recognized to be directly related to "Substantial Completion", and therefore may be either a single time period for the entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates.

B. Final Cleaning includes all work associated with remedial cleaning required after any work of the contractor, regardless of when the work was completed.

1.03 SUBSTANTIAL COMPLETION

A. Prior to requesting Gardner Spencer Smith Tench and Jarbeau, PC's inspection for certification of Substantial Completion (for either the entire work or portions thereof), Final Cleaning must be complete and list all known exceptions in the request.

1.04 CERTIFICATION OF FINAL ACCEPTANCE

A. Prior to requesting Gardner Spencer Smith Tench and Jarbeau, PC's final inspection for certification of final acceptance and final payment, as required by the General Conditions, complete the following and list known exceptions (if any) in request.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 FINAL CLEANING OF NEW FACILITIES OR ADDITIONS

A. General: Special cleaning for specific units of work is specified in the Sections.

B. Provide final cleaning of the Work as part of the project being declared substantially complete. Contractor is responsible for providing any additional cleaning for any work performed as part of his contract after acceptance of final cleaning. Final clean consists of cleaning each surface or unit of work to the normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturer’s instructions for cleaning operations. The following are examples, but not by way of limitation, of the cleaning levels required:

1. Remove labels which are not required as permanent labels.
2. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances which are noticeable as vision-obscuring materials. Replace broken glass.
3. Clean exposed exterior and interior hard-surfaced finishes, including metals,
    a. masonry, concrete, painted surfaces, plastics, tile, wood, special coatings, and similar surfaces, to a dirt free condition, free of dust, stains, films and similar noticeable distracting substances. Except as otherwise indicated, avoid the disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.

4. Remove debris and surface dust from limited-access spaces including roofs, plenums shafts, trenches, equipment vaults, manholes, attics and similar spaces.
5. Clean concrete floors in non-occupied spaces broom clean.
6. Vacuum clean carpeted surfaces and similar soft surfaces.
7. Vinyl Flooring: Sweep dust and debris from all vinyl floor tiles. See cleaning and protection instructions in Division 09 Section "Resilient Flooring".
8. Restrooms: Clean walls beginning at top of walls and work down, cleaning attached fixtures, partitions and floor mounted fixtures. Scrub and sanitize flooring. Ensure all fixture drains and floor drains are free of construction debris and that they drain properly.
9. Clean light fixtures and lamps so as to function with full efficiency.
10. Clean project site (yard and grounds), including landscape, development areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petrochemical spills and other foreign deposits. Rake grounds clean of all debris that accumulated as a result of the construction.

3.02 CONTINUING INSPECTIONS

A. Except as otherwise required by special guarantees, warranties, agreements to maintain, workmanship bonds, and similar continuing commitments, comply with the Owner's requests to participate in inspections at the end of each time period of such continuing commitments. Participate in the general inspection(s) of the work approximately one year beyond the date(s) of Substantial Completion.

END OF SECTION

SECTION 02 4300
MISCELLANEOUS WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Operations which cannot be specified in detail as separate items but can be sufficiently described as to the kind and extent of work involved. Furnish all labor, materials, equipment and incidentals to complete the work under this section.

B. The work includes, but is not limited to the following:
   1. Surveying as-built conditions for the purpose of obtaining required governmental approvals.
   2. Incidental work.

1.02 SUBMITTALS

A. See Division 01 - Administrative Requirements, for submittal procedures.

1.03 QUALITY ASSURANCE

A. Qualifications: Company specializing in required fields with a minimum of three years of documented experience.

1.04 PROJECT CONDITIONS

A. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

B. Arrange schedule with Heard County Board of Commissioners's requirements , work of other sections , and final close-out documentation required for Substantial Completion of project.

PART 2 PRODUCTS

2.01 EQUIPMENT AND MATERIALS

A. Materials required for this section shall be same quality as materials that are restored. Where possible, reuse existing materials that have been removed.

B. Provide equipment to replicate same quality of work being replaced.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify utility services and obstructions to be removed, relocated, or abandoned during progress of the Work.

B. Damage Determination:
   1. Before restoration, inspect existing conditions thoroughly and notify Gardner Spencer Smith Tench and Jarbeau, PC in writing of visible defects and factors that could affect Substantial Completion of project..

3.02 INSTALLATION

A. Restoring of Sidewalks, Driveways, Aprons, Curbing, and Fencing:
   1. Existing public and private sidewalks and driveways disturbed shall be replaced. Paved sidewalks and drives shall be repaved to the limits and thickness existing prior to construction.
   2. Existing curbing shall be protected. If necessary, curbing shall be removed and replace after backfilling. Curbing which is damaged during construction shall be replaced with curbing of equal quality and dimension.

B. Surveying As-Built Conditions:

1. This item shall include any surveying required for work performed by the Contractor whether or not shown on the drawings, for obtaining required governmental approvals for final close-out documents and Substantial Completion.

C. Incidental Work:
1. Do incidental work not otherwise specified or can be reasonably be anticipated, or is obviously necessary for the proper completion of the contract as specified and shown on the drawings.

3.03 CLEANING

A. Keep the work area and adjacent areas clean during the work. Remove all excess materials, debris, and equipment from site.

B. Repair any damage to adjacent materials and surfaces resulting from installation of this work.

END OF SECTION

SECTION 04 0090
MASONRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Laminated metal flashings and counterflashings.

B. Self-adhering composite flexible flashing.

C. Miscellaneous accessories.

1.02 RELATED SECTIONS

A. Section 040511 - Masonry Mortaring and Grouting.

B. Section 079005 - Joint Sealers: Backing rod and sealant at control joints.

1.03 SUBMITTALS

A. See Division 01 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets showing product characteristics and including installation instructions.

C. Shop Drawings: Show fabrication and installation details for the following:
   1. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement."
   2. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.

D. Samples for Verification:
   1. Weep holes/vents in color to match mortar color.
   2. Accessories embedded in the masonry.

E. Mill tests:
   1. Submit for each heat of reinforcing steel, certifying mill tests conducted in accord with ASTM requirements.
   2. Cost for test shall be borne by Contractor.
   3. Unidentified bundles may be rejected or tested at the request of Gardner Spencer Smith Tench and Jarbeau, PC. Cost of test on unidentified bundles shall be borne by Contractor
   4. Submit three copies of each test report to Gardner Spencer Smith Tench and Jarbeau, PC

F. Manufacturer's Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
   1. Each type and size of joint reinforcement.
   2. Each type and size of anchor, tie, and metal accessory.

1.04 QUALITY ASSURANCE

A. Applicable standards; standards of the following as referenced herein:
   1. American Concrete Institute (ACI).
   2. American Society for Testing and Materials (ASTM).
   3. Steel structures Painting Council (SSPC).

B. Installer Qualifications: Company with at least five years of successful experience in weathertight installation of flashing.

C. Coordination: Interface flashing work with adjacent and adjoining work to ensure best possible weather resistance and durability of completed flashing.

1.05 MOCK-UP PANEL

A. Construct miscellaneous accessories as part of the brick mock-up panel. See Section 042100 - Brick Masonry for related items to be installed and coordinated.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in manufacturer's sealed packaging, bearing manufacturer's name and product identification.

B. Stack flashing materials to avoid twisting, bending, and abrasion. Protect materials from weather before installation.

C. Store mastics, cements, and joint sealers in manufacturer's sealed containers under cover.

D. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

PART 2 PRODUCTS

2.01 REINFORCING STEEL

A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M; ASTM A 616/A 616M, including Supplement 1; or ASTM A 617/A 617M, Grade 60 (Grade 400).

2.02 MASONRY JOINT REINFORCEMENT

A. Acceptable Manufacturers; subject to compliance with specified requirements:
   1. Basis of design: Dur-O-Wal, Inc.
   2. Hohmann & Barnard, Inc.
   3. Wire-Bond.
   4. National Wire Products Industries, Inc.

B. Masonry joint reinforcement:
   1. Types:
      a. At single wythe masonry: Basis of design is Dur-O-Wall, DA 3100; Truss type.
      b. At double wythe masonry: Basis of design is Dur-O-Wal, Dur-O-Eye D/A 3700; Truss type with adjustable pintle ties; ties and cross wires spaced at 1'-4" o.c.
   2. Fabricate from cold-drawn wire meeting ASTM A82-95a.
   3. Longitudinal rods: Nine ga. galvanized deformed rods.
   4. Cross rods: Nine ga. galvanized rods, welded to longitudinal rods.
   5. Width of reinforcement shall be 2" less than the total wall width.
   6. Provide reinforcement in minimum 10'-0" lengths with prefabricated corners and tees at intersecting walls of same design, finish and joint reinforcement.
   7. Finishes:
      a. Reinforcement fully embedded in mortar at single wythe interior construction: Galvanized, meeting ASTM A641, Class 3 or A.
      b. Reinforcement fully embedded in mortar at single and double wythe exterior masonry: Hot-dipped galvanized, meeting ASTM A153, Class B-2.

2.03 ANCHORS FOR CONNECTING TO CONCRETE

A. Dovetail anchor characteristics:
   1. Material: Minimum 16 ga. hot-dipped galvanized steel, meeting ASTM A153, Class B-2.
   2. Type: Minimum 1" wide, corrugated type.
   3. Wall tie: Minimum 3/16" diameter hot-dipped galvanized steel, sized to extend to within 1" of exposed veneer face, meeting ASTM A153, Class B-3.

B. Dovetail slot characteristics:
   1. Material: Minimum 22 ga. galvanized steel.

2. Size: 1: wide back by 1" deep with 5/8" throat.

2.04 MASONARY VENEER ANCHOR SYSTEM

A. Acceptable products; subject to compliance with specified characteristics:
   1. Basis of design: Dur-O-Wal, Inc., D/A 213 Assembly with anchor plate and pintle tie.
   2. Heckmann Building Products, Inc., No. 213 Wire Veneer Anchor System with No. 282 Double Pintle Wire Tie.
   3. Wire-Bond, RJ-711 Adjustable Veneer Anchor.

B. Characteristics:
   1. Description: Two-component tie assembly consisting of screw-attached back-up plate en capturing a wire tie.
   2. Back-up plate: Minimum 16 ga. grooved or punched plate assembly or minimum 14 ga. stiffened strap/plate assembly, punched for attachment to metal stud framing with two screws.
   3. Wire tie: Minimum 3/16" wire tie.
   4. Tie assembly: Size tie assembly to extend within 1" of exterior exposed face.
   5. Finish: Hot-dipped galvanized, meeting ASTM A153, Class B-3.
   6. Fasteners: Self-tapping steel screws, corrosive-resistant coated; passing Kesternich test chamber, DIN 50018 standard with no indications of red rust or corrosion after minimum 30 wet and dry acidic atmosphere cycles and minimum 1000 hours salt spray testing in accord with ASTM B117.

2.05 MASONRY PLUMBING CHASE WALL TIES

A. Material: Minimum 3/16" diameter hot-dipped galvanized steel wire meeting ASTM A82-95a. Coating shall comply with ASTM A153, Class B-1.

B. Size and configuration: "Z" type with 3" long 90 degree bends each end. Fabricate lengths 2" less than with of chase.

2.06 WELDED COLUMN AND BEAM ANCHOR SYSTEM

A. Acceptable products; subject to compliance with specified requirements:
   1. Heckmann Building Products Inc., 317 Anchor rod with 318 Series trapezoidal ties.
   2. Hohmann & Barnard, Inc., 359c Anchor rod with 301W Column Web Tie.
   3. Wirebond: Type 1-1000c with #1200 trapezoidal tie.

B. Column Characteristics:
   1. Type: Continuous weld-on rod type.
   2. Rod material: 1/4" diameter galvanized steel.
   3. Rod size and configuration: Continuous lengths as required with offsets 8" o.c.. Provide extended offsets at fireproofing conditions.
   4. Tie: Minimum 3/16" diameter steel wire, trapezoidal web shaped, sized to extend to within 1" of exposed veneer face.
   5. Finish: Hot-dipped galvanized, in accord with ASTM A153, Class B-3.

C. Beam Characteristics:
   1. Type: Two component, adjustable clip and tie assembly.
   2. Clip: Minimum 14 ga., 1" high x 1-1/4 wide steel strap with 3/16" offset for anchor, for welding onto steel. Provide extended offsets at fireproofing conditions.
   3. Corrugated Tie: Minimum 14 ga., 3/4" wide with 4" adjustment bend sized to extend to within 1" of exposed veneer face.
   4. Finish: Hot-dipped galvanized, in accord with ASTM A153, Class B-3.

2.07 "Z" ANCHORS FOR CORNER CONDITIONS AND PLUMBING CHASES

A. Type: Minimum size shall be 1/4" by 1-1/2" by 2'-0" including 2" long 90 degree bends at each end to form a "Z" shape.

B. Finish: Hot-dipped galvanized, in accord with ASTM A153, Class B-1.

2.08 BAR REINFORCEMENT

A. Bars: Meeting ASTM A615-96a, ACI 530-92 and ACI 530.1-92, deformed type for #3 and larger bars.
   1. Ties and stirrups: Grade 40, unless otherwise indicated on the drawings.
   2. All other bars: Grade 60, unless otherwise indicated on the drawings.

2.09 VERTICAL REINFORCING BAR POSITIONERS

A. Acceptable products; subject to compliance with specified requirements:
   1. Dur-O-Wal, Inc., D/A 811.
   2. Heckmann Building Products Inc., 377.
   3. Wire-Bond: 3401.

B. Type: Minimum 9 ga. wire, spider shaped positioner allowing rebar to be placed at center of wall or on either side of cavity. Finish shall be hot-dipped galvanized, in accord with ASTM A153, Class B-3.

2.10 HORIZONTAL REINFORCING BAR POSITIONERS

A. Acceptable products; subject to compliance with specified requirements:
   1. Dur-O-Wal, Inc., D/A 812.
   2. Heckmann Building Products Inc., 379.
   3. Wire-Bond, 3420.

B. Type: Minimum 9 ga. wire, spider shaped positioner allowing rebar to be placed at center of wall or on either side of cavity. Finish shall be hot-dipped galvanized, in accord with ASTM A153, Class B-3.

2.11 PRESSURE RELIEVING PADS

A. Acceptable products; subject to compliance with specified requirements:
   1. Dur-O-Wal, Inc., Rapid Soft-Joint, D/A 2010.
   2. Hohmann & Barnard, Inc., #NS.
   3. Wire-Bond: Horizontal/Vertical Expansion Joint.

B. Type: Self-adhering, closed cell neoprene conforming to ASTM D1056-97a, Class RE41, for compression up to 35%.

C. Sizes:
   1. Horizontal joints: 2-3/4" wide, 1/4" thickness.
   2. Vertical joints: 3" wide, 3/8" thickness.

2.12 CONTROL JOINT STABILIZATION ANCHORS

A. Acceptable products; subject to compliance with specified requirements:
   1. Dur-O-Wal, Inc., Joint Stabilization Anchors D/A 2200.
   2. Hohmann & Barnard, Inc., Slip-set stabilizer.
   3. Wire-Bond, #1700 Control Joint Anchors.

B. Type: Mill Galvanized Steel.

2.13 RUBBER CONTROL JOINTS

A. Acceptable products; subject to compliance with specified requirements:
   1. Dur-O-Wal, Inc., Rapid Control Joint.

2. Hohmann & Barnard, Inc., RS Series, Rubber Control Joint..
3. Wire-Bond, Control Joint 2900 Series.

B. Type: Extruded rubber meeting ASTM D2000, Type 2AA, 805, minimum 80 durometer hardness.

2.14 WIRE MESH HARDWARE CLOTH

A. Type: 1/2" by 16 ga. galvanized steel mesh, 2" less than wall width by 1'-4" long minimum.

2.15 FLASHING MATERIALS

A. Metal Flashing: Subject to compliance with requirements, provide one of the following for the condition specified:
   1. Acceptable manufacturers:
      a. Cheney Flashing Company, Inc; Product - Dovetail; www.cheneyflashing.com.
      b. Cheney Flashing Company, Inc; Product - Sawtooth: www.cheneyflashing.com.
      c. Keystone Flashing Co; Product - Two-Piece Cap Flashing; www.keystoneflashing.com.
      d. Keystone Flashing Co; Product - 3-Way Interlocking Thruwall Flashing; www.keystoneflashing.com.
      e. LITSCO; Product - LIT-Loc Two-Piece Cap Flashing; www.litsco.com.
      f. LITSCO; Product - Mortar-Tight Thru-wall Metal Flashing; www.litsco.com.
   2. Fabricate metal drip edges from sheet metal indicated. Extend at least 3 inches (75 mm) into wall and 1/2 inch (13 mm) out from wall, with hemmed outer edge bent down 30 degrees.

