PROJECT MANUAL

Gardner Spencer Smith Tench & Jarbeau
A Professional Corporation for the Practice of Architecture

HEARD COUNTY AMPHITHEATER

RIVER WALK
FRANKLIN, GEORGIA 30217
GSSTJ PROJECT NUMBER 20104
NOVEMBER 8, 2021

ARCHITECT:
GARDNER SPENCER SMITH TENCH & JARBEAU
TOWER PLACE
3340 PEACHTREE ROAD, N.E.
SUITE 1800
ATLANTA, GEORGIA 30326 404-522-8805

SECTION 00 0110

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SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Heard County Amphitheater.

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

C. Architect's Name: Gardner Spencer Smith Tench & Jarbeau, P.C..

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) Sitework and construction of a stepped concrete seating area.
         2) Associated drainage, walkways, ramps steps and railings.
         3) Ramps, railings and new wall at existing terrace.
         4) General construction of the stage and associated support systems.
         5) Associated electrical work.
         6) All components described in the drawings and these specifications.

1.02 OWNER'S REPRESENTATIVE

A. All documentation required by the Specifications to be submitted to the Heard County Board of Commissioners shall be submitted to Gardner Spencer Smith Tench & Jarbeau, P.C. for review and transmittal to the Heard County Board of Commissioners.

B. All instructions and requests for changes from the Heard County Board of Commissioners to the Contractor will be issued through the Project Manager in accordance with the Request for Proposals.

C. Changes in the Contract Sum shall be authorized in writing solely by Heard County Board of Commissioners.

D. The Contractor shall bear all costs incurred by his failure to follow instructions contained in the Request for Proposals preceding paragraphs.

1.03 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 & Jarbeau, P.C. 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.

1.04 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in the Request for Proposals.

1.05 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.

B. The non-discrimination clause contained in Section 202, Executive Order 11246, as amended by Executive Order 11375, relative to Equal Employment Opportunity for all persons without regard to race, color, religion, sex, or national origin. The implementing rules and regulations described by the Secretary of Labor are incorporated.

1.06 WORK/COSTS BY OWNER

A. Loose furnishings, not otherwise called for.

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

1.07 WORK BY OWNER

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

1.08 OWNER OCCUPANCY

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

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

1.09 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 adjacent commercial and public operations and activities. Coordinate with representatives of the Heard County Board of Commissioners.
   2. Work by Others.
   3. Use of existing adjacent walkway by the public.

C. Access to the site will be extremely limited; 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' 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. Prevent accidental disruption of utility services to other facilities.

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

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

D. 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 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 & Jarbeau, P.C..

3.03 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

Report of Subsurface Exploration and Geotechnical Engineering Evaluation

Heard County Amphitheater
Franklin, Georgia
PGC Project No. 120451

Prepared For:

Gardner Spencer Smith Tench & Jarbeau
50 Hurt Plaza SE, Suite 1100
Atlanta, Georgia 30303

Prepared By:

PIEDMONT
GEOTECHNICAL CONSULTANTS, LLC
— AN ATLAS COMPANY —

3000 Northfield Place, Suite 1100
Roswell, Georgia 30076

December 15, 2020

PIEDMONT
GEOTECHNICAL CONSULTANTS, LLC
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3000 Northfield Place, Suite 1100
Roswell, Georgia 30076

December 15, 2020

Gardner Spencer Smith Tench & Jarbeau
50 Hurt Plaza SE, Suite 1100
Atlanta, Georgia 30303

Attention: Mr. Randy Smith
rsmith@gsstj.com

Subject: **Report of Subsurface Exploration and Geotechnical Engineering Evaluation**
Heard County Amphitheater
Franklin, Georgia
PGC Project No. 120451

Dear Mr. Smith:

Piedmont Geotechnical Consultants, LLC is pleased to provide this report of our subsurface exploration and geotechnical engineering evaluation for the referenced project. The field study and this report were accomplished in general accordance with PGC Proposal No. P20169, dated March 17,2020.

The following report will present a brief summary of our pertinent findings and recommendations followed by our understanding of the proposed construction, methods of exploration employed, site and subsurface conditions encountered, and conclusions and recommendations regarding the geotechnical aspects of the project. Should you have any question regarding items discussed in this report, please do not hesitate to contact the undersigned.

Sincerely,
Piedmont Geotechnical Consultants, LLC

Kevin A. Burnette, P.G.
Project Geologist

John H. Fiely, P.E.
Senior Registered Engineer

GEORGIA REGISTERED NO. 16632 PROFESSIONAL ENGINEER JOHN H. FIELY

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APPENDIX

1.0 SUMMARY

The following is a brief summary of our pertinent findings and recommendations. The reader is referred to the remaining text of this report for elaboration on these items.

1. The property, including the slope and the stage area at the toe of the slope, were found to have several feet or more of poorly compacted (very loose or very soft) previously placed fill. The fills are not judged to be satisfactory for long term support of the stage or seating and we recommend poorly compacted fills be undercut and replaced. The fill soils sampled were generally found to be clean and appeared suitable for reuse from a soil classification standpoint, but since they are loose, they have elevated moisture conditions. Drying of these soils will be required to achieve compaction where they are reused as fill.

2. We were not able to perform the soil test borings at the top of the slope as proposed due to access and apparent interference with underground utilities. General subsurface conditions at the toe of the slope, where mechanical borings were performed, consisted of previously placed fills to depths of 6 feet underlain by apparent residual soils or ancient terrace deposits. The fill was highly variable and sometimes very soft as indicated by Standard Penetration Tests varying from 2 to 17 blows per foot. Underlying the fills in borings B-1 and B-2 were moderately low to moderate consistency residual soils or terrace deposits classified as firm to very stiff sandy SILT (ML) and medium dense silty SAND (SM).

   On the slope, hand augers were performed that encountered fill to termination depths of 10 feet or shallow hand auger refusal. The slope fill was generally soft in the upper 4 feet and somewhat firmer or denser with depth. The thickness of the fill could not be determined

3. The stage structures may be supported by conventional shallow foundations that penetrate existing fill or on new fill that is placed after undercutting and replacing the existing fill. We recommend a net allowable bearing pressure of 2,500 psf.

   For the seating area (existing slope) we recommend the upper 5 feet minimum of fill be removed and replaced with structural fill. This recommendation for the seating area should be considered preliminary until a topographic survey of the existing slope has been obtained and planned grades are considered. In addition, we recommend that two soil test borings be performed at the top of the slope, when that area can be benched and made accessible to machinery and then repaired after the soil test borings are complete.

4. The on-site previously placed fills are highly variable in material type but relatively free of organics and debris. The previously placed fill was visually classified as clays, silts and silty sands. The existing fill appear to have elevated moisture contents and will require drying prior to reuse.

5. Excavations to the depths explored and at the locations explored can be accomplished using conventional heavy earthmoving equipment.

2.0 PROPOSED CONSTRUCTION

We understand that you are planning the construction of an amphitheater on a slope and adjacent level terrace located west of Court Square extending eastward to near the rear of the buildings fronting on Davis Street in Franklin, Georgia. The development plans include an 800 square foot covered stage. The seating area up the slope is anticipated to be paved concrete steps.

No structural details for the stage or seating areas was currently available. For purposes of this report we assume the stage will be lightly framed with maximum column loads of about 50 kips and maximum wall loads of 2 kips per linear foot. We assume the seating will be pavements with anticipated loads of less than 200 pounds per square foot. No topographic plans were available, but we assume excavations for the stage will be less than about 5 feet and the sloped seating area grades will be within one or two feet of existing grade.

We assume this area is not subjected to river flooding.

No other details of the proposed construction were available at the time this report was prepared.

3.0 METHODS OF EXPLORATION

To evaluate the subsurface conditions, the property was explored by a combination of a visual site reconnaissance, drilling two (2) soil test borings to depths of 20 feet in the level area at the toe of the slope, and four (4) hand auger borings on the slope to depths ranging from 5 to 10 feet below the existing grade. Soil test borings were planned for the top of the slope but the top of slope was not accessible to our drilling equipment and there were numerous utility conflicts that also prevented machine drilling. We are recommending these borings be performed prior to construction to finalize our recommendations. The borings were located in the field by measuring distances and estimating directions from identifiable site features Therefore, their locations as shown on the Site and Boring Location Plan in the Appendix should be considered approximate.

The soil test borings were advanced by twisting continuous hollow stem auger flights into the ground. At selected intervals, Standard Penetration Resistance Testing (SPT) was performed in general accordance with ASTM Standard D-1586, and soil samples were collected for visual classification. The results of the penetration tests, when properly evaluated, provide an indication of the relative consistency of the soil being sampled, the potential for difficult excavation, and the soil's ability to support loads. A more detailed description of the drilling and sampling process is included in the Appendix of this report.

Soil samples recovered during the drilling process were returned to the office where they were classified in general accordance with the Unified Soil Classification System (USCS) using visual and tactile methods and not on laboratory testing. The provided classifications are approximate. Detailed descriptions of the materials encountered at each boring location, along with a graphical representation of the Standard Penetration Test results, are shown on the Soil Boring Records in the Appendix.

The hand auger borings were performed by manually rotating a sharpened steel bucket auger into the ground. The soils encountered during the augering process were classified as described for the soil test borings. At selected intervals, the auger was removed, and the soil consistency was measured with a portable Dynamic Cone Penetrometer (DCP). The conical point is first seated 2 inches to penetrate any loose cuttings and then driven an additional 1-3/4 inches with blows of a 15-pound hammer falling 20 inches. The number of hammer blows required to achieve this penetration is recorded as an index to the soil's strength. Please refer to the Summary of Hand Auger Borings in the Appendix of this report.

4.0 SITE DESCRIPTION, GEOLOGY AND SUBSURFACE CONDITIONS

4.1 Site Description

The site for the proposed development includes a steep slope down to the west, extending from the west side of existing commercial and government buildings that front on Davis Street and a level terrace at the slope toe, just east of Court Square. There are apparent buried utilities lines near the top of this slope. The slope is mostly grassed with a few small bushes and trees. At the toe of the slope is a short concrete retaining wall. A portion of the level terrace adjacent and west of the wall is occupied by a concrete slab about 20 feet by 90 feet. A small, depressed area and void was observed on either side of a short section of sidewalk that extends from the slab to Court Square.

Court Square is a single lane concrete road with curbing on its western side and a few storm water drainage flumes. Beyond Court square is sloping ground down to the Chattahoochee River.

A site topographic survey was not available at the time of this report but is expected to be available in January 2021.

4.2 Geology

The site is located in the Brevard Zone of the Piedmont Physiographic Province of Georgia. The residual soils in the Piedmont are the result of the chemical and physical weathering of the underlying parent rock. The weathering profile usually results in fine grained clayey silts and silty clays near the surface, where weathering is more advanced. With depth, sandy silts and silty sands are found, often containing mica. Below the residual soils, partially weathered rock is often found as a transition above relatively unweathered rock. In local practice, partially weathered rock is arbitrarily defined as residual soils with Standard Penetration Resistances in excess of 100 blows per foot (50 blows per 6 inches), and which can be penetrated by a power auger.

The Brevard is an inactive fault zone characterized by narrow ridges and highly variable subsurface conditions. This area has undergone numerous ancient seismic events which have caused extensive folding, faulting and fracturing of the native bedrock. Within the Brevard, the rock and residual soils generally dip downward to the southeast.

Areas adjacent to the Chattahoochee River are often covered with a moderately thick layer of river terrace deposits.

4.3 Subsurface Conditions

4.3.1 Topsoil

All borings initially encountered topsoil and associated root zone ranging from about 2 to 5 inches.

4.3.2 Previously Placed Fill

Fill soils are those soils that have been placed or reworked in conjunction with past construction activities, grading or farming. Beneath the topsoil in all borings were apparent previously placed fills. The fill was classified as soft to stiff sandy SILT (ML), very soft silty CLAY (CL) and loose to medium dense silty SAND (SM). Borings B-1 and B-2 recorded Standard Penetration Test (SPT) results of 2, 3, 8 and 17 blows per foot (bpf). The blow count of 17 bpf in B-2 at 3½ to 5 feet appears to be inflated due to the presence of concrete debris in the fill. In the hand auger borings, the fills exhibited Dynamic Cone Penetrometer (DCP) results ranging from 4 to 18 blows per increment (bpi). Based on the SPT and DCP results, the soil represented by these samples would be considered variably compacted with extensive areas of poorly compacted fill.

4.3.3 Residuum

Below the apparent fill in soil test borings B-1 and B-2 was apparent residuum, formed by in-place weathering of the parent rock. The residuum was classified as firm to very stiff sandy SILT (ML) and medium dense silty SAND (SM). Standard Penetration Test results ranged from 6 to 22 blows per foot, with 8 to11 bpf being typical. It is possible that a portion of these virgin soils are actually ancient terrace deposits associated with the Chattahoochee River.