B. Metal Reglet System: Subject to compliance with requirements, provide one of the following for the condition specified:
   1. Acceptable products; generally in accord with the following:
      a. Fry Reglet Corp., Springlok, Type MA-4 at masonry walls, Type SM at other locations.
      b. W.P. Hickman, Masonry Type at masonry walls, Surface-Mounted Type at other locations.
      c. MM Systems Corp., RC-3 Masonry at masonry walls, RC-1 Surface-Mounted at other locations.
   2. Characteristics:
      a. Material: Stainless steel reglet and counterflashing, minimum 0.020" thickness.
      b. Finish: No further finish required.
      c. Accessories: Prefabricated interior and exterior corners and splice plates.

C. Concealed Flashing: For flashing partly exposed to exterior, use metal flashing specified above. For flashing not exposed to exterior, use the following unless otherwise indicated:
   1. Copper-Fabric flashing for areas with masonry and concrete backup:
      a. Acceptable manufacturers:
         1) Advanced Building Products, Inc.
         2) Afco Products, Inc.
         3) Hohmann & Barnard, Inc.
         4) Polytite Manufacturing Corp.
         5) Sandell Manufacturing Co., Inc.
         6) York Manufacturing, Inc.
      b. Characteristics:
         1) Type: Asphalt-bonded fabric-covered copper.
         2) Copper weight: Minimum 5.0 oz./sq. ft.

3) Construction: Copper sheet bonded to asphalt-saturated fiberglass fabric, both sides.

c. Drip edge plate: Continuous stainless steel plate with a smooth, factory-formed hemmed edge for installation safety and uniform appearance.

d. Lap and bonding adhesives: Flashing manufacturer's adhesives recommended for use with flashing materials.

e. Flashing cement: Meeting ASTM D2822-91, Type 1.

D. Flexible Membrane flashing across all control joints, steel columns or steel beams inside a concrete masonry unit wall with or without sheathing backup:

1. Acceptable products, subject to compliance with specified requirements:
   a. As specified in Section 07 6500 - Flexible Flashing.
2. Characteristics:
   a. Type: Adhesive-backed rubberized asphalt compound, bonded to 8 mil, high density, cross-laminated polyethylene film. Adhesive side coated with release paper.
   b. Membrane thickness: Minimum 40 mils.
   c. Surface conditioner/primer and mastic/sealant: Membrane manufacturer's solvent-based standard components.
3. Termination bar for flexible membrane flashing with or without sheathing backup: Minimum Stainless Steel 1/8" thick 1-1/2" wide continuous with holes 8" on center.
   a. Termination Mastic:
      1) Description: Rubberized asphalt-based mastic with 200 g/L max. VOC Content.
      2) Apply a bead or trowel coat of mastic along flashing vertical and horizontal edges, seams, cuts, and penetrations.

2.16 DRIP EDGE FLASHING

A. Acceptable products; subject to compliance with specified requirements:
1. Dur-O-Wal, Inc., Drip Edge Flashing D/A 1525.
2. Hohmann & Barnard, Inc., DP Series, Drip Plates.
3. Wire-Bond, #4165 Drip Edge Flashing.

B. Type: Minimum Stainless Steel 26 ga. 1-1/2" wide continuous with 3/8" closed hem edge. Use at all through wall flashing locations.

2.17 WEEP/CAVITY VENTS

A. Acceptable Manufacturers; subject to compliance with specified requirements:
1. Dur-O-Wal; Product Cell-Vent D/A 1006: www.dur-o-wal.com.
2. Hohmann & Barnard, Inc; Product QV - Quadro-Vent: www.h-b.com.
3. Wire-Bond; Product Cell Vent: www.wirebond.com.
4. Substitutions: See Division 01 - Product Requirements.

2.18 CAVITY MORTAR DIVERTER

A. Cavity Mortar Diverter: Semi-rigid polyethylene or polyester mesh blocks, sized to fill bottom of wall cavity and suspend mortar droppings above weep/cavity vents to allow cavity drainage.
1. Match air space thickness.

B. Acceptable Manufacturers; subject to compliance with specified requirements:
1. CavClear; Product Masonry Mat: www.cavclear.com.
2. Dur-O-Wal; Product Mortar Net D/A 1008: www.dur-o-wal.com.
3. Hohmann & Barnard, Inc; Product Mortar Net: www.h-b.com.
4. Wire-Bond; Product Mortar Net: www.wirebond.com.
5. Mortar Net USA, Ltd; Product Mortar Net: www.mortarnet.com.
6. Polytite Manufacturing Corp; Product Mortar Stop: www.polytite.com.

7. Substitutions: See Section 01600 - Product Requirements.

2.19 CAVITY-WALL INSULATION

A. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV or X, closed-cell product extruded with an integral skin.

B. Adhesive: Type recommended by insulation board manufacturer for application indicated.

2.20 GALVANIZING COMPOUND

A. Cold galvanizing compound: Pre-mixed, organic zinc liquid or spray containing 95% zinc in dried film; Brite Products, Brite Zinc or similar of other manufacturers.

2.21 FABRICATION

A. Forming: Fabricate flashings true to shape and accurate in dimension. Form pieces in longest possible lengths to minimize joints. Fold flashing at corners and at ends of pans instead of cutting.

B. Joints: Provide not less than 4 inches of overlap at flashing joints.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces to receive masonry accessories are thoroughly dry, free from loose materials, and reasonably smooth, with no sharp edges or projections.

B. Verify that locations to receive flashing are sloped so water that enters will drain to building exterior.

3.02 MASONRY JOINT REIFORCEMENT INSTALLATION

A. General:
   1. Install reinforcement and accessories in accord with manufacturer's product data. Provide sizes and methods of attachment as required by installation conditions. In addition to installation spacings specified, provide specified reinforcement and accessories at perimeter of windows, doors and other openings.
   2. Where galvanized components must be field-welded to supports, remove galvanizing prior to welding.

B. Install masonry joint reinforcement in all masonry walls at 1'-4" o.c. vertically. Lap side rods 6" minimum at splices' greater as required by product data.
   1. Stop reinforcement 1" back from expansion and control joints and openings in masonry walls.
   2. Install reinforcement in first and second bed joint above and under openings, with non-continuous reinforcement extending 2'-0" beyond jamb, each side.
   3. Install ladder type joint reinforcement with cross wires aligned with head joints of concrete masonry units.
   4. At splices, cross rods may be removed to facilitate placement.

C. Corners: Provide interlocking masonry unit bond in each wythe and course at corners, unless otherwise indicated.
   1. Provide continuity with masonry joint reinforcement at corners by using prefabricated "L" units as well as masonry bonding.

D. Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, bond walls together as follows:
   1. Provide continuity with masonry joint reinforcement by using prefabricated "T" units.

3.03 CAVITIES

A. Keep cavities clean of mortar droppings and other materials during construction. Strike joints facing cavities flush.

B. Coat cavity face of backup wythe to comply with Section 071500 - Dampproofing.

C. Installing Insulation: Place small dabs of adhesive, spaced approximately 12 inches (300 mm) o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
   1. Fill cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.

3.04 ANCHORS FOR CONNECTING TO CONCRETE

A. Install dovetail anchor slots vertically in cast-in-place concrete surfaces 1'-4" o.c., maximum horizontally, adjacent to masonry walls. Install dovetail anchors at 1'-4" o.c., maximum, vertically.

3.05 MASONRY VENEER ANCHOR SYSTEM INSTALLATION

A. Attach masonry veneer anchor plates through sheathing to studs using specified fasteners.
   1. Install two fasteners per anchor plate assembly.
   2. Space anchor plates at 1'-4" o.c., each direction.
   3. Install one tie per plate, using specified fasteners.
   4. Additional ties shall be installed at 8" o.c. at jambs and near edges.

3.06 MASONRY PLUMBING WALL CHASE INSTALLATION

A. Install "Z" type galvanized steel plumbing chase wall ties with 90 degree bends embedded in each wythe of masonry chase walls in full bed of mortar. Space ties at 2'-0" o.c., vertically and 4'-0" o.c., horizontally.

3.07 WELDED COLUMN AND BEAM ANCHOR SYSTEM

A. Weld column anchors 2'-8" o.c. on flange of steel columns. Weld beam anchors 4'-0" o.c. at beams running adjacent to masonry. Attach ties and set in mortar bed.

3.08 "Z" ANCHORS FOR CORNER CONDITIONS

A. Install "Z" anchors at corners of intersecting walls at maximum 4'-0" o.c., vertically.

3.09 BAR REINFORCEMENT INSTALLATION

A. Bar reinforcement:
   1. Shop fabricate reinforcement to shape and dimensions indicated on approved shop drawings. Bent bars shall be bent cold. Fabricate in accord with ACI 315-92 and ACI 318-92.
   2. Reinforcement shall, at the time of placing, be free from rust scale, oil and other coatings reducing bond. Use no bar with kinks or bends not shown on shop drawings.
   3. Install reinforcement as specified in Section 042200 - Concrete Unit Masonry.

3.10 VERTICAL REINFORCING BAR POSITIONERS

A. Install vertical reinforcing bar positioners in reinforced masonry walls as specified in Section 042200 - Concrete Unit Masonry.

3.11 PRESSURE RELIEVING PADS INSTALLATION

A. Install vertical and horizontal pressure relieving pads in masonry construction at locations indicated.

1. Joint sizes shall match masonry joint widths.
2. Keep joints clean of masonry droppings.
3. Install pressure relieving pads with lengths butted.
4. Install horizontal pressure relieving pads under shelf angles.
5. Caulk joints using sealant as specified in Section 079005 - Joint Sealers. Joints shall be watertight and free from voids after caulking.

3.12 CONTROL JOINT STABILIZATION ANCHORS

A. Install control joint stabilization anchors as specified in Section 042200 - Concrete Unit Masonry. Location of control stabilization anchors in unit masonry construction shall be indicated on the drawings.

3.13 RUBBER CONTROL JOINT INSTALLATION

A. Install rubber control joints as specified in Section 042200 - Concrete Unit Masonry. Location of control joints in masonry construction shall be indicated on the drawings.

3.14 WIRE MESH CLOTH INSTALLATION

A. Install wire mesh hardware cloth at concrete masonry units to prevent migration of grout from masonry units, where units are indicated to be grouted.

3.15 FLASHING INSTALLATION

A. General: Comply with recommendations of SMACNA ASMM.

B. Metal Flashing:
   1. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
      a. Clean surface of masonry smooth and free from projections which might puncture flashing material.
      b. Extend flashings full width at such interruptions and at least 6 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
      c. Remove or cover protrusions or sharp edges that could puncture flashings.
      d. Seal lapped ends and penetrations of flashing before covering with mortar.
      e. Extend laminated flashings to within 1/4 inch of exterior face of masonry.
      f. Lap end joints of flashings at least 4 inches and seal watertight with mastic or elastic sealant.
      g. Place flashings on sloped mortar bed; seal lapped ends and penetrations of flashing before covering with mortar.
         1) Extend metal flashings through exterior face of masonry and turn down to form drip.
      h. Veneer Flashings: Turn flashings up not less than 4 inches at backup. Lap top of flashing with building paper, or otherwise seal to prevent moisture penetration between flashing and backup.
      i. Heads and Sills: Turn up ends of flashing at least 2 inches at heads and sills to form a pan, and seal joints.
      j. Sealing: Seal all joints in flashing to ensure watertight integrity.
         1) Lap end joints on non deformed metal flashings at least 4 inches; seal laps with elastic sealant or mastic.
   2. Metal Reglet Flashing:
      a. Install reglets as directed by manufacturer, level and true to line. Verify that through-wall flashing occurs at or above reglet locations.
         1) Surface-mounted reglets: Install reglets as walls are built.

2) Masonry reglets: Install reglets as walls are built.
3) Install with top of reglet minimum of 8" above adjacent roof.

b. Terminate reglet 2" from each side of expansion and control joints in substrates to which surface-applied reglets are installed. Provide 1'-0" wide cover plate of reglet material, overlapping adjacent reglet lengths 4". Attach cover plates to provide discontinuous joints.
c. Provide factory-fabricated corners at changes in directions.
d. Following installation of roofing, install counterflashing by snapping into reglet in accord with manufacturer's product data. Overlap adjacent lengths 6", minimum, to allow for expansion and contraction. Caulk top edge of reglet using exterior silicone sealant as specified in Joint Sealers section. Ensure that through-wall flashing joints and weeps terminate in joints just above top edge of reglets.

3. Flexible Membrane:
a. Install as directed by manufacturer, level and true to line. Provide Flexible Membrane flashing across all steel columns or steel beams inside a concrete masonry unit wall with or without sheathing backup whether or not specifically indicated.
b. Terminate membrane 4" minimum on each side of masonry substrates. Overlap adjacent lengths 6" over each subsequent lower membrane for a water-tight system.
c. Provide termination bars for edges of membrane flashing terminating on concrete masonry unit faces. Minimum Stainless Steel 1/8" thick 1-1/2" wide continuous with holes 8" on center. Provide termination bars predrilled at spacing to match spacing of cold formed metal framing.
d. Apply a bead or trowel coat of mastic along flashing vertical and horizontal edges, seams, cuts, and penetrations.
e. Provide a full bed of sealant at outside edge of flexible flashing and termination bars. See Section 079005 - Joint Sealers.

3.16 DRIP EDGE FLASHING

A. Drip Edge Flashing: Use at all through wall flashing locations.

3.17 WEEP/CAVITY VENTS INSTALLATION

A. Weephole Vents:
1. Provide weephole ventilators in exterior wythe of masonry at 2'-0" o.c. horizontally at heads and sills of openings, in walls at grade, at top and bottom of relief angles, at top of parapet and in other locations where flashing is indicated.
2. Weephole ventilators:
a. Provide weephole ventilators at grade level.
b. Install weephole ventilators in open head joint and sill of openings, flush with low edge of adjacent brick.
c. Install weephole ventilators at relief angles and at parapets alternating 2'-0" o.c. with weephole ventilators at bottom of relief and and at grade.
3. Keep weepholes and area above flashing free of mortar droppings.

3.18 CAVITY MORTAR DIVERTER INSTALLATION

A. Cavity Mortar Diverter: After first one or two courses of masonry are laid, place continuous row of cavity mortar diverter in cavity on flashing against inside of outer wythe at the base of the wall. Assure that cavity wall drainage system is continuous by overlapping or butting ends.

B. Provide cavity mortar diverters in exterior wythe of masonry wall cavity above weep/cavity vents to allow cavity drainage.

3.19 REPAIR GALVANIZED SURFACES

A. After installation, clean surfaces from which galvanizing was removed during installation in accord with SSPC-SP3_1983, "Power Tool Cleaning." Coat surfaces with cold galvanizing compound, 3.0 mils minimum dry film thickness.

3.20 ADJUSTING

A. Remove mortar or other obstructions from weep holes at flashing locations.

END OF SECTION

SECTION 04 0511
MORTAR AND MASONRY GROUT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mortar for masonry.

B. Grout for masonry.

1.02 RELATED REQUIREMENTS

A. Section 01 4110 - Testing Laboratory Services.

B. Section 042100 - Brick Masonry: Installation of mortar and grout.

C. Section 04 7250 - Manufactured Mosonry Veneer

D. Section 08 1113 - Hollow Metal Doors and Frames: Products and execution for grouting steel door frames installed in masonry.

1.03 REFERENCE STANDARDS

A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2016.

B. ACI 530.1/ASCE 6/TMS 602 - Specification for Masonry Structures; American Concrete Institute International; 2008.

C. ASTM C5 - Standard Specification for Quicklime for Structural Purposes 2018.

D. ASTM C91/C91M - Standard Specification for Masonry Cement 2018.

E. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2021a.

F. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar 2018.

G. ASTM C150/C150M - Standard Specification for Portland Cement 2020.

H. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes 2018.

I. ASTM C270 - Standard Specification for Mortar for Unit Masonry 2019.

J. ASTM C476 - Standard Specification for Grout for Masonry 2020.

K. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry 2020.

L. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete 2016.

M. ASTM C1019 - Standard Test Method for Sampling and Testing Grout for Masonry 2020.

N. ASTM C1072 - Standard Test Methods for Measurement of Masonry Flexural Bond Strength 2019.

O. ASTM C1142 - Standard Specification for Extended Life Mortar for Unit Masonry 1995 (Reapproved 2013).

P. IMIAWC (CW) - Recommended Practices & Guide Specifications for Cold Weather Masonry Construction; International Masonry Industry All-Weather Council; 1993.

Q. IMIAWC (HW) - Recommended Practices & Guide Specifications for Hot Weather Masonry Construction; International Masonry Industry All-Weather Council; current edition.

1.04 SUBMITTALS

A. See Division 01 - Administrative Requirements, for submittal procedures.

B. Product Data: Include design mix and indicate whether the Proportion or Property specification of is to be used. Also include required environmental conditions and admixture limitations.

C. Samples for Verification: Submit five samples of mortar, illustrating mortar color and color range.
   1. Submit actual mortar samples for colored mortar, 3/8" wide by 8" long, indicating color range of each color selected. Samples shall be made using cement brand and type, proportions and sand source proposed for work on this project. Label Samples to indicate types and amounts of pigments and sand used.

D. Reports: Submit reports on mortar indicating compliance of mortar to property requirements of ASTM C270 and test and evaluation reports per ASTM C780.

E. Reports: Submit reports on grout indicating compliance of component grout materials to requirements of and test and evaluation reports to requirements of ASTM C1019.

F. Manufacturer's Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
   1. Each cement product required for mortar and grout, including name of manufacturer, brand type, and weight slips at time of delivery.

G. Manufacturer's Installation Instructions: Submit packaged dry mortar manufacturer's installation instructions.

1.05 QUALITY ASSURANCE

A. For each type and color of cement specified, only one brand shall be used throughout project.

B. Portland Cement: Obtain sample and test in accordance with ASTM C 150.

C. Mortar: Obtain sample and test in accordance with ASTM C 780.

D. Grout: Obtain sample and test in accordance with ASTM C 404.

E. Compressive Tests: Obtain sample and test to verify compliance with the following minimum values:
   1. Mortar: At least 900 psi at 7 days and 1,800 psi at 28 days.
   2. Grout: At least 1,200 psi at 7 days and 2,000 psi at 28 days.
   3. Do not test 28 day specimen when 7 day tests exceed 28 day requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

B. Deliver materials, except aggregate, in original unopened containers displaying product name, type, grade and mixing instructions.

1.07 FIELD CONDITIONS

A. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.

B. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Masonry Cement: ASTM C 91, Type S. Only one brand shall be used throughout the project.

B. Portland Cement: ASTM C 150, Type I - Normal; color as required to produce approved color sample. Only one brand shall be used throughout the project.

C. Hydrated Lime: Type S.

D. Pre-mixed, colored masonry cement:
   1. Acceptable product's; pending compliance with specified characteristics and acceptable color range to match specified color:

a. Citadel Cement, Div. Lafarge Corp., Citadel Custom Color Masonry Cement.
b. Coplay Cement Co., Brixment-In-Color.
c. Holnam, Inc., Rainbow Motarmix Masonry Cement.
d. Leigh Portland Cement Co., Custom Color Masonry Cement.
e. National Cement Co., Coosa Masonry Cement.
f. Riverton Corp., Flamingo Masonry Cement.
g. U.S. Cement Co., Custom Color Masonry Cement.

2. Characteristics Type S: Meeting ASTM C91-97, Type S non-staining, 22% maximum air content by volume, with inert, alkali-resistant, fade-resistant mineral pigments and complete with water-reducing and plasticizing admixtures, proportioned to comply with requirements of ASTM C270-97 for Type S mortar with minimum 28-day compressive strength of 1800 psi for Type S mortar.
3. Characteristics Type N: Meeting ASTM C91-97, Type N non-staining, 22% maximum air content by volume, with inert, alkali-resistant, fade-resistant mineral pigments and complete with water-reducing and plasticizing admixtures, proportioned to comply with requirements of ASTM C270-97 for Type N mortar with minimum 28-day compressive strength of 750 psi for Type N mortar.
4. Colors: Basis of design is Blue Circle Color Putty Portland.

E. Color Additives for Cast Stone Pointing Mortar: Natural or synthetic mineral oxides meet ASTM C979-97; sun-fast, lime-proof and alkali-resistant.
1. Additive shall not exceed 10% of the weight of the cement used.
2. Color shall be selected by Gardner Spencer Smith Tench and Jarbeau, PC to match existing.

F. Aggregate:
1. For mortar: Clean, hard, natural washed sand meeting ASTM C144-93. Provide aggregate from single source for colored mortar.
2. For cement grout: Refer to Section 040070 - Cement Grout for Reinforced Masonry.

G. Water-reducing and plasticizing admixture:
1. Acceptable products:
a. Anti-Hydro Co., Ahco WR.
b. Chem-Masters Corp., Hydrolox 400.
c. Sonneborn Building Products, Div. of ChemRex, Inc., Trimix NCA.
2. Characteristics: Non-chloride admixture meeting ASTM C494-99a, Type E. Admixtures containing calcium chloride shall not be permitted.

H. Non-shrink grout:
1. Acceptable products:
a. Anti-Hydro, Axpandcrete-S Hi-Flow.
b. Bostik Construction Products, Upcon Super Flow 263.
c. The Burke Company, Non-Ferrous, Non-Shrink Grout.
d. Lambert Corporation, Vibropruf #11.
e. L&M Construction Chemicals Co., Crystex.
f. Master Builders Co., Master Flow 713.
g. Sonneborn Building Products, Sonogrout.
h. U.S. Grout Corp., Five Star Grout.
i. W.R. Bonsal Co., Type A Construction Grout.
j. W.R. Meadows, Inc., 588
2. Characteristics: Flowable, non-metallic, controlled expansive type grout.

I. Anchoring cement for railings:
1. Acceptable products:
a. BASF, MasterSeal 590.

b. Damtite, Waterproofing Hydraulic Cement.
c. Drylok Masonry Products, Fast Plug.
d. Sakrete, Leak Stopper Hydraulic Cement.
e. Quikrete, Hydraulic Cement.

2. Characteristics: Quick-setting, self-leveling, pourable cement base; waterproof, non-shrinking hydraulic compound.

J. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar.

K. Water: Clean and potable, free from deleterious amounts of alkalis, acids and organic materials.

2.02 PROPORTIONS

A. Type S job-mixed or bag -mixed mortar: Proportion materials by volume in accord with ASTM C270-97, as follows:
1. One part masonry cement to 1/2 part Portland cement to aggregate proportioned at not less than 2-1/4 nor more than three times the volumes of cements used, or;
2. One part Portland cement and 1/4 to 1/2 part hydrated lime to aggregate proportioned at not less than 2-1/4 nor more than three times the combined volume of cement and lime used, or;
3. One part pre-mixed Type S masonry cement to aggregate proportioned not less than 2-1/4 nor more than three times the volume of masonry cement used, and as directed by masonry cement manufacturer's product data to produce Type S mortar. This method is required for pre-mixed colored masonry cement.

B. Type N job-mixed or bag -mixed mortar: Proportion materials by volume in accord with ASTM C270-97, as follows:
1. One part pre-mixed Type N masonry cement to aggregate proportioned at not less than 2-1/4 nor more than three times the volume of masonry cement used, and as directed by masonry cement manufacturer's product data to produce Type N mortar. This method is required for pre-mixed colored masonry cement.

C. For cement grout: Refer to Section 040070 - Cement Grout for Reinforced Masonry.

D. Non-shrink grout: Mix prepared non-shrink grout product with water as directed by manufacturer's product data to achieve a minimum compressive strength of 7000 psi at 28 days.

E. Anchoring cement for railings: Mix prepared anchoring cement product with water as directed by manufacturer's product data for immediate use.

2.03 MORTAR MIXING

A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with {\rs\#1} and in quantities needed for immediate use.

B. Maintain sand uniformly damp immediately before the mixing process.

C. Colored Mortar: Proportion selected pigments and other ingredients to match Gardner Spencer Smith Tench and Jarbeau, PC's sample, without exceeding manufacturer's recommended pigment-to-cement ratio; mix in accordance with manufacturer's instructions, uniform in coloration.

D. Add mortar color in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.

E. Do not use anti-freeze compounds to lower the freezing point of mortar.

F. Measure materials for job mixed mortars in a one cubic foot container. Do not measure by shovels.

G. If water is lost by evaporation, re-temper only within two hours of mixing.

H. Use mortar within two hours after mixing at temperatures of 90 degrees F, or two-and-one-half hours at temperatures under 40 degrees F.

2.04 GROUT MIXES

A. Mortar: Dry, loose volumes. Mix proportions shall be verified by material testing laboratory.
   1. Portland cement: 1 part.
   2. Hydrated lime: 1/4 to 1/2 part.
   3. Mortar sand: 2-1/4 to 3 parts.
   4. Water: to provide required consistency.
   5. Mixing time for Silotec Mortar System shall be in accordance with Silotec Mortar System recommendations instead of those indicated in Section 01420: Testing and Inspection.

B. Grout: Shall provide a minimum strength of 2000 psi unless noted otherwise. Grout strengths in excess of more than 2000 psi shall be verified by a material testing laboratory.
   1. Fine Grout: Portland cement 1 part; sand 2 1/4 to 3 parts; water to attain a slump of 8 to 10 inches
   2. Coarse Grout: Portland cement 1 part; pea gravel 2 1/4 to 3 parts; water to attain a slump of 8 to 10 inches.

C. Measurements: Proportion by accurate volume measurements. Measure in calibrated devices that can be verified at any time.
   1. Add water for workable consistency.
   2. Shovel measurements are not permitted.

D. Mixing: Place sand, cement, and water in mixer in that order, while mixer is running; mix for 3 minutes, add lime, and admixture (for grout), and continue mixing until a uniform mass is provided, but in no case less than 10 minutes.
   1. Equipment for mixing and handling mortar and grout shall be acceptable to the owner's testing consultant.
   2. Batches of less than one sack of cement, and fractional sack batches are not permitted.

E. Re-tempering Time Limit: Re-temper on mortar boards, for at least 3 minutes, but not more than 10 minutes when required, by adding water into a basin formed by mortar, and installing mortar into it. Dashing, or pouring of water over mortar is not permitted.
   1. Do not re-temper mortar which has become hard or non-plastic.
   2. Discard mortar, which has not been installed within one hour after original mixing.

F. Ready-Mix Grout: Grout batched off the Project site and delivered by mixer truck shall be subject to same procedures and controls as prescribed by building code requirements. Refer to Division 01: Testing and Inspection.

2.05 PRECONSTRUCTION TESTING

A. Testing will be conducted by an independent test agency, in accordance with provisions of Division 01.

B. Mortar Mixes: Test mortars prebatched by weight in accordance with ASTM C780 recommendations for preconstruction testing.
   1. Test results will be used to establish optimum mortar proportions and establish quality control values for construction testing.

C. Grout Mixes: Test grout batches in accordance with ASTM C1019 procedures.
   1. Test results will be used to establish optimum grout proportions and establish quality control values for construction testing.

PART 3 EXECUTION

3.01 PREPARATION

A. Plug clean-out holes for grouted masonry with brick masonry units. Brace masonry to resist wet grout pressure.

3.02 INSTALLATION

A. Install mortar and grout to requirements of section(s) in which masonry is specified.

B. Work grout into masonry cores and cavities to eliminate voids.

C. Do not install grout in lifts greater than 16 inches without consolidating grout by rodding.

D. Do not displace reinforcement while placing grout.

E. Remove excess mortar from grout spaces.

F. Discard grout not placed within 1-1/2 hours after water is added to mix, or sooner as indicated by grout manufacturer.

3.03 PLACING MORTAR

A. Place mortar as directed in the 042100 - Brick Masonry, {\ch\#2} and {\ch\#3} Sections.

3.04 PLACING GROUT

A. Use either high-lift or low-lift grouting techniques, at Contractor's option, subject to other limitations of Contract Documents.

B. Perform grouting by means of high-lift technique, except in locations that mandate use of low-lift grouting technique.
   1. Do not use high-lift grouting where size of cavities mandates use of fine grout.

C. Steel Door Frames:
   1. Locate door frames accurately, install plumb, "Ram-set" or "Rawlplug" to floor surface and brace in position before start of masonry installation.
      a. Frames are specified to be furnished with adjustable anchors.
      b. Fill interior of frames solid with mortar or grout as walls are constructed.
   2. Provide temporary wood spreaders from jamb to jamb and from head to floor to ensure that jambs do not bow-in, distort from a straight line, or deflect from superimposed loads during construction.

D. Low-Lift Grouting:
   1. Limit height of pours to 24 inches.
   2. Limit height of masonry to 16 inches above each pour.
   3. Pour grout only after vertical reinforcing is in place; place horizontal reinforcing as grout is poured. Prevent displacement of bars as grout is poured.
   4. Place grout for each pour continuously and consolidate immediately; do not interrupt pours for more than 1-1/2 hours.
   5. Grouted walls shall be solid and without voids.
   6. Grout may be installed by pump, tremie or bucket, using hoppers to avoid spilling on exposed surfaces.
   7. Place an initial 2 feet high lift around, thoroughly compact, then place balance of each lift, compacting again through total lift, with hardwood spading sticks or pencil vibrators.
   8. Stop grout pours 1-1/2 inches below top of each lift.
   9. Remove and discard spilled grout from upper units before grout can harden.
   10. Bracing: Adequately brace walls against wind and other forces during and after construction.
   11. Re-puddle top of grout after initial set.

E. High-Lift Grouting:
   1. Verify that horizontal and vertical reinforcement is in proper position and adequately secured before beginning pours.
   2. Hollow Masonry: Limit lifts to maximum 4 feet and pours to maximum height of 24 feet.
   3. Place grout for spanning elements in single, continuous pour.
   4. High-lift grouting method is permitted provided following qualifications and requirements are met. High-lift grouting shall apply only to cell sizes available with 8 inch and wider

block units. This method is subject to specific approval of Gardner Spencer Smith Tench and Jarbeau, PC and Heard County Board of Commissioners.

5. Provide bond beam units, inverted for start course, and omit alternate blocks or cut openings in alternate face shell on bottom course for cleanouts.
6. Remove projecting mortar fins. Wash out every cell thoroughly using a water jet, which has sufficient force to remove mortar from the interior of the cells, and from reinforcing steel.
7. Plug each cleanout by setting a "soap" in mortar into opening and securely bracing it in place to prevent displacement. If masonry is not exposed in finish Work, cleanouts may be formed.
8. Grouting:
    a. Grout masonry cells solid, free from voids.
    b. Do not install grout until masonry has set a minimum of 3 days in warm weather (50 degrees to 85 degrees F.) or 5 days in cool, damp weather (35 degrees to 50 degrees F.).
    c. Pump grout into grout cell space as rapidly as practical. Discard grout not in place within one hour after water was first added to batch.
    d. Install grout with maximum slump without segregation. Place in a continuous pour, in maximum lifts of 4 feet, with approximately 20 minutes elapsed time between any 2 successive lifts.
9. Consolidating:
    a. Consolidate and reconsolidate grout using 3/4 inch lightweight flexible cable vibrators.
    b. First consolidation shall be performed to bottom of lift immediately after placement, and in case of subsequent lifts, through previously placed lift.
    c. Top lift shall be reconsolidated no sooner than 30 minutes after grout has been installed.
    d. Vibrating of reinforcing steel is not permitted.
10. Bracing: Adequately brace walls against wind and other forces during and after construction.

3.05 FIELD QUALITY CONTROL

A. An independent testing agency will perform field tests, in accordance with provisions of Division 01.

B. Test and evaluate mortar in accordance with {\rs\#1} procedures.
    1. Test with same frequency as specified for masonry units.

C. Test and evaluate grout in accordance with {\rs\#1} procedures.
    1. Test with same frequency as specified for masonry units.

D. Evaluation of Quality Control Tests: In absence of other indications of noncompliance with requirements, mortar and masonry grout will be considered satisfactory if results from construction quality control tests comply with minimum requirements indicated.

3.06 SCHEDULES

A. Concrete Unit Masonry mortar shall be Type S.

B. Brick Masonry mortar shall be Type S, colored mortar.

C. Cast Stone mortar shall be Type N, colored mortar.

END OF SECTION

SECTION 04 2100
BRICK MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Brick Masonry Units.

B. Accessories.

1.02 RELATED SECTIONS

A. Section 04 0511 - Masonry Mortaring and Grouting.

B. Section 05 5000 - Metal Fabrications: Loose steel lintels.

C. Section 07 9005 - Joint Sealers: Backing rod and sealant at control joints.

1.03 REFERENCES

A. ACI 530/ASCE 5/TMS 402 - Building Code Requirements for Masonry Structures; American Concrete Institute International; 1995.

B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 1995.

C. ASTM C 62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale); 1996.

D. ASTM C 67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile; 1996.

E. ASTM C 212 - Standard Specification for Structural Clay Facing Tile; 1996.

F. Brick Institute of America (BIA) - Technical Notes on Brick Construction; Latest Edition.

G. IMIAWC (CW) - Recommended Practices & Guide Specifications for Cold Weather Masonry Construction; International Masonry Industry All-Weather Council; 1993.

H. IMIAWC (HW) - Recommended Practices & Guide Specifications for Hot Weather Masonry Construction; International Masonry Industry All-Weather Council; current edition.

I. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

A. See Division 01 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for brick masonry units, fabricated wire reinforcement, and mortar. Provide manufacturer's application procedures for masonry cleaning compounds.