No rock or partially weathered rock was encountered to the depths drilled.

4.3.4 Groundwater

No groundwater was encountered to the depths drilled at the time of boring at any of the locations explored. Groundwater at this site will likely vary and be influenced by the water level in the adjacent River.

The conditions described in the preceding paragraphs, and those shown in the Appendix, have been based on interpolation of the results of the previously described data using generally accepted principles and practices of geotechnical engineering. However, conditions in this geology may vary intermediate of the tested locations, and even more so on previously developed property.

Although individual soil test borings and hand auger borings are representative of the subsurface conditions at the precise boring locations on the day drilled, they are not necessarily indicative of the subsurface conditions at other locations or other times. The nature and extent of variation between the borings may not become evident until the course of construction. If such variations are then noted, it will be necessary to reevaluate the recommendations of this report after on-site observation of the conditions.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on the data gathered during this exploration, our understanding of the proposed construction, our experience with similar site and subsurface conditions and generally accepted principles and practices of geotechnical engineering. Should the proposed construction change significantly from that described in this report, we request that we be advised so that we may amend these recommendations accordingly. This report and the conclusions and recommendations provided herein are provided exclusively for the use of Gardner Spencer Smith Tench and Jarbeau and are intended solely for design of the referenced project.

5.1 General

The soil test borings and hand auger borings drilled during this study are representative of the test locations on the day conducted, they are not necessarily indicative of the subsurface conditions at other locations or other times. This property has been previously graded, and, to the best of our knowledge, there are no records documenting inspections or testing that took place during the grading operation. Since no documentation of the overall grading process is available, there is the possibility that areas of poorer fill than found at the borings exist and that undetected areas of unsuitable soils which were left in place or were placed during past grading or waste disposal may exist. This is a risk inherent in development on an undocumented, previously graded property.

The exploration on the slope where the seating is planned was limited to hand auger borings that could not penetrate the previously placed fill. We had initially proposed to perform soil test borings at the top of the slope, but this area was not safely accessible. We recommend that soil test borings be performed at the top of the slope or on a graded bench on the slope to evaluate the thickness of fills and the subsurface materials at greater depths than could be penetrated with the hand auger borings. The recommendations provided for the slope areas should be considered preliminary until these borings are performed.

A topographic survey is being developed for the site. Once this is available, we request that it be provided along with final project design for our review.

5.2 Site Preparation

As an initial step in site preparation, all trees and unwanted vegetation should be removed, stumps grubbed, and organic topsoil stripped. Any unwanted old structures and underground utilities should be relocated, demolished or abandoned in place as necessary. Excavations from site preparations should be properly backfilled with suitable materials in accordance with Section 5.2 of this report.

In the stage area we recommend fills be undercut. The undercutting should extend 10 feet horizontally beyond the limits of the structure. The base of the undercut should be evaluated by a Piedmont Engineer or Geologist. Areas of pavement construction in the level areas of the site should be evaluated by the engineer/geologist by probing and observation of proofrolling. The proofrolling consist of rolling the subgrade with a fully loaded tandem axle dump truck (20 tons) during a period of dry weather and under the observation of the geotechnical engineer. Any areas which "pump" or "rut" excessively under the weight of the proofrolling vehicle should be further evaluated and may require undercutting or other remediation. The proofrolling can occasionally detect pits where stumps or other debris may have been buried, or other areas where weak surface conditions exist.

The upper approximately 4 to 5 feet of previously placed fills in the slope area also appear to be poorly compacted. We recommend these fills be undercut and replaced with compacted structural fill. It appears based on the limited data obtained that slightly better-quality fills were encountered at depths of about 5 feet in the hand auger borings performed on the slope. The excavations for undercutting should consider the support of the buildings at the top of the slope. It may not be feasible to undercut soils near the top of the slope and this will depend on the actual limits of the seating area and depths and locations of the building foundations. This should be reviewed once the plans are developed and site topographic information is available.

5.3 Earthwork

The residual soils and the existing fills on the property visually appear suitable for reuse as structural fill from a soil type standpoint. Structural fill should be free of organic material, have a plasticity index (PI) less than 20 and contain rock sizes no larger than 4 inches. On site soils that do not meet this criterion but are desired to be reused as fill should be evaluated by the geotechnical engineer on a case by case basis. Most of the existing fills were found to have elevated moisture contents and their reuse as structural fill will require drying to lower the moisture content to achieve proper compaction. This drying effort will be difficult since the work area is confined. We recommend that this grading be performed during the summer months when drying conditions are more favorable. If natural air drying cannot be achieved, the blending of drying agents such as quick lime into the soil may be necessary to achieve a moisture suitable for obtaining compaction.

Where fill is placed against the steep slope it will be necessary to "bench" the new fill into the existing soils to reduce the formation of a redefined plane of weakness between the old and new fill and adversely affect slope stability. Fill placed to reconstruct the slope should be placed in horizontal lifts starting at the slope bottom and progressing upward. As horizontal lifts of fill are

placed, the exposed slope should be cut into about 2 to 4 feet horizontally as the new fill is placed. The existing slope fills may be at a moisture that is higher than the soils optimum moisture. This may require that this zone of soil be dried to allow compaction and to maintain a stable subgrade. Application of drying agents may be necessary if natural drying is not sufficient. Our field representative can provide additional recommendations at the time of construction.

All fill should be compacted to at least 95 percent of the soil's standard Proctor maximum dry density, as determined by ASTM Standard D-698. The upper foot of fill which will support pavements or slabs should be compacted to at least 98 percent of the soil's standard Proctor maximum dry density for improved support. In areas which are at or above the finished grade, and which will support pavements or slabs, the upper 8 inches immediately below these systems should be scarified and recompacted to the 98 percent criteria.

Density testing should be performed by a soils technician to determine the degree of compaction and verify compliance with the project specifications. For underfloor areas, at least one field density test should be made per 5,000 square feet of fill area for each two-foot lift. Testing frequency should be increased in confined areas. Areas which do not meet the compaction specifications should be recompacted to achieve compliance. In confined areas, such as utility trenches, the use of portable compaction equipment and thin lifts of 3 to 4 inches may be required to achieve compaction.

Excavations to the depths and at the locations explored can be accomplished using conventional heavy earthmoving equipment. No grading plan was available to determine the depth of excavations that will be necessary.

5.4 Foundations

We recommend that the stage structure be supported on conventional shallow foundations bearing on the existing residual soil or new structural fill designed for an allowable bearing pressure of 2,500 psf. The recommended bearing pressure is based on correlations with the Standard Penetration Test results. These correlations imply that a maximum total settlement of one inch is possible and a maximum differential settlement of half the total settlement is possible. Minimum foundation widths of 24 inches and 18 inches are recommended for individual column and strip footings, respectively, to preclude the possibility of localized soil bearing failures. Exterior foundations should bear at least 18 inches below external grades to prevent frost damage.

As with any construction, all foundation excavations should be evaluated by a geotechnical engineer, who will verify that the design bearing pressure is available intermediate of boring locations, and that foundations are not immediately underlain by worse conditions. If the engineer finds localized conditions of weak or organic soil below an individual footing, it should be undercut or a lower bearing pressure used, depending upon the actual conditions found.

5.5 Soil Supported Slabs

Floor slabs may be soil supported, subject to the subgrade preparation and earthwork recommendations contained in this report. Crushed stone is not needed to support the slab loads and is considered optional.

5.6 Temporary and Permanent Slopes

Permanent and temporary slopes may be used to accommodate grade changes. If temporary slopes are used, they should be constructed no steeper than 1.5H: 1V for slopes less than 15 feet high. Permanent slopes should be constructed no steeper than 2H: 1V. These recommendations are based on our experience with similar conditions and no detailed slope stability analyses have been performed. All finished slopes should be suitably protected from erosion.

Buildings should be set back at least 10 feet from the top of slopes; a minimum 5-foot setback is considered sufficient for pavement areas. Note that the International Building Code (IBC) also mandates that all building foundations be set back from the edge of slope horizontally at least 1/3 of the slope's total height but not to exceed 40 feet, unless otherwise approved by both the geotechnical engineer and the "building official" responsible for the building code enforcement in any particular jurisdiction. In addition, the face of a structure should be set back from the toe of the slope at least ½ of the slope's total height not to exceed 15 feet.

6.0 QUALIFICATIONS OF RECOMMENDATIONS

This evaluation of the geotechnical aspects of the proposed design and construction has been based on our understanding of the project and the data obtained during this study. The general subsurface conditions used in our evaluation were based on interpolation of the subsurface data between the borings. Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions will differ between boring locations, that conditions are not as anticipated by the designers, or that the construction process has modified the soil conditions. Therefore, experienced soil engineers and technicians should evaluate earthwork and foundation construction to verify that the conditions anticipated in design actually exist. Otherwise, we assume no responsibility for construction compliance with the design concepts, specifications or recommendations.

The recommendations contained in this report have been developed on the basis of the previously described project characteristics and subsurface conditions. The project is still in preliminary design. Once this design is complete we request we be provided with planned details of construction to determine if the recommendations should be modified. The findings of such a review will be presented in a supplemental report. Even after completion of a subsurface study, the nature and extent of variation between borings may not become evident until the course of construction. If such variations then become evident, it will be necessary to reevaluate the recommendations of this report after on-site observations of the conditions.

These professional services have been performed, the findings derived, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices.

This warranty is in lieu of all warranties either expressed or implied. This company is not responsible for the conclusions, opinions or recommendations of others based on these data.

The scope of services does not include any environmental assessment for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site. Any statements in this report or on the test boring records regarding odors, staining of soils, or other unusual conditions observed are strictly for general information only.

APPENDIX

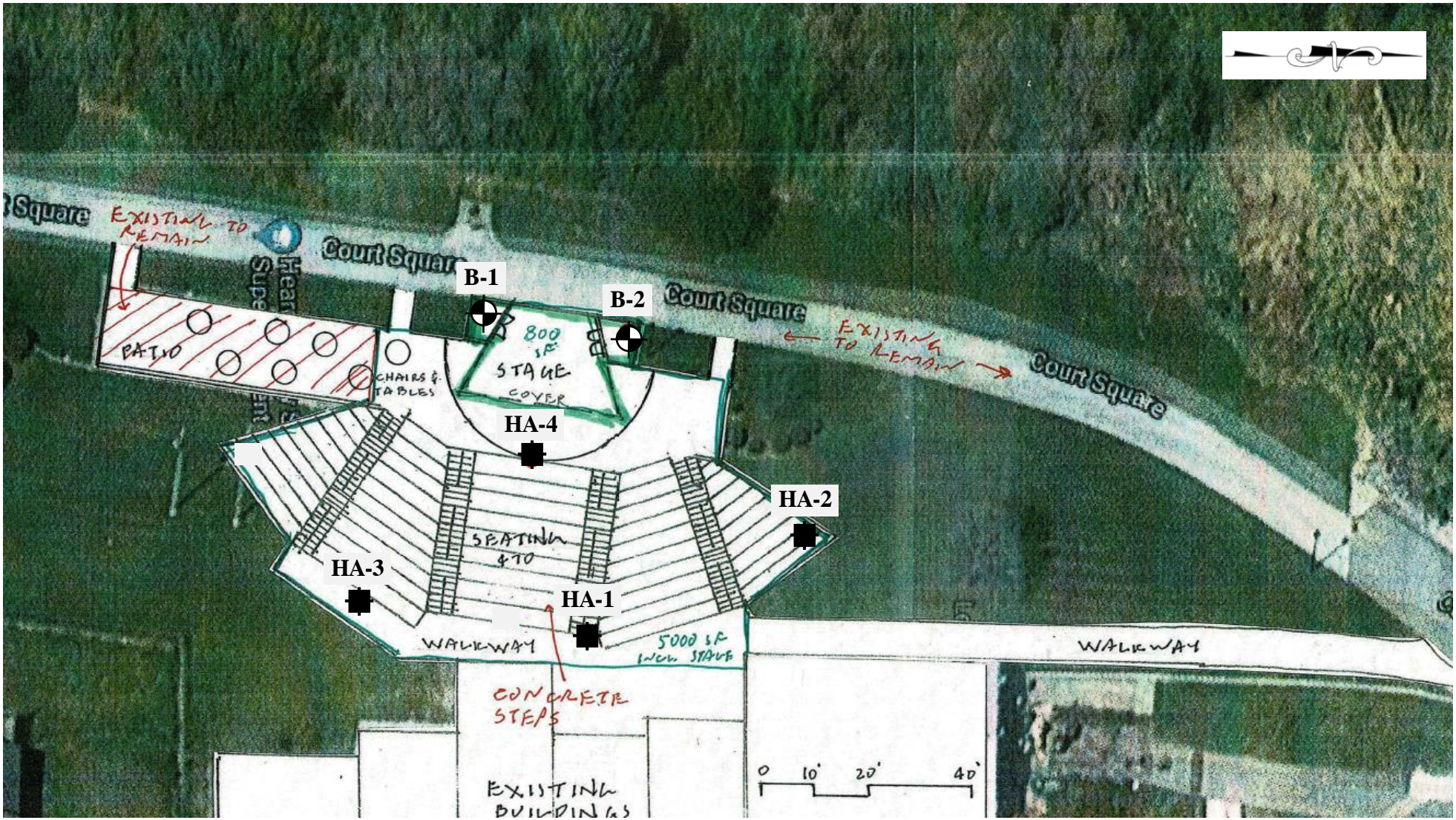


FIGURE 1: SITE AND BORING LOCATION PLAN

LEGEND:

SOIL TEST BORING LOCATION

HAND AUGER BORING LOCATION

SCALE: NTS

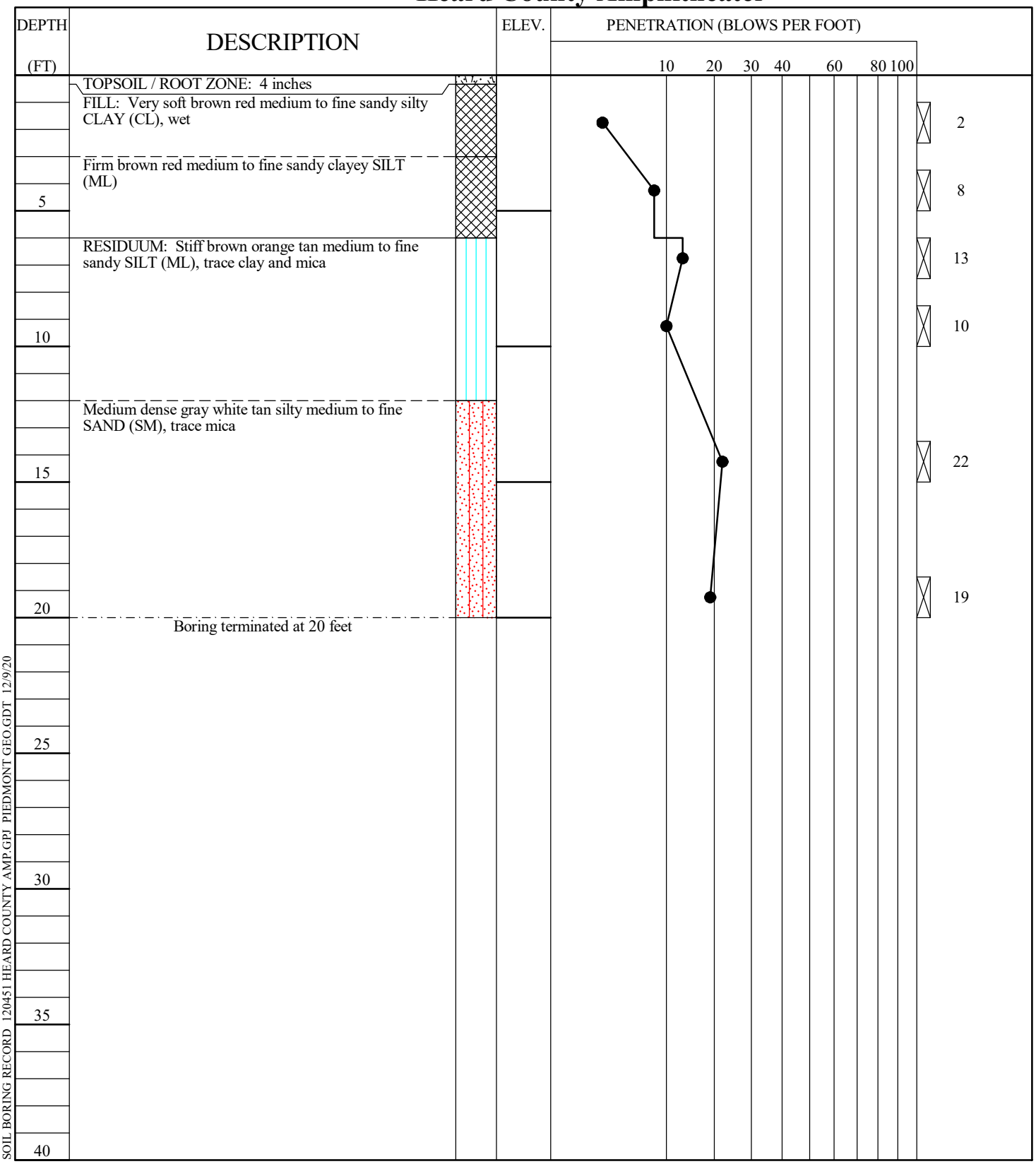
PIEDMONT
GEOTECHNICAL CONSULTANTS, LLC
— AN ATLAS COMPANY —

3000 NORTHFIELD PLACE, SUITE 1100
ROSWELL, GA 30076
770-752-0925

HEARD COUNTY AMPHITHEATER
FRANKLIN, GEORGIA
PROJECT NO. 120451

PIEDMONT
GEOTECHNICAL CONSULTANTS, LLC
— AN ATLAS COMPANY —

Heard County Amphitheater



SOIL BORING RECORD 120451 HEARD COUNTY AMP.GPJ PIEDMONT GEO.GDT 12/9/20

REMARKS: No groundwater encountered at time of boring.

SOIL BORING RECORD

BORING NUMBER	B-1
DATE DRILLED	11/13/2020
PROJECT NUMBER	120451
PAGE	1 of 1

▽ Groundwater level at time of boring
▼ Groundwater level - 24 hrs
C Caved depth - 24 hrs
Undisturbed sample

PIEDMONT
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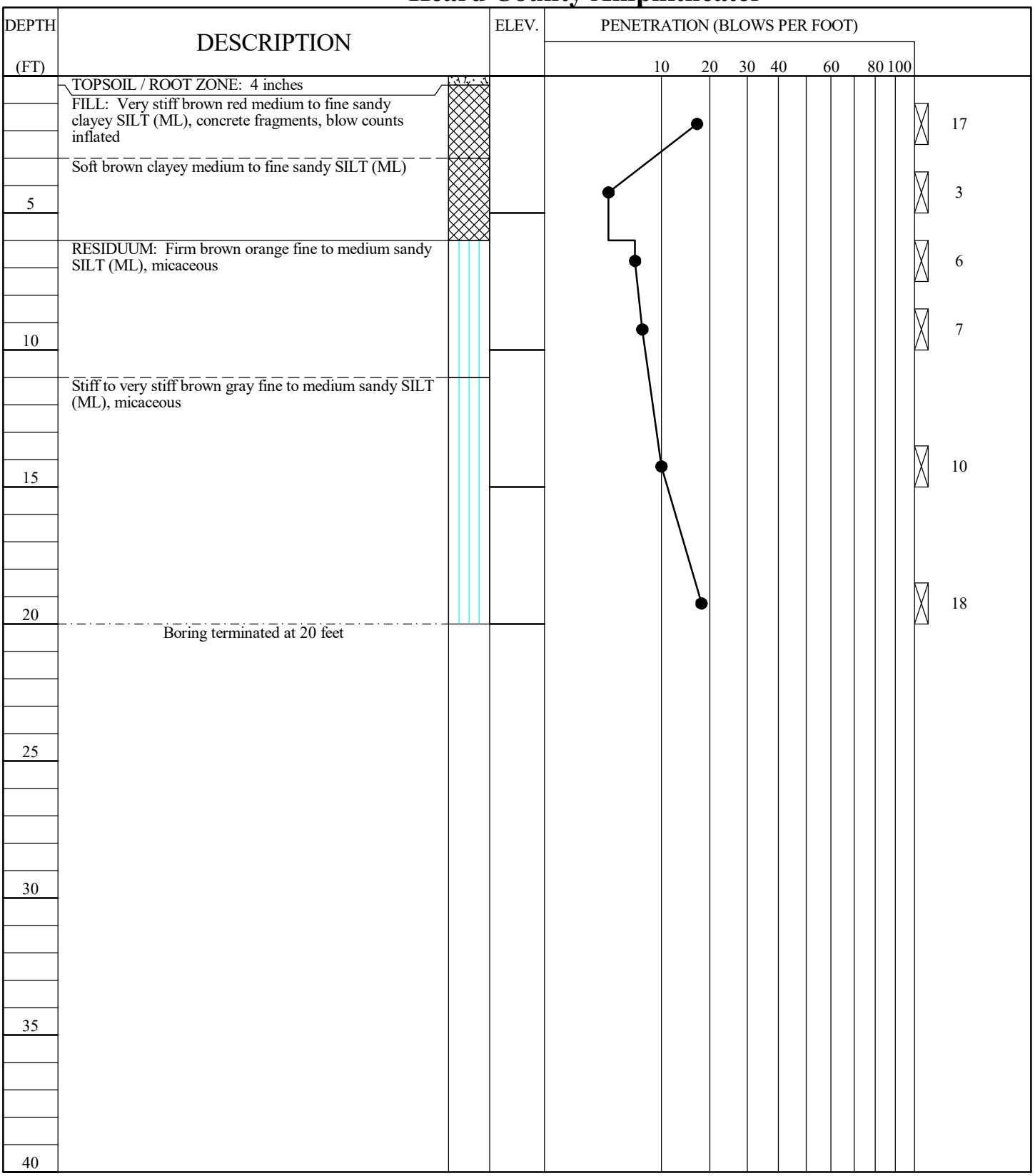
Heard County Amphitheater



SOIL BORING RECORD 120451 HEARD COUNTY AMP.GPJ PIEDMONT GEO.GDT 12/9/20

REMARKS: No groundwater encountered at time of boring.

SOIL BORING RECORD

BORING NUMBER	B-2
DATE DRILLED	11/13/2020
PROJECT NUMBER	120451
PAGE	1 of 1

▽ Groundwater level at time of boring
▼ Groundwater level - 24 hrs
C Caved depth - 24 hrs
Undisturbed sample

HAND AUGER BORING SUMMARY
Heard County Amphitheater
Franklin, Georgia
PGC Project No. 120451

Hand Auger Boring No.	Depth	Soil Description	DCP Blows per 1 ¾"
HA-1	0"-4"	TOPSOIL AND ROOT ZONE: 4 inches	
	4"- 4'	FILL: Soft brown orange clayey fine to medium sandy SILT (ML), wet	1' - 4 3'- 4
	4'- 10'	Stiff to firm brown orange yellow medium to fine sandy SILT (ML), trace of rock fragments, wet	5' – 15 7' - 6
	10'	Boring Terminated at 10 feet No groundwater encountered at time of boring	10'- 8
HA-2	0"-2"	TOPSOIL AND ROOT ZONE: 2 inches	
	2"- 4'	FILL: Soft brown orange clayey fine to medium sandy SILT (ML), trace of mica and rock fragments	1' - 4 3'- 4
	4'- 6'	Medium dense brown orange clayey silty medium to fine SAND (SM), trace of mica	5' – 18
	6'	Auger Refusal at 6 feet No groundwater encountered at time of boring	
HA-3	0"-5"	TOPSOIL AND ROOT ZONE: 5 inches	
	2"- 3'	FILL: Firm brown orange red clayey fine to medium sandy SILT (ML), wet	1' - 5 3'- 5
	3'- 5'	Medium dense brown tan clayey silty medium to fine SAND (SM), some rock fragments	5' – 10
	5'	Auger Refusal at 5 feet No groundwater encountered at time of boring	
HA-4	0"-3"	TOPSOIL AND ROOT ZONE: 3 inches	
	3"- 3'	FILL: Loose brown orange clayey silty fine to medium sdy SAND (SM)	1' - 6 3'- 7
	3'- 8'	Loose tan brown white silty medium to fine SAND (SM)	5' – 9 7' - 8
	8'	Boring Terminated at 8 feet No groundwater encountered at time of boring	

SOIL TEST BORING PROCEDURES (ASTM D-1586)

The soil test borings were advanced by twisting continuous auger flights into the ground. At selected intervals, soil samples were obtained by driving a standard 1.4 inch I.D., 2.0 inch O.D., split tube sampler into the ground. The sampler was initially seated six inches to penetrate any loose cuttings created in the boring process. The sampler is then driven an additional 12 inches by blows of a 140 pound "hammer" falling 30 inches. The number of blows required to drive the sampler the final foot is designated the Standard Penetration Resistance.

The samples recovered were sealed in glass jars and were transported to the office where they were classified by an engineer in general accordance with the Unified Soil Classification System (USCS).

CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE COMPACTNESS AND CONSISTENCY

Sand and Gravel

Standard Penetration Resistance Blows / Foot	Relative Compactness
0 - 4	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
Over 50	Very Dense

Silt and Clay

Standard Penetration Resistance Blows / Foot	Relative Compactness
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Firm
9 - 15	Stiff
16 - 30	Very Stiff
31 - 50	Hard
Over 50	Very Hard

SECTION 01 1050
COORDINATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements necessary for coordinating Work operations including, but not limited to, the following:
   1. General coordination procedures.
   2. Coordination drawings.

1.02 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 2100 - Allowances: Cash, testing, and contingency allowances.

C. Section 01 2300 - Alternates: Descriptions of items, administrative requirements.

D. Section 01 3000 - Administrative Requirements: Submittal procedures, project meetings, progress schedules and documentation, reports, coordination.

E. Section 01 4000 - Quality Requirements: Procedures for testing, inspection, mock-ups, reports, certificates; use of reference standards.

F. Section 01 6000 - Product Requirements: Fundamental product requirements, substitutions and product options, delivery, storage, and handling.

G. Section 01 7000 - Execution Requirements: Examination, preparation, and general installation procedures; preinstallation meetings; cutting and patching; cleaning and protection; starting of systems; demonstration and instruction; closeout procedures except payment procedures; requirements for alterations work.

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

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 COORDINATION

A. Contractor shall coordinate operations included in various sections of the Contract Documents to assure efficient and orderly installation of each part of the Work. Coordinate Work operations included under related sections of the Contract Documents that depend on each other for proper installation, connection, and operation of the Work, including but not limited to:
   1. Schedule construction operations in the sequence required where installation of one part of the Work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
   3. Provide provisions to accommodate items scheduled for later installation.
   4. Prepare and administer provisions for coordination of drawings.

B. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required in notices, reports, attendance at meetings, and:
   1. Prepare similar memoranda for Heard County Board of Commissioners and Separate Work Contract where coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly

progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.
2. Installation, relocation, and removal of temporary facilities.
3. Delivery and processing of submittals.
4. Progress meetings.
5. Project closeout activities.

D. Conservation: Coordinate Work operations to assure operations are carried out with consideration given to conservation of energy, water, materials, and:
   1. Salvage materials and equipment involved in performance of, but not actually incorporated into the Work.

3.02 SUBMITTALS

A. Coordination Drawings: Contractor shall prepare coordination drawings for coordination of installation of products and materials fabricated by separate entities. Prepare coordination drawings for those areas where limited space availability necessitates maximum utilization of space for efficient installation of different components.

B. Prepare coordination drawings in the following manner:
   1. Subcontractors are to first submit their respective Shop Drawings for review in order to make any necessary changes prior to going through the coordination process.
   2. Electrical Subcontractor to indicate service and feeder conduit runs in and forward to Contractor.
   3. Contractor will perform the last coordination review. As each coordination drawing is completed, Contractor will meet with Gardner Spencer Smith Tench & Jarbeau, P.C. and Heard County Board of Commissioners representative to review and resolve all conflicts on the coordination drawings.
   4. All coordination meetings will be held in the Project field office of Contractor. Contractor is required to distribute Shop Drawings, cut sheets and submittals to Subcontractors where appropriate. Reviewed coordination drawings will be maintained in the Project field office of Contractor.

END OF SECTION

SECTION 01 1600
REQUEST FOR INFORMATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedure for requesting clarification of the intent of the Contract Documents.

B. The procedures described in the Request for Proposals shall apply to this section.

1.02 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 2000 - Price and Payment Procedures: Applications for payment, Schedule of Values, modifications procedures, closeout procedures.

C. Section 01 2100 - Allowances: Cash, testing, and contingency allowances.

D. Section 01 3000 - Administrative Requirements: Submittal procedures, project meetings, progress schedules and documentation, reports, coordination.

E. Section 01 4000 - Quality Requirements: Procedures for testing, inspection, mock-ups, reports, certificates; use of reference standards.

F. Section 01 6000 - Product Requirements: Fundamental product requirements, substitutions and product options, delivery, storage, and handling.

G. Section 01 7000 - Execution Requirements: Examination, preparation, and general installation procedures; preinstallation meetings; cutting and patching; cleaning and protection; starting of systems; demonstration and instruction; closeout procedures except payment procedures; requirements for alterations work.

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

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROCEDURE

A. Contractor shall transmit the Request for Information to Gardner Spencer Smith Tench & Jarbeau, P.C..

B. Gardner Spencer Smith Tench & Jarbeau, P.C.’s response is a clarification of the intent of the Contract Documents and does not authorize changes in the Contract Amount, Milestones and/or Contract Time. Gardner Spencer Smith Tench & Jarbeau, P.C. response shall be routed through the Heard County Board of Commissioners’s representative for approval before being released to Contractor.

C. A Request for Information may be returned with the notation "Not Reviewed” if:
   1. The requested information is not ambiguous or unclear;
   2. The requested information is equally available to the requesting party by researching and/or examining the Contract Documents;
   3. Contractor has not reviewed the Request for Information prior to submittal.

D. Allow a minimum of nine (9) days for review and response time, after receipt by Gardner Spencer Smith Tench & Jarbeau, P.C. and Heard County Board of Commissioners’s representative. Contractor shall verify and is responsible in verifying Gardner Spencer Smith Tench & Jarbeau, P.C. and Heard County Board of Commissioners’s representative receipt of a Request for Information.

E. Changes or alterations to the approved drawings or specifications shall be made by means of addenda or change order.

END OF SECTION

SECTION 01 2000
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

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

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Request for Proposals issued by Heard County Board of Commissioners

B. Section 01 2100 - Allowances: Payment procedures relating to allowances.

1.03 SCHEDULE OF VALUES

A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Gardner Spencer Smith Tench & Jarbeau, P.C. for approval.

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

C. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's/Construction Manager's construction schedule.
   1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
      a. Application for Payment forms with continuation sheets.
      b. Submittal schedule.
      c. Items required to be indicated as separate activities in the construction schedule.
   2. Submit the schedule of values to Architect/Engineer at earliest possible date, but no later than ten days before the date scheduled for submittal of initial Applications for Payment.
   3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
   4. Subschedules for Separate Design Contracts: Where the Owner has retained the Architect/Engineer under separate project contracts and Architect/Engineer will provide separate payment certifications for each project, provide subschedules showing values coordinated with the scope of each design contract.

D. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
   1. Arrange schedule of values consistent with format of AIA Document G703.
   2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents.
   3. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
      a. Differentiate between items stored on-site and items stored off-site, if off-site storage has been approved by the Owner. Include evidence of insurance.

4. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
5. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
6. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

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

B. Form to be used: AIA Document G702 and AIA Document G703 and Georgia DOE Form 0263, Revised June 2010 as forms for Applications for Payment.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Gardner Spencer Smith Tench & Jarbeau, P.C. for approval.

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

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Gardner Spencer Smith Tench & Jarbeau, P.C. will return incomplete applications for correction, without action.
    1. Entries shall match data on the schedule of values and construction schedule. Use updated schedules if revisions were made.
    2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
    3. Include amounts of Change Orders and Construction Change Directives issued and/or approved before last day of construction period covered by application.

F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site, if off-site storage has been approved by the Heard County Board of Commissioners.
    1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
    2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
    3. Provide summary documentation for stored materials indicating the following:
        a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
        b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
        c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

G. Transmittal: Submit five signed and notarized original copies of each Application for Payment to Architect/Engineer by a method ensuring receipt within 48 hours. One copy shall include waivers of lien and similar attachments if required.

H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
   1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage on each item.
   2. When an application shows completion of an item, submit conditional final or full waivers.
   3. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
   4. Owner reserves the right to designate which entities involved in the Work must submit waivers.

I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
   1. List of subcontractors.
   2. Schedule of values.
   3. Construction schedule (preliminary if not final).
   4. Submittal schedule (preliminary if not final).
   5. List of Contractor's/Construction Manager’s staff assignments.
   6. Copies of building permits, authorizations and licenses for performance of the Work.
   7. Initial progress report.
   8. Report of preconstruction conference.
   9. Certificates of insurance and insurance policies.
   10. Performance and payment bonds.

J. Application for Payment at Substantial Completion: After Architect/Engineer issues the Certificate of Substantial Completion, submit an Application for Payment for portion of the Work claimed as substantially complete.
   1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
   1. Evidence of completion of Project closeout requirements including completion of all Punch List items.
   2. Receipt by Owner and Architect/Engineer of all required project construction records including As-Build Drawings.
   3. Removal of all temporary facilities, services, surplus materials and rubbish.
   4. Change-over of all door locks and other Contractor access provisions to the Owner.
   5. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
   6. Updated final statement, accounting for final changes to the Contract Sum.
   7. Receipt of conditional final lien waivers from all entities lawfully entitled to a lien.
   8. AIA Document G706A, "Contractor’s Affidavit of Release of Liens."
   9. AIA Document G707, "Consent of Surety to Final Payment."
   10. Receipt by Architect/Engineer of Statutory Affidavit.
   11. Receipt by Architect/Engineer of Contractor’s/Construction Manager’s Warranty.
   12. Receipt by Architect/Engineer of Roofing Guarantee and Roofing Weathertightness Warranty.
   13. Evidence that claims have been settled.

L. Execute certification by signature of authorized officer.

1.05 MODIFICATION PROCEDURES

A. For minor changes not involving an adjustment to the Contract Price or Contract Time, Gardner Spencer Smith Tench & Jarbeau, P.C. will issue instructions directly to Contractor.
   1. Architect/Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Architect's Field Report or on AIA Document G710, "Architect's Supplemental Instructions."

B. For other required changes, Gardner Spencer Smith Tench & Jarbeau, P.C. will issue a document signed by Heard County Board of Commissioners instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
   1. Owner-Initiated Proposal Requests: Architect/Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
      a. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
      b. Within at earliest possible date but in no case later than 15 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change
         1) Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
         2) Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
         3) Include costs of labor and supervision directly attributable to the change.
         4) Include an updated construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
   2. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Gardner Spencer Smith Tench & Jarbeau, P.C..
      a. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
      b. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
      c. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
      d. Include costs of labor and supervision directly attributable to the change.
      e. Include an updated construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
      f. Comply with requirements in Division 01 Section Substitution Procedures if the proposed change requires substitution of one product or system for product or system specified.
   3. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
   4. Promptly execute the change.

C. For changes for which advance pricing is desired, Gardner Spencer Smith Tench & Jarbeau, P.C. will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 15 (fifteen) days.

D. Administrative Change Orders Allowance Adjustment:
   1. Allowance Adjustment: See Division 01 Section Allowances for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
   2. Unit-Price Adjustment: See Division 01 Section Unit Prices for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

E. On Owner's approval of a Work Changes Proposal Request, Architect/Engineer will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

F. Construction Change Directive: Architect/Engineer may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor/Construction Manager to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
   2. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
   3. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

G. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.

H. Execution of Change Orders: Gardner Spencer Smith Tench & Jarbeau, P.C. will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.06 APPLICATION FOR FINAL PAYMENT

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

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ATTACHMENTS

1.
1. STATUTORY AFFIDAVIT
1.
1. State of Georgia, County of _____
1. From: _____
1. To: _____
1. Re: Contract entered into on the ____day of _____, 20____, between the above mentioned parties for the construction of_____ at _____
1.
1. KNOW ALL MEN BY THESE PRESENTS
1. The undersigned hereby certifies that all work required under the above contract has been performed in accordance with the terms thereof, that all materialmen, subcontractors, mechanics, and laborers have been paid and satisfied in full, and that there are no outstanding claims of any character arising out of the performance of the contract which have not been paid and satisfied in full.
1. The undersigned further certifies that to the best of his knowledge and belief there are no unsatisfied claims or damages resulting from injury of death of any employees, subcontractors, or the public at large arising out of this performance of the contract, or any suits or claims for any other damage of any kind, nature, or description which might constitute a lien upon the property of the Owner.
1. The undersigned makes this affidavit as provided by law and for the purpose of receiving final payment in full settlement of all claims arising under or by virtue of the contract, and acceptance of such payment is acknowledged as a release of the Owner from any and all claims arising under or by virtue of the contract.
1.
1. IN WITNESS THEREOF, the undersigned has signed and sealed this instrument this ____ day of _____, 20____.
1. By: _____
1.
1. Personally appeared before the undersigned,_____and
1. _____ who after being duly sworn, deposed(s) and say(s) that the fact stated in the above affidavit are true.
1.
1. _____
1. Notary Public
1. _____ County, Georgia
1. This ____day of _____, 20____
1. My commission expires _____

1.
1. WARRANTY BY GENERAL CONTRACTOR/CONSTRUCTION MANAGER
1.
1. Owner:_____
_____
1. Project Name:
_____
1. Project Address:
_____
1. County of: _____
1. State of: _____
1. Date: _____
1.
1. _____, as Contractor/Construction Manager on the above construction project, do hereby guarantee that all work executed under the plans and specifications will be free from defects in materials and/or workmanship for a period of one year beginning on _____ and ending on _____, and that all defects occurring within the warranty period shall be replaced or repaired at no cost to the Owner.
1.
1. This guarantee covers all work shown on the plans and specified in the Project Manual and Contract Documents.
1.
1. Nothing in the above shall be deemed to imply that this guarantee shall apply to any work which has been abused or neglected by the Owner.
1.
1. Legal Name of Contractor/Construction Manager:
1. _____
1. By: _____
1. Title: _____
1.
1.
1. _____
1. Notary Public
1. This ____day of _____, 20____
1.