C. Samples for Verification: Submit five samples of facing brick units to illustrate color, texture, and extremes of color range.
   1. Full-size units for each different exposed masonry unit required, showing the full range of exposed colors, textures, and dimensions to be expected in completed construction.

D. Qualification Data: For firms and persons specified in "Quality Assurance" Article.

E. Manufacturer's Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
   1. Submit certificates from masonry manufacturer prior to delivery of masonry units to project site. Each certificate shall be signed by an authorized officer of the manufacturing company and shall contain the name and address of the Contractor, the project location, and the quantities and date or dates of shipment or delivery to which the certificate applies.
   2. Submit certification from brick manufacturer stating that proposed masonry cleaning compound is suitable for cleaning selected brick, and that masonry cleaning compound will not cause staining nor discoloration of brick.

3. Each type of masonry unit required.
    a. Include size-variation data for brick, verifying that actual range of sizes falls within specified tolerances.
4. Each cement product required for mortar and grout, including name of manufacturer, brand type, and weight slips at time of delivery.
5. Each material and grade indicated for reinforcing bars.
6. Each type and size of joint reinforcement.
7. Each type and size of anchor, tie, and metal accessory.

1.05 QUALITY ASSURANCE

A. Comply with provisions of ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents.
    1. Source Control: Obtain exposed masonry units from one manufacturer, with texture and color uniform or of a uniform blend acceptable to Gardner Spencer Smith Tench and Jarbeau, PC.

B. Preconstruction Testing: Owner will employ and pay a qualified independent testing laboratory to perform the following preconstruction testing indicated as well as other inspecting and testing services required by referenced unit masonry standard or indicated herein for source and field quality control:
    1. Clay unit masonry tests: For each different clay masonry unit indicated, units will be tested per ASTM C 67.

1.06 MOCK-UP PANEL

A. Construct a masonry wall as a mock-up panel sized 4 feet long by 4 feet high, which includes mortar and accessories. Mock up panel shall correctly demonstrate all brick detailing as indicated in the drawings including but not limited to corbelling, soldier courses, rowlocks and control joints.
    1. Locate mock-up panel where directed by Gardner Spencer Smith Tench and Jarbeau, PC.
    2. Mock-up may remain as part of the Work.
    3. Clean exposed faces of panels with masonry cleaner indicated.
    4. Protect approved mock-up panel from elements with weather-resistant membrane.
    5. Mock-up panel shall be protected from demolition or damage and shall remain in place until final acceptance of masonry construction.
    6. Approval of mock-up panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Gardner Spencer Smith Tench and Jarbeau, PC in writing.
        a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in mock-up panels, unless such deviations are specifically approved by Gardner Spencer Smith Tench and Jarbeau, PC in writing.
    7. Demolish and remove mock-up panel when directed by Gardner Spencer Smith Tench and Jarbeau, PC.

B. Indicate not less than the following:
    1. Bonding pattern.
    2. Mortar color and joint tooling.
    3. Brick colors, textures, and ranging.
    4. Specialty masonry unit features.
    5. General overall workmanship.

C. Prepare the panel at least 14 days to beginning masonry work. Should the panel not be accepted, prepare additional panels until accepted by Gardner Spencer Smith Tench and Jarbeau, PC.

1.07 PRE-INSTALLATION MEETING

A. Convene 2 weeks before starting work of this section. Meeting shall be attended by Gardner Spencer Smith Tench and Jarbeau, PC, Heard County Board of Commissioners, General Contractor, Subcontractor, and supervising mason.

B. Review all masonry detailing, project conditions, supervision of trades, coordination of related construction, and continuity of workmanship.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

B. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

1.09 ENVIRONMENTAL REQUIREMENTS

A. Lay no masonry when temperatures of surrounding air has dropped below 45 degrees F., unless it is rising, and at no time when it has dropped below 40 degrees F., except by written permission from Gardner Spencer Smith Tench and Jarbeau, PC.

B. When masonry work is authorized during temperature of below 40 degrees F. but above freezing, provide mortar at temperatures between 70 degrees F. and 100 degrees F.

C. Maintain air temperature above 40 degrees F. on both sides of masonry for at least 72 hours after laying.

D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
   1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.

E. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required.
   1. When ambient temperature exceeds 100 deg F (38 deg C), or 90 deg F (32 deg C) with wind velocity greater than 8 mph (13 km/h), do not spread mortar beds more than 48 inches (1200 mm) ahead of masonry. Set masonry units within one minute of spreading mortar.

1.10 JOB CONDITIONS

A. Protection of Work:
   1. During erection, at end of each day or shutdown period, keep walls dry by covering with waterproof material, anchored and overhanging each side of wall at least 2'-0".
   2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches (600 mm) down face next to unconstructed wythe and cover in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that comes in contact with such masonry.
   1. Protect base of walls from rain-splashed mud and from mortar splatter by covering spread on ground and over wall surface.

2. Remove misplaced mortar or grout immediately.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Protect face materials against staining.
5. Protect sills, ledges, and offsets from mortar droppings during construction.
6. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry

D. Sequencing and Scheduling:
1. Do not cover or enclose mechanical or electrical work requiring inspection until such work has been accepted. Coordinate this work with work of other sections required to be built into masonry construction.

PART 2 PRODUCTS

2.01 BRICK MASONRY UNITS

A. General: Provide shapes indicated and as follows for each form of brick required:
1. Provide units without cores or frogs and with exposed surfaces finished for ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces.
2. At ends of soldier and rowlock coursing and corbelling, use only solid/holeless brick units.

B. Provide special shapes for applications requiring brick size, form, color, and texture on exposed surfaces that cannot be produced by sawing.
1. Provide special shapes for applications where stretcher units cannot accommodate special conditions, including those at corners, movement joints, bond beams, sashes, and lintels.
2. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

C. Facing Brick: ASTM C 216, Type FBS, Grade SW.
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 5500 psi (37.9 MPa).
2. Initial Rate of Absorption: Less than 20 g/30 sq. in. (20 g/194 sq. cm) per minute when tested per ASTM C67.
3. Efflorescence: Provide brick that has been tested according to ASTM C67 and is rated "not effloresced."
4. Application: Use where brick is exposed, unless otherwise indicated.

D. Manufacturers:
1. Basis of Design Product: Subject to compliance with requirements, provide either the named product or a comparable product by another manufacturer that is acceptable to Gardner Spencer Smith Tench and Jarbeau, PC.
2. Acceptable Products; Brick shall be the products of a single manufacturer and match the existing brick.
    a. Acceptable Products:
        1) Basis of Design: Georgia Masonry Supply: www.georgiamasonrysupply.com.
            (a) Mock-up Panel 1: Old Birmingham (Macon); Cherokee Brick & Tile Co.
            (b) Mock-up Panel 2: Flashed Common 103 (Merry Oaks, NC); Triangle Brick.
            (c) Mock-up Panel 3: Red Flashed Velour; (Marseilles Plant, IL); Glen-Gery.
                (1) The Owner may select either one of these brick manufactures after observing the Mock-up panels on site.
3. Color and texture to match Gardner Spencer Smith Tench and Jarbeau, PC's sample.
4. Actual size: Match Existing.

2.02 MORTAR AND GROUT MATERIALS

A. Mortar and grout: As specified in Section - Masonry Mortaring and Grouting.

2.03 ACCESSORIES

A. Accessories: As specified in Section 04 0090 - Masonry Accessories.

2.04 MASONRY CLEANING COMPOUND

A. Masonry Cleaning Compound:
   1. Acceptable Products:
      a. Diedrich Technologies, Inc., Product: 202V Vana-Stop: www.diedrichtechnologies.com.
      b. Dumond Chemicals, Product: Architectural Cleaner and Restorer: www.dumondchemicals.com.
      c. ProSoCo, Inc., Product: Sure Klean #101 Lime Solvent and Sure Klean #600 Detergent: www.prosoco.com.
   2. Product Requirements:
      a. Compound shall be certified as acceptable by masonry manufacturer, meeting specified requirements, and as recommended by the compound manufacturer for selected masonry, to ensure that proposed masonry cleaning compound causes no staining or discoloration.
      b. Products shall be specifically formulated for masonry type, color, and material content. Product data shall state whether particular compound is acceptable for dark-colored, light colored, masonry subject to non-metallic staining or masonry subject to metallic staining.
   3. Test Panel: Test each type and dilution of cleaning compound on sample panel.
   4. Formulation: Dilutable formula comprised of inorganic acids, wetting agents and inhibitors.
   5. Characteristics:
      a. Compound shall be able to cling to masonry for an average dwell period of two minutes, able to loosen mortar residue for complete removal, and shall be water-washable upon completion.
      b. Compound shall not cause acid burns or streaks.
      c. Compound shall be able to be applied, based on dilution amount, by using a soft masonry brush or low pressure (40psi-50psi) airless sprayer.

B. Pine Straw shall be free of trash and debris.

PART 3 EXECUTION

3.01 GENERAL

A. Layout: Lay out masonry for accurate pattern bond, for uniform joint widths, and for accurate location of specific features before beginning actual construction. Avoid use of masonry units of less than 1/2 size. Do not use units with less than nominal 4 inch horizontal face dimensions at corners and jambs.

B. Chases and Recesses: Build masonry to accommodate the work of other trades, including chases and recesses as shown or required. Provide not less than 8 inches of masonry between jambs of openings and chases and recesses.

C. Openings for Equipment and Services: Leave openings in masonry as required for subsequent installation of equipment and services. Make openings in designated locations and in exact size required, if known; otherwise, leave rough openings in approximate size required and complete masonry work after installation of equipment, matching adjoining masonry.

D. Veneer Anchorage: Anchor masonry veneer to structural backup with anchors specified, and as follows:
   1. Fasten to backup with self -tapping , non corrosive fasteners as recommended by the manufacturer of anchors for substrate conditions.

2. Space plates of two-piece anchors so they will be centered on horizontal movement of ties due to differential movement of veneer and backup.
3. Embed tie sections of two-piece anchors in mortar as masonry is being laid, providing clear air space of at least 2 inches behind veneer wythe.
4. Space anchors at not more than 1.77 square feet per anchor, nor more than 16 inches on center horizontally and vertically. At openings and ends of veneer panels, provide additional anchors so that maximum spacing at perimeter is 8 inches on center.

3.02 MOCK-UP PANEL

A. Use mortar as specified in Mortar and Masonry Grout Section 04 0511, and reinforced concrete unit masonry backup as specified in Concrete unit Masonry Section.

B. Sample panels shall be complete wall systems, including, but not limited to, reinforcement, veneer ties, through wall flashing, weeps, insulation, dampproofing, backup and face brick.

C. Provide brick cleaning on half of sample panel, to ensure proposed masonry cleaning compound causes no staining nor discoloration of brick.

3.03 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.04 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

C. Plan and Coordinate layouts for Drawing dimensions, minimal cutting, alignment of control joints with back-up masonry, and relationships to adjacent work.

D. Control lines: Prior to the installation of brick masonry, apply indelible, plumb, vertical control lines on sheathing substrate or cavity insulation or backup masonry at spacing not to exceed 48 inches on center continuous for full height of the brickwork for the purpose of maintaining plumb head joint alignment in alternate courses for specified brick bond pattern.

3.05 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Brick Units:
1. Bond: Running, except where other bonds are indicated at special features.
2. Coursing: Match Existing.
3. Head joints of alternate courses shall Match Existing.
4. Mortar Joints: Match Existing.

3.06 INSTALLATION

A. Workmanship: Install no brick units that are cracked, broken or chipped in excess of ASTM allowances.
1. Use abrasive power saws to cut brick.
2. Lay brick plumb, true to line and with level courses, spaced within allowable tolerances.
3. Do not furrow joints.
4. Stop-off horizontal run by racking back in each course; toothing is not permitted.
5. Adjust units to final position while mortar is soft and plastic.

6. If units are displaced after mortar has stiffened, remove, clean joints and units of mortar, and relay with fresh mortar.
7. Cutting and patching of finish masonry to accommodate work of other trades shall be done so as not to mar appearance of finished surface.
8. Adjust shelf angles to keep work level and at proper elevation. Provide a 3/8" joint below shelf angle.
9. Mix units from pallets in work to diminish noticeable variation in color and texture between pallets.
10. Provide brick expansion joints with pressure relieving pads continuous under shelf angles.
11. When joining fresh masonry to set or partially set masonry, remove loose brick and mortar, and clean and dampen exposed surface of set masonry prior to laying fresh masonry.
12. Provide solid brick units free of cores or frogs where such characteristics would be exposed in the finished work.
13. Wet brick with initial rate of absorption exceeding 30 grams/30 square inches/ minute when tested in accordance with ASTM C67-97.
14. Cavity walls: Keep cavity clear of mortar and other materials which project into cavity and decrease cavity clearance to less than minimum dimension indicated.

B. Mortar Beds:
   1. Lay brick with full mortar coverage on horizontal and vertical joints in all courses.
   2. Provide sufficient mortar on ends of brick to fill head joints.
   3. Rock closures into place with head joints thrown against two adjacent bricks in place.
   4. Do not pound corners or jambs to fit stretcher units after setting in place.
   5. Where adjustment to corners or jambs must be made after mortar has started to set, remove mortar and replace with fresh mortar.

C. Mortar Joints:
   1. Nominal thickness: 3/8"
   2. Tool joints exposed to finished work when "thumb print" hard. Joints shall be tooled using jointer at least 2'-0" in length.

D. Joint profiles:
   1. Above or below horizontal recessed courses: Raked.
   2. All other joints: Concave.

E. Trowel point or concave tool joints below grade.

F. Flush-cut joints not to be exposed in finish work.

G. As work progresses, trowel protruding mortar fins in cavity flat to inner face of wythe.

H. Flashing:
   1. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
      a. Clean surface of masonry smooth and free from projections which might puncture flashing material.
      b. Extend flashings full width at such interruptions and at least 6 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
      c. Remove or cover protrusions or sharp edges that could puncture flashings.
      d. Seal lapped ends and penetrations of flashing before covering with mortar.
      e. Lap end joints of flashings at least 4 inches and seal watertight with mastic or elastic sealant.
      f. Place flashings on sloped mortar bed; seal lapped ends and penetrations of flashing before covering with mortar.

1) Extend metal flashings through exterior face of masonry and turn down to form drip.

g. Veneer Flashings: Turn flashings up not less than 4 inches at backup. Lap top of flashing with building paper, or otherwise seal to prevent moisture penetration between flashing and backup.

h. Heads and Sills: Turn up ends of flashing at least 2 inches at heads and sills to form a pan, and seal joints.

i. Sealing: Seal all joints in flashing to ensure watertight integrity.

1) Lap end joints on non deformed metal flashings at least 4 inches; seal laps with elastic sealant or mastic.

I. Sealant Joints: Retain 1/2" wide sealant joint around outside perimeter of exterior doors, window frames and other wall openings.

J. Pointing: Cut out defective mortar joints and holes in exposed work. Repoint with new mortar.

K. Dry Cleaning: Brush brick surfaces with stiff bristle brush. Do not allow mortar droppings to harden on exposed surfaces.

3.07 BUILT-IN WORK

A. As work progresses, install built-in metal door frames, fabricated metal frames, anchor bolts, and plates and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.

1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.

D. Do not build into masonry construction organic materials that are subject to deterioration.

3.08 TOLERANCES

A. Acceptable Tolerances:

1. Maximum variation from plumb:
   a. In lines and surfaces of walls and arises:
      1) 1/4" in 10'-0".
      2) 3/8" in any story or 20'-0" maximum.
      3) 1/2" in 40'-0" or more.
   b. For external corners, expansion joints and other conspicuous lines:
      1) 1/4" in any story or 20'-0" maximum.
      2) 3/8" in 40'-0" or more.
2. Maximum variation from level or grades for exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines:
   a. 1/4" in any bay or 20'-0".
   b. 1/2" in 40'-0" or more.
3. Maximum variation of linear building line from established position in plan and related portions of columns, walls and partitions.
   a. 1/4" in any bay or 20'-0".
   b. 3/4" in 40'-0" or more.
4. Maximum variation in cross-sectional dimensions of columns and thickness of walls:
   a. Not less than 1/4" smaller nor more than 1/2" larger than indicated.

3.09 CUTTING AND FITTING

A. Where cutting is required, use power saws to provide clean, sharp, unchipped edges.

B. Cut and fit for chases. Coordinate with other sections of work to provide correct size, shape,and location.

C. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

D. Remove and replace masonry where appearance is unacceptable.

3.10 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Division 01.

B. Clay Masonry Unit Tests: Test each variety of clay masonry in accordance with ASTM C 67 requirements, sampling 5 randomly chosen units for each 100,000 installed.

C. Evaluation of Quality Control Tests: In absence of other indications of noncompliance with requirements, brick masonry will be considered satisfactory if results from construction quality control tests comply with minimum requirements indicated.

3.11 REPAIRING MASONRY

A. Replacement: Carefully remove areas of damaged masonry and replace with matching , undamaged units using mortar which matches original work.

B. Pointing: As joints are tooled, remove mortar with visible holes or mortar which cannot be compacted properly because of hidden voids, and replace with fresh mortar , filling each joint completely and tooling to match adjacent work.

3.12 CLEANING

A. At least 21 days prior to application of specified cleaning solution to brick work, apply solution on half of the surface of the sample panel. Should discoloration of brick or mortar joints, staining or efflorescence appear on sample panel, notify the Architect for further instructions before proceeding with final surface cleaning.

B. No wet cleaning shall take place within seven days of placing masonry.

C. Apply manufactured cleaning compound on brick masonry as tested on sample panel in accordance with manufacturer's product data. Flush with clean water.

D. At least two hours prior to application of cleaning solution to brick work, saturate mortar joints with clean water and brush off loose debris.

E. Begin cleaning operation at highest point of wall, working downward in areas of 20 S.F. maximum. As cleaning progresses, flush wall to prevent accumulation of loosened residues. Do not allow wetted walls below level of cleaning to dry and leave previously diluted residues from cleaning.

F. Safely discard solutions containing debris and residue.

G. Do not scrub mortar joints with cleaning solution.

H. Do not use high pressure water streams to clean any brick surfaces.

I. Protect materials adjacent to brick work which are subject to corrosion from contact with cleaning solution.

J. Remove stains in accordance with recommendations of the Brick Institute of America, Technical Notes #20, 1990 edition. Use cleaning agents only after pretesting on sample panel.

K. Remove excess mortar and mortar smears on clay masonry as work progresses.

L. Replace defective mortar. Match adjacent work.

M. Clean soiled surfaces with cleaning solution and as recommended by the material manufacturer for the surface to be cleaned.

3.13 PROTECTION OF FINISHED WORK

A. Without damaging completed work, provide protective boards at exposed external corners which are subject to damage by construction activities.

B. Place pine straw adjacent to walls, thickness and width sufficient to prevent mud staining before and after cleaning.

C. Institute other protective measures as necessary to ensure that unit masonry work will be clean, free of staining from adjacent soils, and undamaged at substantial completion. Reclean any brick work soiled or stained after initial cleaning and prior to Substantial Completion.

3.14 MASONRY WASTE DISPOSAL

A. Recycling: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

END OF SECTION

SECTION 05 5000
METAL FABRICATIONS

PART 1 GENERAL

1.01 GENERAL

A. Provisions of Division 01 apply to this section.

1.02 SECTION INCLUDES

A. This section includes the following shop fabricated steel and aluminum items.
   1. Rough hardware.
   2. Loose bearing and leveling plates.
   3. Loose steel lintels.
   4. Miscellaneous framing and supports for the following:
      a. Overhead doors.
      b. Applications where framing and supports are not specified in other sections.
   5. Miscellaneous steel trim.

1.03 RELATED REQUIREMENTS

A. Division 01 - Testing Laboratory Services.

B. Section {\id\#1000526} - Cast-In-Place Concrete: Placement of metal fabrications in concrete.

C. Section 042200 - Concrete Unit Masonry: Placement of metal fabrications in masonry.

D. Section 09 9000 - Painting and Coating: Paint finish.

1.04 REFERENCES

A. "Specification for the Design, Fabrication and Erection of Structural steel for Buildings, November 1, 1978," by the American institute of Steel Construction (AISC Specification).

B. "Specification for the Design of Cold-Formed Steel Structural Members," by the American Iron and Steel Institute (AISI Specification).

C. "Structural Welding Code - Steel, AWS Dl.l," or "Structural Welding Code -- Sheet Steel, AWS D1.3, by the American Welding Society (AWS Codes).

D. "Specification for Structural Joints Using ASTM A325 or A490 Bolts, August 14, 1980," by the Engineering Foundations' Research Council on Riveted and Bolted Structural Joints (Specification for Structural Joints).

E. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum 2014 (2015 Errata).

F. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.

G. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless 2020.

H. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.

I. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.

J. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates 2018.

K. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2021.

L. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength 2014.

M. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric) 2014.

N. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes 2021.

O. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing 2014.

P. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination 2012.

Q. AWS D1.1/D1.1M - Structural Welding Code - Steel 2020.

R. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer 1999 (Ed. 2004).

S. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic") 2002 (Ed. 2004).

T. SSPC-SP 2 - Hand Tool Cleaning 2018.

1.05 SUBMITTALS

A. See Division 01 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
   1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
   2. Where installed metal fabrications are indicated to comply with certain design loadings, include structural computations, material properties, and other information needed for structural analysis that has been signed and sealed by the qualified professional engineer who was responsible for their preparation.

C. Product Data: Submit Product Data for manufactured items.
   1. Submit Product Data for primers, finishes, and grout.

D. Material Samples: Submit samples of primers and finishes on fabricated items.

E. Installation Instructions: Submit installation instructions for manufactured items.

F. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

1.06 QUALITY ASSURANCE

A. Fabricator Qualifications: Firm experienced in successfully producing metal fabrications similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work.

B. Installer Qualifications: Arrange for installation of metal fabrications specified in this section by same firm that fabricated them.

C. Qualify welding processes and welding operators in accordance with AWS Dl.l "Structural Welding Code - Steel," D1.3 "Structural Welding Code - Sheet Steel," and D1.2 "Structural Welding Code - Aluminum."
   1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

D. Comply with the following as a minimum requirement:
   1. Design, fabricate, and install miscellaneous metals in accordance with AISC - Design, Fabrication, and Erection of Structural Steel for Buildings.
   2. AWS D-1.1 Code - Welding in Building Construction.
   3. Inspection of Welding: Refer to Section 01420: Testing and Inspection.
   4. Welding: Refer to Section 01410 and 01310: Testing Laboratory Services and Special Inspections.

E. Coordinate installation of accessory items required for metal fabrications.

1.07 DELIVERY, STORAGE AND HANDLING

A. Store miscellaneous metal items above grade on platforms, skids, or other required supports.

B. Protect from corrosion or damage.

1.08 PROJECT CONDITIONS

A. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit, by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of Work.
   1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabrication of products without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

1.09 SEQUENCING AND SCHEDULING

A. Sequence and coordinate installation of wall handrails as follows:
   1. Mount handrails only on completed walls. Do not support handrails temporarily by any means not satisfying structural performance requirements.
   2. Mount handrails only on gypsum board assemblies reinforced to receive anchors, and where the location of concealed anchor plates has been clearly marked for benefit of Installer.

PART 2 PRODUCTS

2.01 FERROUS METALS

A. Metal Surfaces, General: For metal fabrications exposed to view upon completion of the Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.

B. Steel Plates, Shapes, and Bars: ASTM A 36.

C. Rolled Steel Floor Plates: ASTM A 786.

D. Steel Bars for Gratings: ASTM A 569 or ASTM A 36.

E. Wire Rod for Grating Cross Bars: ASTM A 510.

F. Steel Tubing: Product type (manufacturing method) and as follows:
   1. Cold-Formed Steel Tubing: ASTM A 500, grade as indicated below:-
      a. Grade A, unless otherwise indicated or required for design loading.
   2. Hot-Formed Steel Tubing: ASTM A 501.
      a. For exterior installations and where indicated, provide tubing with hot-dip galvanized coating per ASTM A 53.

G. Uncoated Structural Steel Sheet: Product type (manufacturing method), quality, and grade, as follows:
   1. Cold-Rolled Structural Steel Sheet: ASTM A 611, grade as follows:
      a. Grade A, unless otherwise indicated or required by-design loading.
   2. Hot-Rolled Structural Steel Sheet: ASTM A 570, grade as follows:
      a. Grade 30, unless otherwise indicated or required by design loading.

H. Uncoated Steel Sheet: Commercial quality, product type (method of manufacture), as follows:
   1. Cold-Rolled Steel Sheet: ASTM A-366.
   2. Hot-Rolled Steel Sheet: ASTM A 569.

I. Galvanized Steel Sheet: Quality as follows:

1. Structural Quality: ASTM A 446; Grade A, unless another grade required-for design-loading, and G90 coating-designation unless otherwise indicated:
2. Commercial Quality: ASTM A 526, G90 coating designation unless otherwise indicated.

J. Steel Pipe unless indicated otherwise in structural drawings: ASTM A 53; finish, type, and weight class as follows:
1. Black finish, unless otherwise indicated.
2. Galvanized finish for exterior installations and where indicated.
3. Type F, standard weight (schedule 40), unless otherwise indicated, or another weight, type, and grade required by structural loads.
4. Type S, Grade A, standard weight (schedule 40), unless otherwise indicated, or another grade or weight or both required by structural loads.
5. Type S, Grade B, standard weight (schedule 40), unless otherwise indicated, or another weight required by structural loads.

K. Gray Iron Castings: ASTM-A 48, Class 30.

L. Malleable Iron Castings: ASTM A 47, grade 32510.

M. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

N. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers, and shims as required, hot-dip galvanized per ASTM A 153.

O. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for the metal alloy to be welded.

2.02 ALUMINUM

A. Extruded Bars and Shapes: ASTM B 221, alloys as follows:
1. 6061-T6 or 6063-T6 for bearing bars of gratings and shapes.
2. 6061-T1 for grating cross bars.

B. Aluminum-Alloy Rolled Tread Plate: ASTM B 632, alloys as follows:
1. 6061-T6 for platforms.
2. 6061-T4 for treads.

C. Aluminum Rivets: ASTM B 316, alloy 6053-T4 or 6061-T6.

D. Aluminum Sheet for Expanded Aluminum Grating: ASTM B 209, alloy 5052-H32.

E. Fasteners for Aluminum Gratings: Use fasteners made of same basic metal as fastened metal except use galvanized fasteners complying with ASTM A 153 for exterior aluminum units, unless otherwise indicated. Do not use metals that are corrosive or incompatible with metals joined.

2.03 GROUT AND ANCHORING CEMENT

A. Nonshrink Metallic Grout: Premixed, factory-packaged, ferrous aggregate grout complying with CE CRD-C 621, specifically recommended by manufacturer for heavy duty loading applications of type specified in this section.

B. Nonshrink Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with CE CRD-C 621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

C. Interior Anchoring Cement: Factory-prepackaged, nonshrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Use for interior applications only.

D. Erosion-Resistant Anchoring Cement: Factory-prepackaged, nonshrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable

anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and is recommended for exterior use by manufacturer.

E. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include but are not limited to the following:

F. Products: Subject to compliance with requirements, provide one of the following:
   1. Nonshrink Metallic Grouts:
      a. "Metox RM"; Chem-Masters Corp.
      b. "Hi Mod Grout"; Euclid Chemical Co.
      c. "Embeco 885 and 636"; Master Builders.
      d. "Ferrolith G Redi-Mix and G-NC"; Sonneborn Building Products Div., Rexnord Chemical Products, Inc.
      e. "Stoncrete MG1"; Stonhard, Inc.
   2. Nonshrink Nonmetallic Grouts:
      a. "Bonsai Construction Grout"; W. R. Bonsai Co.
      b. "Diamond-Crete Grout"; Concrete Service Materials Co.
      c. "Euco N-S Grout"; Euclid Chemical Co.
      d. "Kemset"; Chem-Masters Corp.
      e. "Crystex"; L & M Construction Chemicals, Inc.
      f. "Masterflow 713"; Master Builders.
      g. "Sealtight 588 Grout"; W. R. Meadows, Inc.
      h. "Sonogrout"; Sonneborn Building Products Div., Rexnord Chemical Products, Inc.
      i. "Stoncrete MM 1"; Stonhard, Inc.
      j. "Five Star Grout"; U. S. Grout Corp.
      k. "Vibropruf #11"; Lambert Corp.
   3. Interior Anchoring Cement:
      a. "Bonsai Anchor Cement"; W. R. Bonsai Co.
      b. "Por-Rok"; Minwax Construction Products Division.
   4. Erosion-Resistant Anchoring Cement:
      a. "Super Por-Rok"; Minwax Construction Products Division.

2.04 FASTENERS

A. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.

B. Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A.

C. Lag Bolts: Square head type, FS FF-B-61.

D. Machine Screws: Cadmium plated steel, FS FF-S-92.

E. Wood Screws: Flat head carbon steel, FS FF-S-11.

F. Plain Washers: Round, carbon steel, FS FF-W-92.

G. Drilled-In Expansion Anchors: Expansion anchors complying with FS FF-S-325, Group VIII (anchors, expansion, nondrilling), Type I (internally threaded tubular expansion anchor); and machine bolts complying with FS FF-B-575, Grade 5.

H. Toggle Bolts: Tumble-wing type, FS FF-B-88, type, class, and style as required.

I. Lock Washers: Helical spring type carbon steel, FS FF-W-84.

2.05 FABRICATION

A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions

indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.

B. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and over-stressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.

C. Fit and shop assemble items in largest practical sections, for delivery to site.

D. Fabricate items with joints tightly fitted and secured.

E. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
   1. Radius approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

G. For fabrication of Work exposed to view, provide only materials smooth and free of blemishes. Remove blemishes by grinding or by welding and grinding, before cleaning, treating, and installation of surface finishes including zinc coatings.

H. Form exposed Work true to line and level with accurate angles, surfaces, and straight sharp edges.

I. Form bent metal corners to the smallest radius possible without causing grain separation or otherwise damaging Work.

J. Form exposed connections with hairline joints, flush and smooth. Provide concealed fasteners wherever possible.

K. Remove loose rust, mill scale, cutting, and punching burrs.

L. Fabricate items in as large sections as practical to minimize assembly at the Project site.

M. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

2.06 ROUGH HARDWARE

A. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 sections.

B. Fabricate items to sizes, shapes, and dimensions required. Furnish malleable-iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.

2.07 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.

2.08 LOOSE STEEL LINTELS

A. Fabricate loose structural steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.

B. Weld adjoining members together to form a single unit where indicated.

C. Size loose lintels for equal bearing of one inch per foot of clear span but not less than 8 inches bearing at each side of openings, unless otherwise indicated.

D. Hot Dip Galvanize loose steel lintels located in exterior walls.

2.09 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports for applications indicated or which are not a part of structural steel framework, as required to complete work.

B. Fabricate units to sizes, shapes, and profiles indicated and required to receive adjacent other construction retained by framing and supports. Fabricate from structural steel shapes, plates, and steel bars of welded construction using mitered joints for field connection. Cut, drill, and tap units to receive hardware, hangers, and similar items.
   1. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.
      a. Except as otherwise indicated, space anchors 24 inches o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches wide x 1/4 inch x 8 inches long.

C. Galvanize miscellaneous framing and supports in the following locations:
   1. Exterior locations.
   2. Interior locations where indicated.

2.10 MISCELLANEOUS STEEL TRIM

A. Provide shapes and sizes indicated for profiles shown. Unless otherwise indicated, fabricate units from structural steel shapes, plates, and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings, and anchorages as required for coordination of assembly and installation with other work.

B. Galvanize miscellaneous framing and supports in the following locations:
   1. Exterior locations.
   2. Interior locations where indicated.

2.11 SHELF AND RELIEVING ANGLES

A. Fabricate shelf and relieving angles from steel angles of sizes indicated and for attachment to concrete framing. Provide slotted holes to receive 3/4 inch bolts, spaced not more than 6 inches from ends and not more than 24 inches o.c., unless otherwise indicated.

B. For cavity walls, provide vertical channel brackets to support shelf/relieving angles from back-up masonry and concrete. Align expansion joints in angles with indicated expansion joints in cavity wall exterior wythe.

C. Galvanize shelf angles to be installed on exterior concrete framing.

D. Furnish wedge-type concrete inserts, complete with fasteners, for attachment of shelf angles to cast-in-place concrete.

2.12 STRUCTURAL STEEL DOOR FRAMES FOR OVERHEAD DOORS

A. Fabricate steel door frames from structural shapes and bars of size and to dimensions indicated, fully welded together, with 5/8 inch x 1-1/2 inch steel bar stops, unless otherwise indicated. Plug weld built-up members and continuously weld exposed joints. Secure removable stops to frame with countersunk machine screws, uniformly spaced at not more than 10 inches o.c. Reinforce frames and drill and tap as required to accept finish hardware.

B. Provide steel strap anchors for securing door frames into adjoining concrete or masonry, using 1/8 inch x 2 inch straps of the length required for a minimum 8 inch embedment, unless otherwise indicated. Weld anchors to frame jambs no more than 12 inches from both bottom and head of frame and space anchors not more than 30 inches apart.

C. Extend bottom of frames to floor elevation indicated with steel angle clips welded to frames for anchoring frame to floor with expansion shields and bolts.