END OF SECTION

SECTION 01 2100
ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contingency allowance.

B. Inspecting and testing allowances.

C. Payment and modification procedures relating to allowances.

1.02 RELATED REQUIREMENTS

A. Division 01 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 SUMMARY

A. Allowances as set forth in the Specifications are to be used as compensation for items as set forth in this Section. The amounts listed in the schedule and/or Specifications are to be included in the base bid and shall be listed separately in the Schedule of Values and Application for Payment.

B. This section specifies administrative and procedural requirements governing handling and processing allowance. Selected materials and equipment, and in some cases, their installation, are shown and specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer determination of actual quantities of materials and equipment to a later date when additional information is available for evaluation. Additional requirements, if necessary, will be issued by Change Order.

C. Types of allowances:
   1. Lump sum allowance.

D. Definitions:
   1. Material and/or installation allowance: Stated allowance include ALL cost except delivery, layout, fees, supervision, general expense, insurance, overhead, applicable taxes, profit and other incidentals; these "except" cost shall be included in the Base Bid.

1.04 CASH ALLOWANCES

A. Use the allowances only as authorized for Heard County Board of Commissioners purposes and only by an approved allowance disbursement form that indicate the amounts to be charged to the respective allowance amount.

B. Gardner Spencer Smith Tench & Jarbeau, P.C. Responsibilities:
   1. Consult with Contractor for consideration and selection of products, suppliers , and installers.
   2. Select products in consultation with Heard County Board of Commissioners and transmit decision to Contractor.
   3. Prepare Change Order.

C. Contractor Responsibilities:
   1. Assist Gardner Spencer Smith Tench & Jarbeau, P.C. in selection of products, suppliers , and installers.
   2. Obtain proposals from suppliers and offer recommendations. Contractor shall submit cost of material from a minimum of three qualified material suppliers itemized and supported by sufficient data to permit proper evaluation of proposals, seven (7) days prior to installation.
   3. Obtain proposals from suppliers and offer recommendations.
   4. On notification of which products have been selected, execute purchase agreement with designated supplier .

5. Contractor shall submit invoices or delivery slips to indicate actual quantities of materials delivered to the site for use in fulfillment of each allowance.

D. Differences in costs will be adjusted by Change Order.

E. All remaining monies in the Contract shall be returned to Heard County Board of Commissioners.

1.05 CONTINGENCY ALLOWANCE

1.06 INSPECTING AND TESTING ALLOWANCES

A. Costs Included in Inspecting and Testing Allowances: Cost of engaging an inspecting or testing agency; execution of inspecting and tests; and reporting results.

1.07 ALLOWANCE DISBURSEMENT

A. Contractor shall submit a request for allowance disbursement on an allowance disbursement form. Include all substantiating and/or required data along with the request.

B. The request shall have the requested amount listed as an allowance disbursement without Contractor overhead and markup.

C. Once the Heard County Board of Commissioners's OR has accepted the disbursement, Gardner Spencer Smith Tench & Jarbeau, P.C. and Heard County Board of Commissioners's OR will sign the allowance disbursement form.

1.08 ALLOWANCES SCHEDULE

A. Lump sum allowance.
   1. Allowance for Unforseen Conditions: $40,000.00.

B. Lump sum allowance.
   1. Allowance for Testing and Laboratory Services: $15,000.00.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.

B. Electronic document submittal service.

C. Preconstruction meeting.

D. Site mobilization meeting.

E. Progress meetings.

F. Submittals for review, information, and project closeout.

G. Number of copies of submittals.

H. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 01 7800 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 01 7000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

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

1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
2. Contractor and Gardner Spencer Smith Tench & Jarbeau, P.C. are required to use this service.
3. It is Contractor's responsibility to submit documents in allowable format.
4. Subcontractors, suppliers, and Gardner Spencer Smith Tench & Jarbeau, P.C.'s consultants will be permitted to use the service at no extra charge.
5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
6. Paper document transmittals will not be reviewed; emailed electronic documents will not be reviewed.
7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

B. Submittal Service: The selected service is:

C. Training: One, one-hour, web-based training session will be arranged for all participants, with representatives of Gardner Spencer Smith Tench & Jarbeau, P.C. and Contractor participating; further training is the responsibility of the user of the service.

D. Project Closeout: Gardner Spencer Smith Tench & Jarbeau, P.C. will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Heard County Board of Commissioners.

3.02 PRECONSTRUCTION MEETING

A. Heard County Board of Commissioners will schedule a meeting after Notice of Award.

B. Attendance Required:
1. Heard County Board of Commissioners' representation.
2. Gardner Spencer Smith Tench & Jarbeau, P.C..
3. Contractor.

C. Agenda:
1. Execution of Heard County Board of Commissioners-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
5. Designation of personnel representing the parties to Contract and <1|A/E|>.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.
8. Scheduling activities of a Geotechnical Engineer.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Gardner Spencer Smith Tench & Jarbeau, P.C., Heard County Board of Commissioners, participants, and those affected by decisions made.

3.03 SITE MOBILIZATION MEETING

A. Gardner Spencer Smith Tench & Jarbeau, P.C. will schedule meeting at the Project site prior to Contractor occupancy.

B. Attendance Required:
1. Contractor.
2. Heard County Board of Commissioners.
3. Gardner Spencer Smith Tench & Jarbeau, P.C..
4. Contractor's superintendent.
5. Major subcontractors.

C. Agenda:
1. Use of premises by Heard County Board of Commissioners and Contractor.
2. Heard County Board of Commissioners' requirements.
3. Construction facilities and controls provided by Heard County Board of Commissioners.
4. Temporary utilities provided by Heard County Board of Commissioners.
5. Survey and building layout.
6. Security and housekeeping procedures.
7. Schedules.
8. Application for payment procedures.
9. Procedures for testing.

10. Procedures for maintaining record documents.
11. Requirements for start-up of equipment.
12. Inspection and acceptance of equipment put into service during construction period.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Gardner Spencer Smith Tench & Jarbeau, P.C., Heard County Board of Commissioners, participants, and those affected by decisions made.

3.04 PROGRESS MEETINGS

A. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

B. Attendance Required:
1. Contractor.
2. Heard County Board of Commissioners.
3. Gardner Spencer Smith Tench & Jarbeau, P.C..
4. Contractor's superintendent.
5. Major subcontractors.

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

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Gardner Spencer Smith Tench & Jarbeau, P.C., Heard County Board of Commissioners, participants, and those affected by decisions made.

3.05 SUBMITTALS FOR REVIEW

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

B. Submit to Gardner Spencer Smith Tench & Jarbeau, P.C. for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

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

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

E. Submittals for approval will be reviewed, marked with appropriate action, and returned. Submittals are reviewed and approved for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review is not conducted for the purpose of determining accuracy and

completeness of other details such as dimensions and quantities, or of substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. Gardner Spencer Smith Tench & Jarbeau, P.C.'s review shall not relieve the Contractor of any obligations under the Contract and shall not constitute approval of safety precautions, construction means, methods, techniques, sequences or procedures. Gardner Spencer Smith Tench & Jarbeau, P.C.'s approval of a specific item shall not indicate approval of an assembly of which the item is a component.

3.06 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Sustainability design submittals and reports.
   3. Certificates.
   4. Test reports.
   5. Inspection reports.
   6. Manufacturer's instructions.
   7. Manufacturer's field reports.
   8. Other types indicated.

B. Submit for Gardner Spencer Smith Tench & Jarbeau, P.C.'s knowledge as contract administrator or for Heard County Board of Commissioners.

3.07 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 7800 - Closeout Submittals:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

D. Submit for Heard County Board of Commissioners' benefit during and after project completion.

3.08 NUMBER OF COPIES OF SUBMITTALS

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

B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Gardner Spencer Smith Tench & Jarbeau, P.C..
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

3.09 SUBMITTAL PROCEDURES

A. General Requirements:

B. Shop Drawing Procedures:

C. Transmit each submittal with approved form.

D. Deliver submittals to Gardner Spencer Smith Tench & Jarbeau, P.C. at business address.

E. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor. Allow more time when submittals must be coordinated with later submittals.

F. For each resubmittal for noncompliance, allow 10 days excluding delivery time to and from the Contractor

END OF SECTION

SECTION 01 3050
SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Administrative and procedural requirements for submittals required for the Work, including but not limited to; Shop Drawings, Product Data, Samples, material lists, and quality control items as required by the Contract Documents.

B. Wherever possible, throughout the Contract Documents, the minimum acceptable quality of workmanship and products has been defined by the name and catalog number of a manufacturer and by reference of recognized industry standards.

C. To ensure that specified products are furnished and installed in accordance with the design intent, procedures have been established for submittal of design data and for its review by Gardner Spencer Smith Tench & Jarbeau, P.C..

1.02 GENERAL

A. Submittals for approval will be reviewed, marked with appropriate action, and returned. Submittals are reviewed and approved for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review is not conducted for the purpose of determining accuracy and completeness of other details such as dimensions and quantities, or of substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. Gardner Spencer Smith Tench & Jarbeau, P.C.'s review shall not relieve the Contractor of any obligations under the Contract and shall not constitute approval of safety precautions, construction means, methods, techniques, sequences or procedures. The Gardner Spencer Smith Tench & Jarbeau, P.C.'s approval of a specific item shall not indicate approval of an assembly of which the item is a component.

1.03 SUMMARY

A. Section Includes:
   1. Preparing and processing of submittals for review and action.
   2. Preparing and processing informational submittals.

B. Submit the following for Gardner Spencer Smith Tench & Jarbeau, P.C.'s review and action:
   1. Shop drawings.
   2. Structural design information required by the contract documents.
   3. Mechanical design information required by the contract documents.
   4. Product data.
   5. Samples.
   6. Submittals for which procedures are not defined elsewhere.

C. Submit the following as informational submittals:
   1. Certificates.
   2. Coordination drawings.
   3. Reports.
   4. Qualification statements for manufacturers/installers.

D. Specific submittals required are described in individual sections.
   1. Provide other information required by Division 21-23 for mechanical work.
   2. Provide other information required by Division 26 for electrical work.

E. Related Sections
   1. Payment, modification, and completion submittals:
      a. Applications for payment.
      b. Schedule of values.

c. Change proposals.
2. Progress of work submittals:
a. Contractor's construction schedule.
3. Quality control submittals:
a. Inspection reports.
b. Test reports.
4. Product submittals:
a. Product option submittals.
b. Requests for substitution.
c. Operating and maintenance data.
d. Warranties.
e. Maintenance materials and tools.
5. Contract closeout submittals:
a. Equipment and systems demonstration reports.
b. Request for determination of substantial completion.
c. Certificate of occupancy.
d. Project record documents.

1.04 DEFINITIONS

A. Shop Drawings: See General Conditions.
1. Shop Drawings also include:
a. Product data prepared especially for this project.
b. Shop or plant inspection and test reports, when made on specific materials, products, or systems to be used in the work.

B. Product Data: See General Conditions.
1. Product data submittals also include:
a. Performance curves, when issued by the manufacturer for all products of that type.
b. Selection data showing standard colors.
c. Wiring diagrams, when standard for all products of that type.

C. Samples: See General Conditions.

D. Informational Submittals: Submittals identified in the contract documents as to be submitted for information only.

E. Action Submittals: Written and graphic information and physical samples that require Architect/Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

F. Informational Submittals: Written and graphic information and physical samples that do not require Architect/Engineer's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.05 FORM OF SUBMITTALS

A. Sheets Larger Than 8-1/2 by 14 Inches:
1. Maximum sheet size: 36 by 48 inches.
a. Exception: Full size pattern or template drawings.
2. Number of copies:
a. Submittals for review:
1) One correctable reproducible print, not folded and 3 copies of blue- or black-line print(s).
2) Reproducible will not be returned.
b. Informational submittals:
1) 2 copies of opaque prints.
2) No copies will be returned.

B. Small Sheets or Pages:
   1. Minimum sheet size: 8-1/2 by 11 inches.
   2. Maximum sheet size for opaque copies: 8-1/2 by 11 inches.

C. Samples: 2 sets of each.
   1. 1 set will be returned.

D. If additional sets are needed by other entities involved in work represented by the samples, submit with original submittal.