D. Galvanize frames and anchors in the following locations:

1. Exterior locations.
2. Interior locations where indicated.

2.13 PIPE BOLLARDS

A. Fabricate pipe bollards from Schedule 80 steel pipe. Cap bollards with 1/4 inch minimum thickness steel base plate.

B. Fabricate sleeves for bollard anchorage from steel pipe with 1/4 inch thick steel plate welded to bottom of sleeve.

2.14 FINISHES - STEEL

A. Prime paint steel items.
   1. Exceptions: Galvanize items to be embedded in concrete or masonry and items specified for painted finish.
   2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.

B. Prepare surfaces to be primed in accordance with SSPC-SP2.

C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

D. Prime Painting: One coat.

E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.

F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.

2.15 SHOP FINISH

A. Metal fabrications shall be provided with a coat of primer, except those indicated to be completed with exposed galvanized finish.

B. Primer: Lead-free red metal primer complying with Fed Spec TT-P-86G, Type I, II, or III; zinc molybdate complying with Fed Spec TT-P-645A. Minimum dry film thickness of primer shall be 2.0 mils.

C. Preparation for Primer Painting: Miscellaneous ferrous metal, except items specified galvanized, shall be thoroughly cleaned and prepared for painting, including removal of shipping oils or protective coatings, mill scale, grease, dirt and rust. Deliver to Project site primed or galvanized as indicated, and ready to receive Project site applied finishes.

D. Galvanized Metal Work to receive Paint: Clean oil, grease and other foreign materials from surfaces. Apply vinyl wash pretreatment coating. Follow manufacturer's instructions for drying time, and then prime with one coat of metal primer.

2.16 FINISHES - ALUMINUM

A. Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.

B. As Fabricated Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).

C. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

2.17 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

B. Set sleeves in concrete with tops flush with finish surface elevations; protect sleeves from water and concrete entry.

C. Clean and strip primed steel items to bare metal where site welding is required.

D. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION, GENERAL

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.

D. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installation of miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.

F. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

G. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, methods used in correcting welding work, and the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.

H. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint or zinc chromate primer.

I. Perform field welding in accordance with AWS D1.1/D1.1M.

J. Obtain approval prior to site cutting or making adjustments not scheduled.

K. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized , except surfaces to be in contact with concrete.

3.04 SETTING LOOSE PLATES

A. Clean concrete and masonry bearing surfaces of any bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.

B. Set loose leveling and bearing plates on wedges, or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.
   1. Use metallic nonshrink grout in concealed locations where not exposed to moisture; use nonmetallic nonshrink grout in exposed locations, unless otherwise indicated.
   2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.05 INSTALLATION OF BOLLARDS

A. Anchor bollards in concrete by means of pipe sleeves preset and anchored into concrete. After bollards have been inserted into sleeves, fill annular space between bollard and sleeve solid with nonshrink, nonmetallic grout, mixed and placed to comply with grout manufacturer's directions.

3.06 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

3.07 ADJUSTING

A. Touch Up Damaged Surfaces:
   1. Shop Painted Finishes: Apply with brush to produce a minimum 2.0 mil dry film thickness.
   2. Galvanized Surfaces: Clean field welds, connections and damaged areas. Repair galvanized finishes in accord with ASTM A 780.

3.08 CLEAN UP

A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

3.09 PROTECTION

A. Protect the Work of this section until Substantial Completion.

END OF SECTION

SECTION 07 9005
JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and joint backing.

B. Precompressed foam sealers.

C. Joints of a nature similar to that of joints indicated on the schedule shall be sealed with same sealer, whether indicated on the drawings to be sealed or not.

1.02 RELATED REQUIREMENTS

A. Section 07 2500 - Weather Barriers: Sealants required in conjunction with air barriers and vapor retarders:

B. Section 078420 - Fire Resistive Joint Systems: Firestopping sealants.

C. Section 09 2116 - Gypsum Board Assemblies: Acoustic sealant.

D. Joint sealers in mechanical work: Division 23.

E. Joint sealers in electrical work: Division 26.

1.03 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants 2017.

B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications 2018.

C. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with other sections referencing this section.

1.05 DEFINITIONS

A. Substrates:
   1. M-type substrates: Concrete, concrete masonry units, brick, mortar, or natural stone. The term "masonry" shall mean brick, stone, and concrete masonry work.
   2. G-type substrates: Glass and transparent plastic glazing sheets.
   3. A-type substrates: Metals, porcelain, glazed tile, and smooth plastics.
   4. O-type substrates: Wood, unglazed tile, and substrates not included under other categories.
   5. NT-type substrates: Surfaces not exposed to vehicular or pedestrian traffic.
   6. T-type substrates: Surfaces exposed to vehicular or pedestrian traffic.

B. Sealing: Making exterior and interior construction voids, junctions, or joints, air tight, dust tight, and water tight.

C. Joint Failure: A sealed joint exhibiting one or more of the following:
   1. Air or water, or both, infiltration or leakage.
   2. Dust infiltration.
   3. Sealant material migration.
   4. Loss of adhesion to bonded surfaces.
   5. Bonding of sealer to joint filler material or bond breaker material.
   6. Loss of cohesion.
   7. Discoloration or fading.
   8. Staining or marring of adjacent work or materials.

1.06 SUBMITTALS

A. See Division 01 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, color availability, and instructions for installation.

C. Samples: Submit three samples, 3 x 3 inch in size illustrating sealant colors for selection.
   1. Submit samples of manufacturer's standard material colors for standard color sealants.
   2. Submit samples of custom color sealant materials matching color sample provided by Gardner Spencer Smith Tench and Jarbeau, PC.
   3. Samples shall be actual materials or literature depicting actual colors of standard color materials. Gardner Spencer Smith Tench and Jarbeau, PC reserves the right to reject work not in conformance with selected colors, based on samples submitted.

D. Adhesion Compatibility Test Results: Submit a letter from sealant manufacturer indicating that adhesion and compatibility testing has been performed on actual samples of substrate as noted above and, that materials are compatible and that adhesion is acceptable. Indicate requirements for primers or special preparation.

E. Certified Product Test Reports: Independent testing agency reports showing compliance with all specified requirements.
   1. Reports may be on tests conducted up to 24 months before submission, provided the products tested were aged specimens of the same formulation as that to be used.

F. Certificates: For each sealer, provide manufacturer's certificate stating that the product complies with the specifications and is appropriate for the use intended.
   1. Submit letter of certification from sealant manufacture indicating that specified FDA Approved Sealant complies with FDA regulations and certifiable grades.

1.07 JOB CONDITIONS

A. Protection of Adjacent Surfaces:
   1. Protect by applying masking material or manipulating application equipment to keep materials in joint. If masking materials are used, allow no tape to touch cleaned surfaces to receive sealant. Remove tape immediately after caulking, before surface skin begins to form.
   2. Remove misapplied materials from surfaces by using solvents and methods recommended in writing by manufacturer.
   3. At surfaces from which materials have been removed, restore to original condition and appearance.

1.08 QUALITY ASSURANCE

A. Maintain one copy of each referenced document covering installation requirements on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

C. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

D. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.09 MOCK-UP

A. Provide mock-up of sealant joints in conjunction with window, wall, and air barrier system under provisions of Section 042100 - Brick Masonry.

B. Construct mock-up with specified sealant types and with other components noted.

C. Locate where directed.

D. Mock-up may remain as part of the Work.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original containers or bundles with labels showing manufacturer, product name or designation, color, shelf life, and installation instructions.

1.11 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

B. Do not install sealers if any of the following conditions exist:
   1. Air or substrate temperature exceeds the range recommended by the sealer manufacturer or is below 40 degrees F.
   2. Substrate is wet, damp, or covered with snow, ice, or frost.
   3. Dimensional Limitations: Do not install sealers if joint dimensions are less than or greater than that recommended by sealer manufacturer; notify Gardner Spencer Smith Tench and Jarbeau, PC and get sealer manufacturer's recommendations for alternative procedures.
   4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.12 COORDINATION

A. Coordinate the work with all sections referencing this section.

1.13 WARRANTY

A. See Division 01 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion. Correction is limited to replacement of sealers.

C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal and watertight seal, exhibit loss of adhesion or cohesion, or do not cure or fail in any manner previously defined.
   1. Submit warranty in writing signed by the Contractor, and installer.

PART 2 PRODUCTS

2.01 GENERAL

A. See schedule at the end of this section for additional information in regards to type and location of each product.

2.02 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

2.03 SILICONE SEALANTS: FOR EXTERIOR JOINTS

A. Acceptable products; subject to compliance with specified requirements:
   1. GE Plastics; Product Silpruf Sealant: www.geplastics.com.
   2. Pecora Corporation; Product #895: www.pecora.com.
   3. Dow Corning Corp.; Product #795: www.dow.com

B. Substitutions: See Division 01 - Product Requirements.

C. Characteristics:
   1. Type: One-part medium modulus silicone rubber; meeting ASTM C920-95, Type S, Grade NS, Class 25.
   2. Colors: Custom colors as selected by Gardner Spencer Smith Tench and Jarbeau, PC

D. Related work: Refer to Expansion Joint Cover Assemblies section for expansion joint assemblies.

2.04 SILICONE SEALANTS: FOR WET AREAS

A. Acceptable products:
   1. GE Plastics; Product #SCS 1702 Silicone Sanitary Sealant: www.geplastics.com.
   2. Pecora Corporation; Product #898 Silicone Sanitary Sealant: www.pecora.com.
   3. Dow Corning Corp.; Product #786 Mildew-Resistant Silicone Sealant: www.dow.com

B. Substitutions: See Division 01 - Product Requirements

C. Characteristics:
   1. Type: One-part silicone rubber, mildew and stain resistant.
   2. Color: White or off white.

2.05 POLYURETHANE SEALANT: FOR HORIZONTAL TRAFFIC-BEARING SURFACES

A. Acceptable products:
   1. Tremco, Inc; Product THC-900/THC-901: www.tremcosealants.com.
   2. Pecora Corp.; Product Urexpan NR-200: www.pecora.com.
   3. A.C. Horn, Inc.; Product Daraseal-U.
   4. Mameco International, Inc.; Product Vulkem 245/227.
   5. Harry S. Peterson Co.; Product Iso-Flex 880 GB/881.
   6. Sonneborn, ChemRex, Inc; Product Sonolastic SL-2: www.chemrex.com.

B. Substitutions: See Division 01 - Product Requirements

C. Characteristics:
   1. Type: Two-component polyurethane sealant for horizontal traffic-bearing surface meeting ASTM C920-95, Type M, Grade P or NS, Class 25; self-leveling for flat surfaces and non-sag for sloped surfaces.
   2. Color: As selected by Gardner Spencer Smith Tench and Jarbeau, PC from manufacturer's standard colors..

2.06 POLYURETHANE SEALANT: FOR WATERTIGHT JOINTS AND SEAMS

A. Acceptable Products:
   1. Basis of Design: Pecora Corporation; Product DynaFlex SC: www.pecora.com.
   2. A.C. Horn, Inc: www.tamms.com.
   3. DAP, Inc: www.dap-inc.com.
   4. Sonneborn, ChemRex, Inc: www.chemrex.com.
   5. Tremco, Inc: www.tremcosealants.com.

B. Substitutions: See Division 01 - Product Requirements

C. Characteristics:
   1. Type: One-part, polyurethane sealant meeting ASTM C-920-98, Type S, Grade NS, Class 12.5; non-sag, tamper resistant elastomeric joint sealant.
   2. Color: As selected by Gardner Spencer Smith Tench and Jarbeau, PC from manufacturer's standard colors.

2.07 ACRYLIC-LATEX CAULKING COMPOUND: TYPICAL INTERIOR JOINTS AND SEAMS

A. Acceptable Products:
   1. Pecora Corporation; Product AC-20 Acrylic-Latex Caulk: www.pecora.com.
   2. Sonneborn, ChemRex, Inc; Product Sonolac: www.chemrex.com.
   3. A.C. Horn, Inc.; Product Acrylic Latex Caulk.
   4. DAP, Inc.; Product DAP Acrylic-Latex Caulk.
   5. Tremco Inc.; Product Acrylic-Latex Caulk.

B. Substitutions: See Division 1 - Product Requirements

C. Characteristics:
   1. Flexible, paintable, non-staining, non-bleeding acrylic emulsion.

2.08 ACOUSTICAL SEALANT: FOR CONCEALED LOCATIONS ONLY

A. Acceptable Products:
   1. Acoustical Surfaces, Inc., SF-550.
   2. Gold Bond Building Products/Div. National Gypsum Co., Sound Seal.
   3. Protective Treatments, Inc., 808 Acoustical Sealant.
   4. Tremco, Inc., Acoustical Sealant.
   5. United States Gypsum Co., Sheetrock Acoustical Sealant.

B. Substitutions: See Division 01 - Product Requirements

C. Characteristics:
   1. Butyl or acrylic sealant; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non-skinning.

2.09 JOINT-SEALANT BACKING

A. General Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backing: ASTM C 1330, Type C (closed-cell material with a surface skin) O (open-cell material) B (bicellular material with surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.10 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

E. Tooling agent: Agent recommended by material manufacturer to ensure contact of material with inner joint faces.

PART 3 EXECUTION

3.01 EXAMINATION

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

B. Verify that joint backing and release tapes are compatible with sealant.

C. With Installer present, examine joints indicated to receive joint sealants, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

E. Etch concrete and masonry joint surfaces to remove excess alkalinity, unless material manufacturer's product data indicates that alkalinity does not interfere with bond and performance. Etch with 5% solution of muriatic acid; neutralize with dilute ammonia solution; rinse with clean water and allow to dry before caulking.

F. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
   1. Concrete.
   2. Masonry.
   3. Unglazed surfaces of ceramic tile.

G. Remove laitance and form-release agents from concrete.

H. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
   1. Metal.
   2. Glass.
   3. Porcelain enamel.
   4. Glazed surfaces of ceramic tile.

I. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on prior experience. Apply primer to comply with joint-sealant manufacturer’s written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

J. Masking Tape: Use masking tape where required to prevent contact of sealant with. adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Install bond breaker where joint backing is not used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

H. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of sealant backings.
   2. Do not stretch, twist, puncture, or tear sealant backings.
   3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

I. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

J. Do not allow material to overflow onto adjacent surfaces. Prevent staining of adjacent surfaces.

K. Interior joints: At interior joints and seams at abutting and adjacent materials, recess caulking compound 3/16" in joints wider than 1/4". At joints 1/4" or less in width, tool caulking flush.

L. Cure sealants and caulking compounds in accord with manufacturer's product data to obtain high early bond strength, internal cohesive strength and surface durability. Protect uncured surfaces from contamination and physical damage.

M. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
   1. Remove excess sealant from surfaces adjacent to joints.
   2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
   3. Provide concave joint configuration per Figure SA in ASTM C 1193, unless otherwise indicated.
   4. Provide flush joint configuration where indicated per Figure SB in ASTM C 1193.
   5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 5C in ASTM C 1193.
      a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

B. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.05 PROTECTION

A. Protect sealants until cured.

B. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion.

3.06 SCHEDULE

A. General: Unless otherwise indicated, joints around perimeter of frames, where indicated to be sealed, are to be sealed using sealer specified for the substrate adjacent to the frame.

B. Exterior joints in masonry, metal, stucco, including control joints: Polyurethane sealant.

C. Interior joints in masonry, metal panels and stucco, including control joints: Polyurethane sealant.

D. Exterior and interior joints at perimeter of metal framing systems: Silicone sealants.

E. Exterior and interior joints of steel door framing: Silicone sealants for exterior joints and acrylic-latex sealant for interior joints.

F. Interior concealed bedding joints and thresholds: Silicone sealant for watertight joints and seams.

G. Typical interior joints and seams at abutting and adjacent materials except as specified herein: Acrylic-latex caulking compound.

END OF SECTION

SECTION 08 5200
WOOD WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Factory fabricated wood windows.

B. Glazing.

C. Operating hardware.

D. Wood trim for exterior finishing.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Rough opening framing.

B. Section 07 9200 - Joint Sealants: Sealing joints between frames and adjacent construction.

C. Section 07 9005 - Joint Sealers: Perimeter sealant and back-up materials.

1.03 REFERENCE STANDARDS

A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights 2017.

B. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products 2012.

C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures Most Recent Edition Cited by Referring Code or Reference Standard.

D. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).

F. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors 2002 (Reapproved 2018).

G. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference 2015.

H. ASTM E1332 - Standard Classification for Rating Outdoor-Indoor Sound Attenuation 2016.

I. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes 2017.

J. ASTM E2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights 2019c.

K. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004.

L. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000.

M. ASTM F588 - Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact 2017.

N. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).

O. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1 2017, with Errata (2019).