E. Copies in excess of the number requested will not be returned.

F. Provide additional copies for project record documents.

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

1.06 SUBMITTAL SCHEDULE

A. Submit a schedule of submittals electronically, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect/Engineer and additional time for handling and reviewing submittals required by those corrections.
   1. Submit concurrently with the first complete submittal of construction schedule.

1.07 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's/Engineer’s Digital Data Files: Discipline specific electronic digital data files of certain Drawings will be provided by Architect/Engineer for use in preparing submittals as follows:
   1. Civil/Site: No files will be provided.
   2. Architectural: Architectural floor plans and reflected ceiling plans showing walls, doors, windows and fixed equipment.
   3. Structural: No files will be provided.
   4. Fire Protection: Architectural floor plans and reflected ceiling plans
   5. Mechanical: Architectural floor plans and reflected ceiling plans.
   6. Electrical: Architectural floor plans and reflected ceiling plans.
   7. Food Service: Kitchen floor plan with equipment layout.
      a. Architect/Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.

B. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
   1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
   2. Provide means for insertion to permanently record Contractor’s review and electronic approval markings and action taken by Architect/Engineer.
   3. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Heard County Board of Commissioners, containing the following information:
      a. Project name.
      b. Date.
      c. Name of Contractor.
      d. Name of firm or entity that prepared submittal.
      e. Names of subcontractor, manufacturer, and supplier.
      f. Specification Section number and title.
      g. Drawing number and detail references, as appropriate.
      h. Location(s) where product is to be installed, as appropriate.
      i. Related physical samples submitted directly.

4. Metadata: Include the following information as keywords in the electronic submittal file metadata:
   a. Project name.
   b. Number and title of appropriate Specification Section.
   c. Manufacturer name.
   d. Product name.

C. Options: Identify options requiring selection by Architect/Engineer.

D. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect/Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

E. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block and clearly indicate extent of revision.
   3. Resubmit submittals until they are marked with approval or approved as noted notation from Architect/Engineer's action stamp.

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: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval or approved as noted notation from Architect/Engineer's action stamp.

1.08 COORDINATION OF SUBMITTALS

A. Coordinate submittals and activities that must be performed in sequence, so that Gardner Spencer Smith Tench & Jarbeau, P.C. has enough information to properly review the submittals.

B. Coordinate submittals of different types for the same product or system so that Gardner Spencer Smith Tench & Jarbeau, P.C. has enough information to properly review each submittal.

C. Architect/Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 TIMING OF SUBMITTALS

A. Submit electronic submittals via email as PDF electronic files.
   1. Architect/Engineer will return annotated file. Annotate and retain copy of file as an electronic Project record document file.

B. Transmit each submittal at or before the time indicated on the approved schedule of submittals.
   1. Prepare and submit for approval a schedule showing the required dates of submittal of all submittals.
   2. Organize the schedule by the applicable specification section number.
   3. Incorporate the Contractor's construction schedule specified elsewhere.
   4. Submit within 45 days after the commencement of the work.
   5. Revise and resubmit the schedule for approval when requested.

C. Deliver each submittal requiring approval in time to allow for adequate review and processing time, including resubmittals if necessary; failure of the Contractor in respect will not be considered grounds for an extension of the contract time.

D. Deliver each informational submittal prior to start of the work involved, unless the submittal is of a type which cannot be prepared until after completion of the work; submit promptly.

E. If a submittal must be processed within a certain time in order to maintain the progress of the work, Contractor must state so clearly on the submittal.

F. If a submittal must be delayed for coordination with other submittals not yet submitted, Gardner Spencer Smith Tench & Jarbeau, P.C. may at his option either return the submittal with no action or notify Contractor of the other submittals which must be received before the submittal can be reviewed.

G. Contractor shall allow in the Detailed Construction Schedule, at least ten (10) days for Gardner Spencer Smith Tench & Jarbeau, P.C. review following Gardner Spencer Smith Tench & Jarbeau, P.C. receipt of submittal. For mechanical, plumbing, electrical, and other submittals requiring joint review with Gardner Spencer Smith Tench & Jarbeau, P.C., Contractor shall allow an additional five (5) days following Gardner Spencer Smith Tench & Jarbeau, P.C. receipt of submittal.

H. Allow a minimum of 5 business days for processing of resubmittals.

3.02 SUBMITTAL PROCEDURES - GENERAL

A. Contractor Review: Sign each copy of each submittal certifying compliance with the requirements of the contract documents.

B. Notify Gardner Spencer Smith Tench & Jarbeau, P.C., in writing and at the time of submittal, of all points upon which the submittal does not conform to the requirements of the contract documents, if any.

C. Do not submit substitute items that have not been approved by means of the procedure specified elsewhere.

D. Do not include requests for substitution (either direct or indirect) on submittals; comply with procedures for substitutions specified elsewhere.
   1. Substitute submittals, when not properly introduced, and reviewed by Gardner Spencer Smith Tench & Jarbeau, P.C. which result in subsequent incorporation into the work shall be cause to have the non conforming work removed and the conforming work installed at the Contractor's expense. If the cost of remedial work involves the demolition or alteration of surrounding conforming work, then the cost of the surrounding alterations shall be at the expense of the Contractor.

E. Preparation of Submittals:
   1. Label each copy of each submittal, with the following information:
      a. Project name.
      b. Date of submittal.
      c. Contractor's name and address.
      d. Supplier's name and address.
      e. Manufacturer's name.
      f. Other necessary identifying information.
   2. Pack submittals suitably for shipment.

F. Transmittal of Submittals:
   1. Submit all submittals to Gardner Spencer Smith Tench & Jarbeau, P.C..
   2. Submittals will be accepted from the Contractor only. Submittals received from other entities will be returned without review or action.
   3. Submittals received without a transmittal form will be returned without review or action.

4. Transmittal form: Use AIA G810 or Contractor's standard office form if equal in transmitting documentation.
5. Fill out a separate transmittal form for each submittal; also include the following:
   a. Other relevant information.
   b. Requests for additional information.

3.03 SHOP DRAWINGS

A. Content: Include the following information:
   1. Dimensions, at accurate scale.
   2. All field measurements that have been taken, at accurate scale.
   3. Names of specific products and materials used.
   4. Show compliance with the specific standards referenced.
   5. Coordination requirements; show relationship to adjacent or critical work.
   6. Name of preparing firm.

B. Preparation:
   1. Reproductions of contract documents are not acceptable as shop drawings and represent violation of copyright laws.
   2. Identify as indicated for all submittals.

3.04 PRODUCT DATA

A. Submit all product data submittals for each system or unit of work as one submittal. Review of system submittal will begin when all elemental submittals have been received.

B. When product data submittals are prepared specifically for this project (in the absence of standard printed information) submit such information as shop drawings and not as product data submittals.

C. Content:
   1. Submit manufacturer's standard printed data sheets.
   2. Identify which options and accessories are applicable.
   3. Include recommendations for application and use.
   4. Show compliance with specified testing agency listings; show the limitations of their labels or seals, if any.
   5. Identify dimensions which have been verified by field measurement.
   6. Show special coordination requirements for the product.

3.05 SAMPLES

A. Samples:
   1. Provide samples that are the same as proposed product.
   2. Where unavoidable variations must be expected, submit "range" samples, minimum of 3 units, and describe or identify variations among units of each set.

B. Preparation:
   1. Attach a description to each sample.
   2. Attach name of manufacturer or source to each sample.
   3. Where compliance with specified properties is required, attach documentation showing compliance.
   4. Where there are limitations in availability, delivery, or other similar characteristics, attach description of such limitations.
   5. Where selection is required, the first submittal may be a single set of all options; after return of submittal with selection indicated, submit standard number of sets of selected item.

C. Keep final sample set(s) at the project site, available for use during the progress of the work.

3.06 REVIEW OF SUBMITTALS

A. Contractor's Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with electronic approval stamp before submitting to Architect/Engineer.
   1. Project Closeout and Maintenance Material Submittals: See requirements in Division 01 Section "Closeout Procedures."
   2. Approval Stamp: Stamp each submittal with a uniform, electronic 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.

B. Architects/Engineer's Action Submittals: Submittals for approval will be reviewed, marked with appropriate action, and returned.
   1. Review commentary and actions required or approved as indicated by Gardner Spencer Smith Tench & Jarbeau, P.C.'s review stamp and affixed to required submittals:
      a. "Approved": Gardner Spencer Smith Tench & Jarbeau, P.C. takes no exceptions to the proposed work or its method of construction and installation. The Contractor may proceed with that portion of the work as required by the Contract Documents
      b. "Approved as Noted": Gardner Spencer Smith Tench & Jarbeau, P.C. has noted certain exceptions which are to be addressed by the Contractor before proceeding with that portion of the work.
      c. "Rejected/Resubmit": Gardner Spencer Smith Tench & Jarbeau, P.C. rejects the proposed work and requires that the submittal be resubmitted for approval. Any work requiring submittal and not "Approved" or "Approved as Noted" and initiated prior to approval by Gardner Spencer Smith Tench & Jarbeau, P.C. is solely at the risk of the Contractor and shall only be accepted if in complete compliance with the Contract Documents

C. Informational submittals: Submittals will be reviewed.

3.07 RETURN, RESUBMITTAL, AND DISTRIBUTION

A. Submittals will be returned to the Contractor by mail.

B. Perform resubmittals in the same manner as original submittals; indicate all changes other than those requested by Gardner Spencer Smith Tench & Jarbeau, P.C..

C. Distribution:
   1. Make extra copies for operation and maintenance data submittals, as required.
   2. Record distribution on transmittal form with copy to the Heard County Board of Commissioners.

END OF SECTION

SECTION 01 3310
SUBMITTAL PROCEDURES

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 RELATED SECTIONS

A. Division 01 for submitting Applications for Payment.

B. Division 01 for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule and construction photographs.

C. Division 01 for submitting test and inspection reports and Delegated-Design Submittals and erecting mock-ups.

D. Division 01 for submitting warranties, project Record Documents and operation and maintenance manuals.

1.03 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.

C. Post-consumer Recycled Content: The percentage of waste material by weight from industrial use incorporated into a building material.

D. Post-industrial Recycled Content: The percentage of waste material by weight from industrial use incorporated into a building material.

1.04 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Gardner Spencer Smith Tench & Jarbeau, P.C. for contractor's use in preparing submittals.

B. 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 & Jarbeau, P.C. reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Submittal Schedule: Comply with requirements in Division 1 for list of submittals and time requirements for schedule performance of related construction activities.

D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Gardner Spencer Smith Tench & Jarbeau, P.C.'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 & Jarbeau, P.C. 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 & Jarbeau, P.C.'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.

E. 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 & Jarbeau, P.C..
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.

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

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Gardner Spencer Smith Tench & Jarbeau, P.C. 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 & Jarbeau, P.C. 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.

H. 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.

I. Use for Construction: Use only final submittals with mark indicating action taken by Gardner Spencer Smith Tench & Jarbeau, P.C. 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 five copies of each submittal, unless otherwise indicated. Gardner Spencer Smith Tench & Jarbeau, P.C. 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.
   4. Includes the following information for all products:
      a. Location where product was manufactured.
      b. Location where product was harvested or extracted.
      c. Percent Post-industrial recycled content.
      d. Percent Post-consumer recycled content.

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. Coordination Drawings: Comply with requirements in Division 01.

E. Samples: Prepare physical units of materials or products, including the following:
1. Comply with requirements in Division 01 for mockups.
2. 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.
3. 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.
4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Gardner Spencer Smith Tench & Jarbeau, P.C.'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.
5. 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.
6. 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.
7. 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 & Jarbeau, P.C. will return submittal with options selected.
8. Number of Samples for Verification: Submit three sets of Samples. Gardner Spencer Smith Tench & Jarbeau, P.C. 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.
9. 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.

F. Delegated-Design Submittal: Comply with requirements in Division 01.

G. Submittal Schedule: Comply with requirements in Division 01.

H. Application for Payment: Comply with requirements in Division 01.

I. Schedule of Values: Comply with requirements in Division 01.

J. 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 & Jarbeau, P.C. 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.
   3. Test and Inspection Reports: Comply with requirements in Division 01.

B. Contractor’s Construction Schedule: Comply with requirements in Division 01.

C. 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.

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

E. 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.

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

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

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

I. 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.

J. 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.

K. 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.

L. 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.

M. 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.

N. 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.

O. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 01.

P. 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.

Q. 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.

R. 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.

S. 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.

T. Construction Photographs: Comply with requirements in Division 01.

PART 3 EXECUTION

3.01 CONTRATOR'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 & Jarbeau, P.C.

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.

3.02 ARCHITECTS ACTIONS

A. General: Gardner Spencer Smith Tench & Jarbeau, P.C. 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 & Jarbeau, P.C. will review each submittal, make marks to indicate corrections or modifications required, and return it. Gardner Spencer Smith Tench & Jarbeau, P.C. 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 & Jarbeau, P.C. 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 & Jarbeau, P.C. 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 & Jarbeau, P.C. 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 & Jarbeau, P.C. will return the submittal without action.

C. Informational Submittals: Gardner Spencer Smith Tench & Jarbeau, P.C. will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Gardner Spencer Smith Tench & Jarbeau, P.C. will forward each submittal to appropriate party.

D. Unsolicited Submittals: Gardner Spencer Smith Tench & Jarbeau, P.C. will return or discard unsolicited submittals to the sender without action.

END OF SECTION

SECTION 01 3500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 ALLOWANCE OPTIONS

A. The Contractor may select any product by any manufacturer which meets the standards of the specifications referenced when only referenced by ASTM standard and Federal Specifications.

B. The Contractor may propose substitutions of products specified by the naming of one or more manufacturers.

C. Gardner Spencer Smith Tench & Jarbeau, P.C. will consider requests for substitutions only within 15 days after date of Agreement.

D. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

E. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Heard County Board of Commissioners.
   4. Waives claims for additional costs or time extension which may subsequently become apparent.
   5. Will reimburse Heard County Board of Commissioners and Gardner Spencer Smith Tench & Jarbeau, P.C. for review or redesign services associated with re-approval by authorities.

F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

G. Substitution Submittal Procedure:
   1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. The Gardner Spencer Smith Tench & Jarbeau, P.C. will notify Contractor in writing of decision to accept or reject request.

1.02 SUBSTITUTION APPROVAL

A. Gardner Spencer Smith Tench & Jarbeau, P.C. will consider substitutions of products from the Contractor when formally submitted in writing as outlined herein.

B. Gardner Spencer Smith Tench & Jarbeau, P.C. will consider only those request submitted in the proper format accompanied by a complete, signed copy of the "Substitution Request Form" and the required attachments.

C. Gardner Spencer Smith Tench & Jarbeau, P.C. will not consider substitutions indicated or implied on the shop drawings or project data submittals which are not accompanied by the required written or printed documents.

D. Gardner Spencer Smith Tench & Jarbeau, P.C. will not consider substitutions which require substantial revisions of the Contract Documents.

E. Acceptance of substitutions is not final until approved in writing.

1.03 SUBSTITUTIONS

A. As a prerequisite for obtaining approval of substitute "Accepted Equal" items, Contractor shall submit the following in writing to the Architect:
   1. Reasons for not giving priority to specified items.
   2. Date indicating an investigation has been made to determine the affect of the substitution on all work of other Sections directly or indirectly involved.
   3. Drawings, description, illustrations, catalogs, record of test, samples, and all other information essential for judging the quality of materials, finish and durability of proposed substitutions.
   4. Information indicating satisfactory use of substitute materials or methods under similar operating conditions.
   5. Evidence of mechanical and electrical substitutions that they are equally well recognized and have established sources of service and repair.
   6. The saving to the Heard County Board of Commissioners in accepting a substitute cost alone is giving as a reason for substitution.

B. Gardner Spencer Smith Tench & Jarbeau, P.C. may request that any items proposed for substitution be tested by a laboratory as approved. If , in Gardner Spencer Smith Tench & Jarbeau, P.C.'s opinion, test data submitted on item is insufficient for judging quality, Contractor shall bear all cost incurred.

C. When either ability to obtain delivery within required time, or when the specified product is no longer available is given as a reason for offering substitution, submit a letter to this effect written by General Contractor.

D. If substitute "Acceptable Equal" items require redesign of structure, partitions, foundation, piping, wiring or any other part of mechanical, electrical or architectural layout, all such redesign, and any new drawings and detailing shall be prepared by Gardner Spencer Smith Tench & Jarbeau, P.C. at the expense of Contractor.

E. When substitute "Acceptable Equal" items require a different quantity and arrangement of foundation, structure, partitions, duct work, piping, wiring, conduit or equipment from that specified or indicated on drawings, Section requesting change shall bear cost of changes in work.

F. When Manufacturers are not specified by name, provide materials and methods in accordance with specified performance requirements.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

SUBSTITION REQUEST FORM

FROM:

NAME OF MANUFACTURER
[_____]

STREET ADDRESS
[_____]

CITY AND STATE
[_____]

NAME AND CONTACT PHONE#
[_____]

PROJECT:

LOCATION
[_____]

ARCHITECTS PROJECT NO.
[_____]

TO:

GARDNER SPENCER SMITH TENCH & JARBEAU, P.C.

TOWER PLACE BUILDING 3340 PEACHTREE ROAD NE SUITE 1800 ATLANTA, GA 30326

MANUFACTURER [_____]

SIGNATURE OF MANUFACTURER'S REP.
[_____]

INSTALLER
[_____]

SIGNATURE OF INSTALLER'S REP.
[_____]

CONTRACTOR
[_____]

SIGNATURE OF CONTRACTOR'S REP.
[_____]

END OF SECTION

SECTION 01 4000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

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

B. Submittals.

C. References and standards.

D. Mock-ups.

E. Control of installation.

F. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
   1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
   2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
   3. Requirements for Contractor to provide quality-control services required by Gardner Spencer Smith Tench & Jarbeau, P.C., Heard County Board of Commissioners, or authorities having jurisdiction are not limited by provisions of this Section.

G. Control of installation.

H. Mock-ups.

1.02 RELATED REQUIREMENTS

A. Specification Sections for specific test and inspection requirements.

B. Section 01 2100 - Allowances: Allowance for payment of testing services.

C. Section 01 3000 - Administrative Requirements: Submittal procedures.

1.03 REFERENCE STANDARDS

A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants 2008 (Reapproved 2014).

B. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation 2014.

C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry 2013.

D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction 2012a.

E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing 2014a.

F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing 2013.

1.04 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that competed construction complies with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Mockups establish the standard by which the Work will be judged.

D. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.05 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
   1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.06 SUBMITTALS

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

B. Qualification Data: For testing agencies specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report in the inspection of the testing agency by a recognized authority.

C. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specially assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

D. Testing Agency Qualifications:
   1. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.
   2. Prior to start of Work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.

E. Design Data: Submit for Gardner Spencer Smith Tench & Jarbeau, P.C.'s knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents, or for Heard County Board of Commissioners's information.

F. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
   1. Specification Section number and title.
   2. Description of test and inspection.
   3. Identification of applicable standards.
   4. Identification of test and inspection methods.
   5. Number of tests and inspections required.
   6. Time schedule or time span for tests and inspections.
   7. Entity responsible for performing tests and inspections.
   8. Requirements for obtaining samples.
   9. Unique characteristics of each quality-control service.

G. Test Reports: After each test/inspection, promptly submit two copies of report to Gardner Spencer Smith Tench & Jarbeau, P.C. and to Contractor.

1. Include:
    a. Date issued.
    b. Project title and number.
    c. Name of inspector.
    d. Date and time of sampling or inspection.
    e. Identification of product and specifications section.
    f. Location in the Project.
    g. Type of test/inspection.
    h. Date of test/inspection.
    i. Results of test/inspection.
    j. Compliance with Contract Documents.
    k. When requested by Gardner Spencer Smith Tench & Jarbeau, P.C., provide interpretation of results.

H. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Gardner Spencer Smith Tench & Jarbeau, P.C., in quantities specified for Product Data.
1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
2. Certificates may be recent or previous test results on material or product, but must be acceptable to Gardner Spencer Smith Tench & Jarbeau, P.C..

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

J. Manufacturer's Field Reports: Submit reports for Gardner Spencer Smith Tench & Jarbeau, P.C.'s benefit as contract administrator or for Heard County Board of Commissioners.
1. Submit report in duplicate within 30 days of observation to Gardner Spencer Smith Tench & Jarbeau, P.C. for information.
2. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents.

K. Erection Drawings: Submit drawings for Gardner Spencer Smith Tench & Jarbeau, P.C.'s benefit as contract administrator or for Heard County Board of Commissioners.
1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents.
2. Data indicating inappropriate or unacceptable Work may be subject to action by Gardner Spencer Smith Tench & Jarbeau, P.C. or Heard County Board of Commissioners.

L. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.07 REFERENCES AND STANDARDS

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

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

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

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Gardner Spencer Smith Tench & Jarbeau, P.C. before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Gardner Spencer Smith Tench & Jarbeau, P.C. shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.08 QUALITY ASSURANCE

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

B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

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

D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.

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

F. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.

G. Preconstruction Testing: Testing agency shall perform preconstruction testing for compliance with specified requirements for performance and test methods.
   1. Contractor responsibilities include the following:
      a. Provide test specimens and assemblies representative of proposed materials and construction. Provide sizes and configurations of assemblies to adequately demonstrate capability of product to comply with performance requirements.
      b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
      c. Fabricate and install test assemblies using installers who will perform the same tasks for Project.
      d. When testing is complete, remove assemblies; do not reuse materials on Project.
   2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

H. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Gardner Spencer Smith Tench & Jarbeau, P.C. ten business days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Gardner Spencer Smith Tench & Jarbeau, P.C.'s approval of mockups before starting work, fabrication, or construction.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

1.09 QUALITY CONTROL

A. Heard County Board of Commissioners Responsibilities: Where quality-control services are indicated as Heard County Board of Commissioners's responsibility, Owner will engage a qualified testing agency to perform these services.
   1. Heard County Board of Commissioners will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
   2. Costs for re-testing and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.
   1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
      a. Contractor shall not employ the same entity engaged by Heard County Board of Commissioners, unless agreed to in writing by Heard County Board of Commissioners.
   2. Notify testing agencies at lest 24 hours in advance of time when Work that requires testing or inspecting will be performed.
   3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
   4. Testing and inspecting requested by Contractor and not required by the Contract documents are Contractor's responsibility.
   5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Special Tests and Inspections: Heard County Board of Commissioners will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Heard County Board of Commissioners.
   1. Testing agency will notify Gardner Spencer Smith Tench & Jarbeau, P.C. and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
   2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Gardner Spencer Smith Tench & Jarbeau, P.C. with copy to Contractor and to authorities having jurisdiction.
   3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
   4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
   5. Testing agency will retest and re-inspect corrected work.

D. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.

E. Re-testing/Re-inspecting: regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including re-testing and re-inspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.

F. Testing Agency Responsibilities: Cooperate with Gardner Spencer Smith Tench & Jarbeau, P.C. and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
   1. Notify Gardner Spencer Smith Tench & Jarbeau, P.C. and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
   2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
   3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
   4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
   5. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
   1. Access to the Work.
   2. Incident labor and facilities necessary to facilitate tests and inspections.
   3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
   4. Facilities for storage and field-curing of test samples.
   5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
   6. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
   1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for commencement of the Work.
   1. Distribution: Distribute schedule to Heard County Board of Commissioners, Gardner Spencer Smith Tench & Jarbeau, P.C., testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

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

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

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Gardner Spencer Smith Tench & Jarbeau, P.C. before proceeding.

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

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

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

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

3.02 MOCK-UPS

A. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Accepted mock-ups shall be a comparison standard for the remaining Work.

D. Where mock-up has been accepted by Gardner Spencer Smith Tench & Jarbeau, P.C. and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Gardner Spencer Smith Tench & Jarbeau, P.C..

3.03 REPAIR AND PROTECTION

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

B. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.

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

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

END OF SECTION

SECTION 01 4110
TESTING LABORATORY SERVICES

PART 1 GENERAL

1.01 SUMMARY

A. General: See individual specification sections for requirements of testing.

B. Applicable standards, latest edition, if not otherwise indicated in the individual sections where testing is required.
   1. American Concrete Institute (ACI).
   2. American Institute of Steel Construction. (AISC).
   3. American National Standards Institute (ANSI).
   4. American Society for Testing and Materials (ASTM).
   5. American Welding Society (AWS).

1.02 TESTING AGENCY

A. Except as otherwise specified, testing will be performed by an independent testing agency or agencies selected by Heard County Board of Commissioners and paid by the Contractor using the Testing Laboratory Services Allowance established in Section 01 2100 - Allowances.

B. Contractor shall pay costs for testing beyond the scope of that required by the Contract Documents and for re-testing if initial tests reveal non-conformance with specified requirements.

C. Tests and Inspections shall be conducted in accordance with specified requirements, and if not specified, in accordance with the applicable standards of the American Society for Testing and Materials (ASTM) or other recognized and accepted authorities in the field.

D. Work Included:
   1. Earthwork.
   2. Cast-in-place Concrete.
   3. Structural Steel.

1.03 QUALIFICATION OF LABORATORY

A. The Testing Laboratory selected should meet the basic requirements of ASTM E329 "Standard of Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction", shall be inspected and approved by the ELF, FC & PA Joint Technical Committee, Inc. or by an equivalent recognized national authority and shall submit to the Heard County Board of Commissioners, Gardner Spencer Smith Tench & Jarbeau, P.C., and the Engineer, a copy of the report of inspection of their facilities.