1.04 PERFORMANCE REQUIREMENTS

A. Performance Requirements: As specified in PART 2, with the following additional requirements:

B. Deflection: Limit member deflection to flexure limit of glass with full recovery of glazing materials.

C. Design windows to accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing and deflection of lintel.

D. Air Infiltration: Limit air leakage through assembly to 0.3 cu ft/min/sq ft of wall area, measured at a reference differential pressure across assembly of 1.57 psf as measured in accordance with ASTM E283.

E. Water Leakage: None, when measured in accordance with ASTM E331.

F. Air and Vapor Seal: Maintain continuous air and vapor barrier throughout assembly, primarily in line with inside pane of glass and inner sheet of infill panel and heel bead of glazing compound.

G. Forced Entry Resistance: Conform to ASTM F588 requirements for performance level 10 for window type A.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.06 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Show component dimensions, anchorage and fasteners, and glass.

C. Shop Drawings: Indicate opening dimensions, framed opening tolerances, affected related work, and installation requirements.

D. Submit two samples 12 by 12 inch in size illustrating window frame section, mullion section, glazing, and glazing materials.

E. Submit two samples of each type of operating hardware.

F. Manufacturer's Certificate: Certify that products furnished meet or exceed specified requirements.

G. Grade Substantiation: Prior to submitting shop drawings or starting fabrication, submit one of the following showing compliance with specified grade:
   1. Evidence of AAMA Certification; label or other documentation.
   2. Evidence of WDMA Certification.
   3. Evidence of CSA Certification.
   4. Test report(s) by independent testing agency itemizing compliance and acceptable to authorities having jurisdiction.

H. Test Reports: Prior to submitting shop drawings or starting fabrication, submit test report(s) by independent testing agency showing compliance with performance requirements in excess of those prescribed by specified grade.

I. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.

J. Manufacturer's Qualification Statement.

K. Installer's Qualification Statement.

L. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Heard County Board of Commissioners's name and registered with manufacturer.

1.07 QUALITY ASSURANCE

A. Manufacturer and Installer: Company specializing in manufacturing residential wood windows with minimum three years of documented experience.

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

1.08 PRE-INSTALLATION MEETING

A. Convene one week before starting work of this section.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Protect factory finished surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.

1.10 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F.

B. Maintain this minimum temperature during and after installation of sealants.

1.11 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

C. Provide five year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Match Existing.

B. Wood Windows: Vinyl Clad.
   1. Andersen Corp: www.andersenwindows.com.
   2. Weather Shield Manufacturing, Inc: www.weathershield.com.
   3. Substitutions: See Section 01 6000 - Product Requirements.

2.02 WOOD WINDOWS

A. Wood Windows: Wood frame and sash, factory fabricated and assembled.
   1. Performance Requirements: AAMA/WDMA/CSA 101/I.S.2/A440 R15.
   2. Exterior Surfaces: Plastic clad, color as selected.
   3. Interior Surfaces: Plastic clad, color as selected.
   4. Configuration: As indicated on drawings.
   5. Fasteners: Concealed from view.

2.03 COMPONENTS

A. Glazing: single glazed, clear, uncoated, matching existing, with glass thicknesses as recommended by manufacturer for specified wind conditions.

B. Frames: Match Existing.

C. Mullions: Match Existing.

D. True Muntins: Match Existing.

E. Sills: Plastic clad wood, with matching thickness; sloped for positive drainage; fits under sash.

F. Fasteners: Stainless steel.

G. Sealant and Backing Materials: As specified in Section 07 9200 of types as indicated.

H. Flashing: Provide related flashings, with necessary anchors and attachment devices.

I. Sealant for Setting Sills, Stools, Aprons, and Sill Flashing: Non-curing butyl type.

2.04 PERFORMANCE REQUIREMENTS

A. Comply with AAMA/WDMA/CSA 101/I.S.2/A440 requirements for the specific window type in accordance with the following:
   1. Performance Class (PC): R.

2.05 MATERIALS

A. Plastic Cladding: Extruded PVC, low sheen surface, factory fit to profile of wood members.

B. Sealant and Backing Materials: As specified in Section 07 9005 of Types described below.

2.06 HARDWARE

A. Window Hardware: Match Existing.

2.07 FABRICATION

A. Fabricate frame and sash members with mortise and tenon joints. Glue and steel pin joints to hairline fit, weather tight.

B. Provide weather stop flange at entire perimeter of unit.

C. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet allowing installation and dynamic movement of perimeter seal.

D. Arrange fasteners to be concealed from view.

E. Provide internal drainage of glazing spaces to exterior through weep holes.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

3.02 INSTALLATION

A. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.

B. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.

C. Set sill members and sill flashing in continuous bead of sealant.

D. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

E. Coordinate attachment and seal of perimeter air and vapor barrier materials.

F. Install operating hardware.

3.03 ERECTION TOLERANCES

A. Maximum Variation from Level or Plumb: 1/16 inch per 3 ft non-cumulative or 1/8 inch per 10 ft, whichever is less.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for independent field testing and inspection requirements, and requirements for monitoring quality of specified product installations.

B. Provide field testing of installed wood windows by independent laboratory in accordance with AAMA 502 and AAMA/WDMA/CSA 101/I.S.2/A440 during construction process and before installation of interior finishes.
   1. Field test for water penetration in accordance with ASTM E1105 using Procedure B - cyclic static air pressure difference; test pressure shall not be less than 1.9 psf.

2. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 6.27 psf.

C. Repair or replace fenestration components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.05 ADJUSTING

A. Adjust hardware for smooth operation and secure weathertight closure.

3.06 CLEANING

A. Remove protective material from factory finished surfaces.

B. Wash surfaces by method recommended and acceptable to window manufacturer; rinse and wipe surfaces clean.

C. Remove excess glazing sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

END OF SECTION

SECTION 09 2400
CEMENT PLASTERING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cement plastering.

1.02 REFERENCE STANDARDS

A. ASTM C91/C91M - Standard Specification for Masonry Cement 2018.

B. ASTM C150/C150M - Standard Specification for Portland Cement 2020.

C. ASTM C206 - Standard Specification for Finishing Hydrated Lime 2014.

D. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes 2018.

E. ASTM C897 - Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters 2015 (Reapproved 2020).

F. ASTM C926 - Standard Specification for Application of Portland Cement-Based Plaster 2020b.

G. ASTM C932 - Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering 2006 (Reapproved 2019).

H. ASTM C1328/C1328M - Standard Specification for Plastic (Stucco) Cement 2012.

I. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials 2020.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittals procedures.

B. Product Data: Provide data on plaster materials and trim accessories.

C. Evaluation Service Reports: Show compliance with specified requirements.

D. Installer's Qualification Statement.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

1.05 MOCK-UP

A. Mock-Up Panel: Construct a 4 foot wide by 8 foot high sample panel of plaster work at the jobsite demonstrating installation procedures, finish texture, and color. Show each phase of installation including framing and reinforcement.

1.06 FIELD CONDITIONS

A. Interior Plaster Work: Maintain minimum ambient temperature of 50 degrees F during installation of plaster and until fully cured.

PART 2 PRODUCTS

2.01 CEMENT PLASTER APPLICATIONS

A. Solid Plaster Base: Brick.
   1. Plaster Type: Jobsite mixed to match existing.
   2. Number of Coats: Three.
   3. First Coat: Apply to a nominal thickness of 1/4 inch.
   4. Second Coat: Apply to a nominal thickness of 1/4 inch.
   5. Leveling Coat: Apply to a nominal thickness of 1/32 to 1/16 inch.
   6. Finish Coat: Apply to a nominal thickness of 1/8 inch.
      a. Texture: Match Existing.

2.02 JOBSITE MIXED CEMENT PLASTER

A. Materials:
   1. Masonry Cement: ASTM C91/C91M, Type N.
   2. Sand: Clean, well graded, and complying with ASTM C897.
   3. Water: Clean, fresh, potable, and free of mineral or organic matter that could adversely affect plaster.

2.03 ACCESSORIES

A. Bonding Compound: Provide type recommended for bonding plaster to solid surfaces, complying with ASTM C932.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions are acceptable prior to starting this work.

B. Verify masonry joints are flush and surfaces are ready to receive work of this section, and that there are no existing bituminous or water repellent coatings on masonry surfaces.

C. Verify concrete surfaces are flat, honeycombs are filled flush, and surfaces are ready to receive work of this section, and that there are no existing bituminous, water repellent, or form release agent coatings on concrete surfaces that may be detrimental to plaster bond.

D. Verify mechanical and electrical equipment and services located within areas to receive this work have been properly tested and approved.

3.02 PREPARATION

A. Dampen masonry surfaces to reduce excessive suction.

B. Clean concrete surfaces of foreign matter using approved acid solutions, solvents, or detergents, and then rinse surfaces thoroughly with clean water.

C. Roughen smooth concrete surfaces and apply bonding compound in accordance with manufacturer's written installation instructions.

3.03 MIXING

A. Mix only as much plaster as can be used prior to initial set.

B. Mix materials dry, to uniform color and consistency, before adding water.

C. Protect mixtures from frost or freezing temperatures, contamination, and excessive evaporation.

3.04 APPLICATION

A. Apply plaster in accordance with manufacturer's written instructions and comply with ASTM C926.

B. Base Coats:
   1. Follow guidelines in ASTM C926 and manufacturer's written installation instructions for moist curing base coats and application of subsequent coats.

C. Leveling Coat:
   1. Apply leveling coat to specified thickness.

D. Finish Coats:
   1. Cement Plaster:
      a. Apply with sufficient material and pressure to ensure complete coverage of base to specified thickness.
      b. Apply desired surface texture while mix is still workable.

3.05 TOLERANCES

A. Maximum Variation from True Flatness: 1/4 inch in 10 feet.

3.06 REPAIR

A. Patching: Remove loose, damaged or defective plaster and replace with plaster of same composition; finish to match surrounding area.

END OF SECTION

SECTION 09 9000
PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints and other coatings.

C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished

D. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Gardner Spencer Smith Tench and Jarbeau, PC will select from standard colors and finishes available.
   1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.

E. Do Not Paint or Finish the Following Items:
   1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Non-metallic roofing and flashing.
   6. Stainless steel, anodized aluminum, bronze, terne, and lead items.
   7. Floors, unless specifically so indicated.
   8. Exterior insulation and finish system (EIFS).
   9. Glass.
   10. Concealed pipes, ducts, and conduits.

F. See Schedule - Surfaces to be Finished, at end of Section.

1.02 RELATED REQUIREMENTS

A. Section 05 5000 - Metal Fabrications: Shop-primed items.

1.03 DEFINITIONS

A. Conform to ASTM D16 for interpretation of terms used in this section.

B. Exposed Surfaces: Includes areas visible when permanent or built-in components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.

C. Standard coating terms defined in ASTM D 16 apply to this Section.
   1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
   2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
   3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
   4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

1.04 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency current edition.

B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications 2016.

C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials 2020.

D. NACE (IMP) - Industrial Maintenance Painting; NACE International; Edition date unknown.

E. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.

1.05 SUBMITTALS

A. See Division 01 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on all finishing products, including VOC content.
   1. Provide cross-referenced data indicating equivalency of any proposed paint systems other than basis of design paint systems. Provide data indicating substrate material, vehicle type, per cent solids by weight, per cent solids by volume, dry film thickness, viscosity, specular gloss, and VOC/VOS content for each type material.

C. Samples: Submit two paper chip samples, 12 x 12 inch in size illustrating range of colors and textures available for each surface finishing product scheduled.

D. Samples for Verification: For each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
   1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color and texture are achieved.
   2. Provide a list of materials and applications for each coat of each Sample. Label each Sample for location and application.
   3. Submit Samples on the following substrates for Gardner Spencer Smith Tench and Jarbeau, PC's review of color and texture only:
      a. Concrete: 4-inch square Samples for each color and finish.
      b. Concrete Unit Masonry: 4-inch square Samples of masonry, with mortar joint in the center, for each finish and color.
      c. Painted Wood: 8-inch square Samples for each color and material on hardboard.
      d. Stained or Natural Wood: 4-inch square Samples of natural or stained wood finish on representative surfaces.
      e. Ferrous Metal: 4-inch square Samples of flat metal and 8-inch long Samples of solid metal for each color and finish.

E. Manufacturer's Instructions: Indicate special surface preparation procedures.

F. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.06 QUALITY ASSURANCE

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

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years experience.

C. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.

1.07 REGULATORY REQUIREMENTS

A. Conform to applicable code for flame and smoke rating requirements for products and finishes.

B. Existing paint surfaces may contain lead. Prior to execution of the work, test existing paint materials to be removed and abate all contaminated materials. Conform to applicable codes and regulations for the legal removal and disposal of existing lead based paints. Protect all persons, structures, and building systems from exposure to contaminants.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.09 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.

F. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

1.10 COORDINATION

A. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify Gardner Spencer Smith Tench and Jarbeau, PC about anticipated problems when using the materials specified over substrates primed by others.

1.11 EXTRA MATERIALS

A. See Division 01 - Product Requirements, for additional provisions.

B. Supply 5 gallons of each color; store where directed.

C. Label each container with color in addition to the manufacturer's label.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.

B. Paints:

1. PPG Architectural Coatings (PPG): www.ppgpro.com.
2. Benjamin Moore & Co (BM): www.benjaminmoore.com.
3. Basis of design: Sherwin-Williams Company (SW): www.sherwin-williams.com.

C. Substitutions: See Division 01 - Product Requirements.

2.02 PAINTS AND COATINGS - GENERAL

A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
   1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   3. Supply each coating material in quantity required to complete entire project's work from a single production run.
   4. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

C. Colors: Match Gardner Spencer Smith Tench and Jarbeau, PC's samples.
   1. Proprietary Names: Use of manufacturer's proprietary product color names and product numbers to designate colors is not intended to imply that products named are required to be used to the exclusion of other listed manufacturers.
   2. Acceptance of colors, as an aesthetic effect, is judged solely by Gardner Spencer Smith Tench and Jarbeau, PC.

D. Primers: As follows unless other primer is required or recommended by manufacturer of top coats; where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

E. Volatile Organic Compound (VOC) Content:
   1. Provide coatings that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

2.03 PAINT SYSTEMS - EXTERIOR

A. Concrete, Portland Cement Plaster and Masonry other than CMU and Brick (Semi-gloss):
   1. Primer (New) - 1 coat applied at DFT of no less than 1.5 mils or as recommended by manufacturer:
      a. PPG: 4-603 Perma Crete Int/Ext Alkaline Resistant Primer.
      b. BM: Moore’s High Build Acrylic Masonry Primer 068.
      c. SW: Loxon Masonry Primer A24W300.
   2. Primer (Previously Painted) - 1 coat applied at DFT of no less than 1.6 mils or as recommended by manufacturer:
      a. PPG: 17-921 Seal Grip Interior Exterior Acrylic Universal Primer.
      b. BM: Moore’s Fresh Start Interior Exterior Acrylic Primer 023.
      c. SW:PrepRite ProBlock Interior/Exterior Latex Primer/Sealer B51-600 Series.
   3. Finish - 2 coats applied at total DFT of no less than 2.8 mils or as recommended by manufacturer:
      a. PPG: 6-900XI Speedhide Exterior Acrylic Semi-Gloss.
      b. BM: Super Spec Latex Semi Gloss House & Trim paint K170 Series.
      c. SW:A-100 Exterior Acrylic Latex Gloss A8 Series.

B. Concrete Masonry Units (Semi-gloss):
   1. Block Filler (New) - 1 coat applied at DFT of no less than 7.1 mils or as recommended by manufacturer:
      a. PPG: 6-7 Speedhide Interior Exterior Latex Block Filler.
      b. BM: Latex Block Filler M88 Series.
      c. SW: Prep-Rite Latex Block FillerB25W25.
   2. Primer (Previously Painted) - 1 coat applied at DFT of no less than 1.6 mils or as recommended by manufacturer:
      a. PPG: 17-921 Seal Grip Interior Exterior Acrylic Universal Primer.
      b. BM: Moore's Fresh Start Interior Exterior Acrylic Primer 023.
      c. SW:PrepRite ProBlock Interior/Exterior Latex Primer/Sealer B51-600 Series.
   3. Finish - 2 coats applied at total DFT of no less than 2.8 mils or as recommended by manufacturer:
      a. PPG: 6-900XI Speedhide Exterior Acrylic Semi-Gloss.
      b. BM: Super Spec Latex Semi Gloss House & Trim paint K170 Series.
      c. SW: A-100 Exterior Acrylic Latex Gloss A8 Series.

C. Exterior Insulation and Finish System (Flat):
   1. Primer (New) - 1 coat applied at DFT of no less than 2.6 - 3.2 mils or as recommended by manufacturer:
      a. PPG: 4-2 Perma Crete High Build 100% Acrylic Primer.
      b. BM: Moore's High-Build Masonry Primer 068.
      c. SW: Loxon Masonry Primer A24W300.
   2. Primer (Previously Painted) - 1 coat applied at no less than 0.7 - 1.3 mils or as recommended by manufacturer:
      a. PPG: 4-808/809 Perma-Crete Interior/Exterior Acrylic Masonry Surface Sealer.
      b. BM: Equal Product.
      c. SW: Loxon Conditioner A24-100 series
   3. Finish - 2 coats applied at total DFT of no less than 6.4 mils or as recommended by manufacturer:
      a. PPG: 4-22 Perma Crete High Build 100% Acrylic Topcoat.
      b. BM: Equal Product.
      c. SW: Loxon Masonry Coating A24W300 series.

D. Ferrous Metal (Semi-gloss):
   1. Primer (New or Shop Primed) - 1 coat applied at DFT of no less than 2.3 mils or as recommended by manufacturer:
      a. PPG: 6-208 Speedhide Int/Ext Rust Inhibitive Steel Primer.
      b. BM: Super Spec HP Alkyd Metal Primer P06 Series.
      c. SW: Kromik Alkyd Metal Primer E41 Series.
   2. Primer (Previously Painted) - 1 coat applied at DFT of no less than 1.6 mils or as recommended by manufacturer:
      a. PPG: 17-921 Seal Grip Interior Exterior Universal Acrylic Primer.
      b. BM: Moore's Fresh Start Interior Exterior Acrylic Primer 023.
      c. SW: PrepRite ProBlock Interior/Exterior Latex Primer/Sealer B51-600 Series.
   3. Finish - 2 coats applied at total DFT of no less than 4.0 mils or as recommended by manufacturer:
      a. PPG: 90-474Pitt-Tech Waterborne Acrylic DTM Satin Enamel.
      b. BM: Super Spec HP DTM Acrylic Semi-Gloss Enamel P29 Series.
      c. SW: DTM Acrylic Semi-Gloss Enamel B66W200.

E. Galvanized Metal (Semi-gloss):
   1. Primer (New and Previously Painted) - 1 coat applied at DFT of no less than 2.0 mils or as recommended by manufacturer:

a. PPG: 90-712 Pitt-Tech DTM Acrylic Metal Primer Finish.
b. BM: Super Spec HP Acrylic Metal Primer P04.
c. SW: DTM Acrylic Primer Finish B66W1 Series.

2. Finish - 2 coats applied at total DFT of no less than 4.0 mils or as recommended by manufacturer:
   a. PPG: 90-474Pitt-Tech Waterborne Acrylic DTM Satin Enamel.
   b. BM: Super Spec HP DTM Acrylic Semi-Gloss Enamel P29 Series.
   c. SW: DTM Acrylic Semi-Gloss Enamel B66W200.

2.04 PAINT SYSTEMS - INTERIOR

A. Concrete Masonry Units (Semi-gloss):
   1. Block Filler (New) - 1 coat applied at DFT of no less than 7.1 mils or as recommended by manufacturer:
      a. PPG: 6-7 Speedhide Interior Exterior Latex Block Filler.
      b. BM: Latex Block Filler M88 Series.
      c. SW: Prep-Rite Latex Block FillerB25W25.
   2. Primer (Previously Painted) - 1 coat applied at DFT of no less than 1.6 mils or as recommended by manufacturer:
      a. PPG: 17-921 Seal Grip Interior Exterior Universal Acrylic Primer.
      b. BM: Moore’s Fresh Start Interior Exterior Acrylic Primer 023.
      c. SW: PrepRite ProBlock Interior/Exterior Latex Primer/Sealer B51-600 Series.
   3. Finish - 2 coats applied at total DFT of no less than 3.0 mils or as recommended by manufacturer:
      a. PPG: PP919 Advantage 900 Interior Exterior Acrylic Semi-Gloss Enamel.
      b. BM: Moore's Kitchen & Bath Acrylic Enamel 322.
      c. SW: ProClassic Acrylic Semi-Gloss Enamel B31 series.

B. Plywood/T1-11 (Semi-gloss):
   1. Primer (New and Previously Painted) - 1 coat applied at DFT of no less than 1.6 mils or as recommended by manufacturer:
      a. PPG: 17-921 Seal Grip Interior Exterior Universal Acrylic Primer.
      b. BM: Moore’s Fresh Start Interior Exterior Acrylic Primer 023.
      c. SW: PrepRite ProBlock Interior/Exterior Latex Primer/Sealer B51-600 Series.
   2. Finish - 2 coats applied at total DFT of no less than 3.0 mils or as recommended by manufacturer:
      a. PPG: PP919 Advantage 900 Interior Exterior Acrylic Semi-Gloss Enamel.
      b. BM: Moore's Kitchen & Bath Acrylic Enamel 322.
      c. SW: ProClassic Acrylic Semi-Gloss Enamel B31 series.

C. Ferrous Metal (Semi-gloss):
   1. Primer (New and Previously Painted) - 1 coat applied at DFT of no less than 2.3 mils or as recommended by manufacturer:
      a. PPG: 6-208 Speedhide Int/Ext Rust Inhibitive Steel Primer.
      b. BM: Super Spec HP Alkyd Metal Primer P06 Series.
      c. SW: Kromik Alkyd Metal Primer E41 Series.
   2. Finish - 2 coats applied at total DFT of no less than 3.0 mils or as recommended by manufacturer:
      a. PPG: PP919 Advantage 900 Interior Exterior Acrylic Semi-Gloss Enamel.
      b. BM: Moore's Kitchen & Bath Acrylic Enamel 322.
      c. SW: ProClassic Acrylic Semi-Gloss Enamel B31 series.

D. Galvanized Metal (Semi-gloss):
   1. Primer (New and Previously Painted) - 1 coat applied at DFT of no less than 2.0 mils or as recommended by manufacturer:

a. PPG: 90-712 Pitt-Tech DTM Acrylic Metal Primer Finish.
b. BM: Super Spec HP Acrylic Metal Primer P04.
c. SW: DTM Acrylic Primer Finish B66W1 Series.

2. Finish: 2 coats applied at total DFT of no less than 3.0 mils or as recommended by manufacturer:
   a. PPG: PP919 Advantage 900 Interior Exterior Acrylic Semi-Gloss Enamel.
   b. BM: Moore's Kitchen & Bath Acrylic Enamel 322.
   c. SW: ProClassic Acrylic Semi-Gloss Enamel B31 series.

E. Gypsum Board (Flat):
1. Primer (New) - 1 coat applied at DFT of no less than 1.0 mils or as recommended by manufacturer:
   a. PPG: 6-2 Speedhide Interior Latex Drywall Primer/Sealer.
   b. BM: Super Spec Interior Latex Primer 253.
   c. SW: Prep-Rite 200 Interior Latex Primer B28W200.
2. Primer (Previously Painted) - 1 coat applied at DFT of no less than 1.6 mils or as recommended by manufacturer:
   a. PPG: 17-921 Seal Grip Interior Exterior Universal Acrylic Primer.
   b. BM: Moore’s Fresh Start Interior Exterior Acrylic Primer 023.
   c. SW: PrepRite ProBlock Interior/Exterior Latex Primer/Sealer B51-600 Series.
3. Finish - 2 coats applied at total DFT of no less than 2.6 mils or as recommended by manufacturer:
   a. PPG: 6-70 Speedhide Interior Latex Flat Wall Paint.
   b. BM: Super Spec Interior Latex Flat Wall Paint 275.
   c. SW: Pro-Mar 200 Interior Flat Latex Wall Paint B30 Series.

F. Gypsum Board (Eggshell):
1. Primer (New) - 1 coat applied at DFT of no less than 1.0 mils or as recommended by manufacturer:
   a. PPG: 6-2 Speedhide Interior Latex Drywall Primer/Sealer.
   b. BM: Super Spec Interior Latex Primer 253.
   c. SW: Prep-Rite 200 Interior Latex Primer B28W200.
2. Primer (Previously Painted) - 1 coat applied at DFT of no less than 1.6 mils or as recommended by manufacturer:
   a. PPG: 17-921 Seal Grip Interior Exterior Universal Acrylic Primer.
   b. BM: Moore’s Fresh Start Interior Exterior Acrylic Primer 023.
   c. SW: PrepRite ProBlock Interior/Exterior Latex Primer/Sealer B51-600 Series.
3. Finish - 2 coats applied at total DFT of no less than 3.0 mils or as recommended by manufacturer:
   a. PPG: 6-411 Speedhide Interior Latex Eggshell Enamel.
   b. BM: Super Spec Interior Latex Eggshell Enamel 274.
   c. SW: Pro-Mar 200 Interior Lo-Sheen Latex Enamel B20 Series.

G. Gypsum Board (Semi-gloss):
1. Primer (New) - 1 coat applied at DFT of no less than 1.0 mils or as recommended by manufacturer:
   a. PPG: 6-2 Speedhide Interior Latex Drywall Primer/Sealer.
   b. BM: Super Spec Interior Latex Primer 253.
   c. SW: Prep-Rite 200 Interior Latex Primer B28W200.
2. Primer (Previously Painted) - 1 coat applied at DFT of no less than 1.6 mils or as recommended by manufacturer:
   a. PPG: 17-921 Seal Grip Interior Exterior Universal Acrylic Primer.
   b. BM: Moore’s Fresh Start Interior Exterior Acrylic Primer 023.
   c. SW: PrepRite ProBlock Interior/Exterior Latex Primer/Sealer B51-600 Series.

3. Finish - 2 coats applied at total DFT of no less than 3.0 mils or as recommended by manufacturer:
    a. PPG: PP919 Advantage 900 Interior Exterior Acrylic Semi-Gloss Enamel.
    b. BM: Moore's Kitchen & Bath Acrylic Enamel 322.
    c. SW: ProClassic Acrylic Semi-Gloss Enamel B31 series.

H. Wood Trim - Staining Woods:
1. Stain Coat:
    a. PPG: 44500 Olympic Interior Oil Based Wood Stain.
    b. BM: Benwood Interior Oil Wood Stain 241.
    c. SW: Wood Classics Interior Oil Stain A48-200 series.
2. Sealer Coat:
    a. PPG: 41060 Olympic Interior Oil Based Sanding Sealer.
    b. BM: Benwood Quick Drying Sanding Sealer 413.
    c. SW: Wood Classics FD Sanding Sealer B26 series.
3. Finish - (2 coats):
    a. PPG: 43887 (Satin) 43888 (Gloss) Olympic Interior Fast Dry Varnish.
    b. BM: Benwood Interior Satin Varnish C404, Gloss Impervo C440.
    c. SW: Wood Classics FD Varnish A66 Series.

2.05 ACCESSORY MATERIALS

A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the tobil system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
1. Notify Gardner Spencer Smith Tench and Jarbeau, PC about anticipated problems when using the materials specified over substrates primed by others.

E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
1. Gypsum Wallboard: 12 percent.
2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to coating application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. General: For all existing surfaces to be repainted, prepare mockup area for prior approval. Area shall be minimum 8' x 8' and retained for duration of the work as example of acceptable workmanship. Methods for preparation of the existing surfaces shall be as recommended by the paint manufacturer and Architect to produce acceptable results and by any means necessary including, but not limited to, chemical and mechanical treatments.

D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

E. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.

F. Seal surfaces that might cause bleed through or staining of topcoat.

G. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

H. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

I. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.

J. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.

K. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

L. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.

M. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

N. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

O. Previously Painted Surfaces:
   1. Paint only clean, dry surfaces.
   2. Remove all surface contaminants to include mold, mildew, dirt, dust, oil, grease, mill scale, wax, chalk or oxidation, efflorescence, rust, mortar, and any other foreign matter existing on the surface.
   3. Scrape or use appropriate means to remove all loose, peeling, flaking, or marginally adhering paint from the surface. Feather sand edges as necessary.
   4. Repair or replace caulking where needed.
   5. After cleaning, glossy surfaces shall be dulled by sanding. Remove all sanding dust from the surface after sanding has taken place. Prepare bare areas as new surfaces, and spot prime or fill those bare areas with the appropriate primer or filler.
   6. Patch or repair any cracks or voids with the appropriate patching compound and sand smooth as necessary.
   7. Spot prime any patched areas with the appropriate primer prior to finishing.

8. If after cleaning chalky surfaces chalk residue is still present, prime the entire surface with the proper bonding primer to insure good adhesion of the topcoat to the substrate.

3.03 APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
   1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
   2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
   3. Provide finish coats that are compatible with primers used.
   4. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
   5. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
   6. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
   7. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
   8. Sand lightly between each succeeding enamel or varnish coat.

B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
   1. The number of coats arid film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
   2. Omit primer over metal surfaces that have been shop primed and touchup painted.
   3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
   4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.

C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
   1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
   2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
   3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.

E. Fire Walls: Where fire walls run above suspended ceilings, paint by stenciling "Fire and Smoke Barrier-Protect All Openings" on wall surfaces.
   1. Make height of characters 6-inches high or as required by governing authorities.
   2. Space stenciling at 20'-0" o.c but not less than one stenciling on each wall or as required by governing authorities.

F. Apply products in accordance with manufacturer's instructions.

G. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

H. Apply each coat to uniform appearance.

I. Sand wood and metal surfaces lightly between coats to achieve required finish.

J. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

K. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Finish equipment, piping, conduit, and exposed duct work in utility areas in colors according to the color coding scheme indicated.

C. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

B. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.06 PROTECTION

A. Protect finished coatings until completion of project.

B. Touch-up damaged coatings after Substantial Completion.

C. Provide “Wet Paint” signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

3.07 SCHEDULE - SURFACES TO BE FINISHED

A. Do Not Paint or Finish the Following Items:
   1. Items fully factory-finished unless specifically noted.
   2. Fire rating labels, equipment serial number and capacity labels.
   3. Stainless steel items.

B. Paint the surfaces described below under Schedule - Paint Systems.

C. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.
   1. Paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, and mechanical equipment, electrical equipment, and tanks that do not have factory-applied finishes occurring in finished areas to match background surfaces, unless otherwise indicated.
   2. Paint all equipment, including that which is factory-finished, exposed to weather or to view on the roof and outdoors.
   3. Paint shop-primed items occurring in finished areas.
   4. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
   5. Paint dampers exposed behind louvers, grilles, to match face panels.
   6. Paint electrical switchgear, panelboards and miscellaneous equipment that is indicated to have a factory-primed finish for field painting.

D. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

E. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.

F. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

G. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

H. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
   1. Provide satin finish for final coats.

I. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

J. A maximum of (20) twenty paint colors will be selected by Gardner Spencer Smith Tench and Jarbeau, PC.

3.08 MAINTENANCE MATERIALS

A. Furnish a minimum of 5 gallons of each paint color, type and finish used on the Project as Heard County Board of Commissioners's Attic Stock. Store materials at location designated by Gardner Spencer Smith Tench and Jarbeau, PC.

B. Properly Identify each container with manufacturer, color name, product number, color formula and general location in the Project.

3.09 SCHEDULE - PAINT SYSTEMS

A. Concrete, Concrete Block, Brick Masonry: Finish all surfaces exposed to view.
   1. Exterior: Semi-gloss.
   2. Interior: Semi-gloss.

B. Gypsum Board: Finish all surfaces exposed to view.
   1. Walls: Semi-gloss.
   2. Interior Soffits: Flat.
   3. Interior Ceilings at Toilet Areas: Semi-gloss.

C. Wood: Finish all surfaces exposed to view.
   1. Waterborne Stain Satin-Varnish Finish: Two finish coats of waterbome clear satin varnish over a sealer coat and waterborne interior wood stain. Wipe wood filler before applying stain.
      a. Filler Coat: Open-grain wood filler.
      b. Stain Coat: Interior wood stain.
      c. Sealer Coat: Clear sanding sealer.
      d. Finish Coats: Interior waterborne clear satin varnish.

D. Steel Doors and Frames: Finish all surfaces exposed to view.
   1. Exterior: Semi-gloss.
   2. Interior: Semi-gloss.

E. Steel Fabrications: Finish all surfaces exposed to view.
   1. Exterior: Gloss; finish all surfaces, including concealed surfaces, before installation.

2. Interior: Gloss.
3. Interior exposed ceiling structural, mechanical, electrical systems: Flat.

F. Galvanized Steel: Finish all surfaces exposed to view.
1. Exterior: Semi-gloss.
2. Interior: Semi-gloss.

G. Shop-Primed Metal Items: Finish all surfaces exposed to view.
1. Finish the following items:
   a. Exposed surfaces of lintels.
   b. Elevator pit ladders.
   c. Exposed surfaces of steel stairs and railings.
   d. Mechanical equipment.
   e. Electrical equipment.
2. Exterior: Gloss.
3. Interior: Gloss.

END OF SECTION