B. The Testing Laboratory selected shall meet "Recommended Requirements for Independent Laboratory Qualification", latest edition, as published by the "American Council of Independent Laboratory Qualification".

C. Testing machines shall be calibrated at intervals not exceeding 12 months by devices of accuracy traceable to the National Bureau of Standards or accepted values of natural physical constants. The testing laboratory shall submit a copy of certificate of calibration made by an accredited calibration agency.

D. The Testing Laboratory is only required to have testing facilities for work included in this project.

E. The agent of the Testing Laboratory performing field sampling and field testing of concrete shall be certified by the American Concrete Institute as a Concrete Field

Testing Technician - Grade 1, or by an equivalent recognized national authority for an equivalent level of competence, or shall be a Licensed Professional, Engineer.

1.04 AUTHORITIES AND DUTIES OF THE LABORATORY

A. The Testing Laboratory shall obtain and review the project plans and specifications with Gardner Spencer Smith Tench & Jarbeau, P.C. and Engineer six (6) weeks prior to the start of construction. The Laboratory shall attend pre-construction conferences with Gardner Spencer Smith Tench & Jarbeau, P.C., Engineer, Contractor's Project Manager, Contractor's Superintendent, and Material Suppliers, to coordinate materials inspection and testing requirements with the planned construction schedule. The Laboratory will participate in such conferences throughout the course of the project.

B. The Testing Laboratory shall be responsible for outlining a written detailed testing program conforming to the requirements as specified in the Contract Documents and in consultation with the Heard County Board of Commissioners, Gardner Spencer Smith Tench & Jarbeau, P.C., and Engineer. The testing program shall contain an outline of inspections and tests to be performed with reference to applicable sections of the specifications or drawings and a list of personnel assigned to each portion of the work. Such testing program shall be submitted to the Heard County Board of Commissioners, Gardner Spencer Smith Tench & Jarbeau, P.C., and Engineer five (5) weeks in advance of the start of construction so as not to delay the start of construction. It shall be the Testing Laboratory's responsibility that such program conforms to the requirements of the Specifications and falls within the Heard County Board of Commissioners's budget for testing laboratory services. If the allocated budget is not sufficient to cover the services as outlined in the Specifications, it shall be the responsibility of the Laboratory to notify the Gardner Spencer Smith Tench & Jarbeau, P.C., Engineer, and Heard County Board of Commissioners, so the start of Laboratory services can be modified accordingly prior to the start of construction. Furthermore, the Testing Laboratory shall monitor its expenditures throughout the course of the job and notify immediately the Heard County Board of Commissioners, Gardner Spencer Smith Tench & Jarbeau, P.C., and Engineer, of any significant deviation from the planned testing program and budget.

C. The Laboratory shall cooperate with the Gardner Spencer Smith Tench & Jarbeau, P.C., Engineer, and Contractor, and provide qualified personnel promptly on notice.

D. The Laboratory shall perform the required inspections, sampling, and testing of materials as specified under each section, and observe methods of construction for compliance with the requirements of the Contract Documents.

E. The Laboratory shall notify Gardner Spencer Smith Tench & Jarbeau, P.C. and Contractor first by telephone and then in writing, of observed irregulantles and deficiencies of the work and other conditions not in compliance with the requirements of the Contract Documents.

1.05 CONTRACTOR'S GENERAL RESPONSIBILITIES

A. Cooperate with Testing Agency personnel. Provide access to the Work and to material supplier's plant and operations.

B. Provide representative samples of materials proposed for use in the Work, in quantities sufficient for accurate testing as specified.

C. Submit copies of Mill Test reports.

D. Furnish casual labor and facilities:
   1. To provide access to Work to be tested or inspected.
   2. To obtain and handle samples at the site under the direction of the Testing Agency.
   3. To facilitate inspections and tests.

E. Notify Testing Agency sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.

F. Furnish and pay for the following:
   1. Soil survey of location of borrow soil materials, samples of existing soil materials, delivered to the Testing Agency.
   2. Certification of reinforcing steel mill order.
   3. Certifications and tests of post-tensioning materials.
   4. Certification of Portland cement.
   5. Weld procedure qualification tests.
   6. Tests and samples when source of material changed after original test or inspection has been made.
   7. Samples and mock-ups of substitute material, when the substitution is requested by Contractor and the tests are necessary, in the opinion of Gardner Spencer Smith Tench & Jarbeau, P.C., to establish equality with specified items.
   8. Provide and maintain, for the sole use of the Testing Agency, adequate facilities for safe storage and proper curing of such test specimens which must remain on the project site prior to testing.

G. Neither the observations, inspections, tests or approvals by Gardner Spencer Smith Tench & Jarbeau, P.C. or the Testing Agency shall relieve Contractor from his obligation to perform the Work in accordance with the Contract Documents.

H. Contractor shall notify Gardner Spencer Smith Tench & Jarbeau, P.C. in writing and receive a written reply prior to proceeding with additional testing beyond that specified in the Contract Documents.

I. Contractor shall designate one individual in his organization to be responsible for conducting Contractor's duties relative to testing. The individual so identified will be instructed in his duties by the Testing Agency. The individual shall not be changed without notice to Gardner Spencer Smith Tench & Jarbeau, P.C..

1.06 AUTHORITY OF DESIGNATED TESTING AGENCY PERSONNEL

A. When requested by Gardner Spencer Smith Tench & Jarbeau, P.C., the Testing Agency will render professional opinions regarding corrective measures for construction deficiencies.

B. The Testing Agency is not authorized to revoke or change requirements of the Contract Documents or to approve or accept any portion of the Work.

1.07 REPORTS

A. The Testing Agency shall submit one copy each of reports of tests and inspection and certification as required herein to Heard County Board of Commissioners, Gardner Spencer Smith Tench & Jarbeau, P.C. and engineering consultant, as applicable, for information only.

B. Copies of test reports shall be distributed within three working days after each date of test or inspection.

C. Tests and inspection reports will be in standard outline form including the following:
   1. Issue date.
   2. Project title and number.
   3. Testing Agency name and address.
   4. Name of technician.
   5. Signature of reviewing registered engineer.
   6. Date of inspection or sampling.
   7. Significant weather conditions.
   8. Report number.
   9. Sample number.
   10. Location in project.

11. Observations regarding compliance with Contract Documents.
12. Pertinent remarks.

D. Field reports shall include the following items:
1. Items inspected.
2. Specific location of the inspection.
3. Explanation of deficiencies or non-conforming installations.
4. Listing of parties informed and corrections made.
5. A statement certifying that the final inspection proved the installation to be in accordance with the Contract Documents.

E. Upon completion of the job, the Testing Laboratory shall furnish to the Heard County Board of Commissioners, Gardner Spencer Smith Tench & Jarbeau, P.C. and Engineer of responsibility, a statement certified by a Notary Public that all required tests and inspections were made in accordance with the requirements of the Contract Documents.

1.08 EXTENT OF SERVICES FOR EARTHWORK

A. Moisture Density Relationship for Natural and Fill Materials:
1. The Testing Laboratory will provide one (1) optimum moisture density curve for each type of soil, natural, imported fill, or on-site fill, encountered in subgrade and fills under building slabs and paved areas. Curves shall be generated in accordance with ASTM 0698.

B. Control Testing Required During Construction:
1. The Testing Laboratory shall inspect and, approve the following subgrades and fill layers before further construction work is performed thereon:
a. Paved Areas and Building Slab Subgrade: Make at least one (1) field density test of the natural density test of the natural subgrade for every 2,500 square feet of paved area or building slab, but in no case less than three (3) tests. In each compacted fill layer, make one (1) field density test for every 2,500 square feet of building slab on paved area, but in no case less than three (3) tests.
b. Foundation Wall Backfill: Make at least one (1) field density test for each 200 lineal feet of all with a minimum of four (4) tests for each basement wall around the perimeter of the building and a minimum of one (1) test for every other type of foundation wall on the site. Tests shall be at random locations and elevations for each wall.
2. Field Density Tests shall be run according to ASTM 01556 (Density of Soil in Place by the Sand Cone Method), ASTM 02167) (Density of Soil in Place by the Rubber Balloon Method) or ASTM 02922 (Density of Soil and Soil Aggregate in Place by Nuclear Methods) as applicable.
3. The results of field density tests by the Testing Laboratory will not be considered satisfactory unless their value meet the required density.
4. The Testing Laboratory shall submit all moisture density curves and results of field density tests to the parties listed herein.
5. If reports by the Testing Laboratory indicate field densities lower than specified above, additional tests will be run by the Testing Laboratory with at least the frequencies scheduled above on re-compacted fill and/or natural subgrade. The Testing Laboratory shall notify the Contractor on a timely basis for any required re-testing so as not to delay the work. The costs of such tests shall be borne by the Contractor.
6. The Geotechnical Engineer shall provide inspection service of each dug footing subgrade prior to pouring foundation concrete. Such inspection shall verify that field conditions are consistent with soil report test results and that the foundation is being installed in the proper soil strata at the proper elevation. The Geotechnical Engineer shall submit written field inspection reports promptly after

inspection to all parties listed herein, and report his findings after each inspection by telephone to the Structural Engineer.

C. Procedures for the Initiation of a Change Order for Removal of Rock or Unsuitable Soil:
   1. Heard County Board of Commissioners's testing laboratory soils engineer will confirm the existence of rock or unsuitable soil as defined in the contract documents.
   2. Heard County Board of Commissioners's surveyor will survey the area from which the material will be removed.
   3. Contractor will remove the material.
   4. Heard County Board of Commissioners's surveyor will measure the area of the removed material to determine the total cubic yards.
   5. Contractor will be paid by Change Order based on the unit cost amounts in the contract, which were accepted from the bid proposal, or as subsequently negotiated.

1.09 EXTENT OF SERVICE FOR CONCRETE MATERIALS AND POURED N-PLACE CONCRETE

A. Concrete Test Cylinders:
   1. Cylinders for strength tests shall be molded and laboratory cured in accordance with ASTM C31 "Method of Making and Curing Concrete Test Cylinders in the Field" and tested in accordance with ASTM C39 "Method of Testing for Compressive Strength of Cylindrical Concrete Specimens."
   2. Field samples for strength tests shall be taken in accordance with ASTM C172 "Method of Sampling Fresh Concrete".
   3. Frequency of Testing: Each set of test cylinders shall consist of a minimum of four (4) standard test cylinders. A set of test cylinders shall be made according to the following frequency:
      a. One (1) set for each class of concrete taken not less than once a day.
      b. For walls and floors, one (1) set for each 100 cubic yards or fraction thereof not less than one (1) set for each 5,000 square feet of surface area.
      c. For columns, one (1) set for each 150 cubic yards or fraction thereof with a minimum of two (2) sets per floor.
      d. For all other concrete, a minimum of one (1) set for each 100 cubic yards or fraction thereof.
      e. No more than one (1) set of cylinders at a time shall be made from any single truck.
      f. If the total volume of concrete is such that the frequency of testing as specified above would provide less than five (5) strength tests for a given class of concrete, tests shall be made from at least five (5) randomly selected batches or from each batch if fewer than five batches are used.
      g. The above frequencies assume that one (1) batch plant will be used for each pour. If more than one (1) batch plant is used, the frequencies cited above shall apply for each plant used.
   4. The cylinders shall be numbered, dated, and the point of concrete placement in the building recorded. Of the four (4) cylinders per set, break one at seven days, two at 28 days, and one automatically at 56 days if either 28 day cylinder break is below required strength. One (1) additional cylinder per set will be required for formed slab and pan joist floors for the purpose of evaluating the concrete strength at the time of form stripping.
   5. This cylinder shall be stored on the floor where form removal is to occur under the same exposure conditions as the floor concrete.
   6. This cylinder shall be cured under field conditions in accordance with ASTM C31 "Method of Making and Curing Concrete Test Specimen in the Field". Field cured test cylinders shall be molded at the same time and from the same samples as

laboratory cured test specimens. This cylinder shall be broken at the time of form removal as directed by Contractor.

7. For concrete with design strength in excess of 5,000 PSI, Contractor shall be responsible for providing a temperature controlled and protected concrete cylinder storage box at a point on the job site mutually agreeable with the Testing Laboratory for the purpose of storing concrete cylinders until they are transported to the Laboratory.
8. The Testing Laboratory shall be responsible for transporting the cylinders to the Laboratory in a protected environment such that no damage or ill effect will occur to the concrete cylinders.
9. The Testing Laboratory shall make and distribute concrete test reports after each job cylinder is broken. Such reports shall contain the following information:
    a. Truck number and ticket number.
    b. Concrete Batch Plant.
    c. Mix design number.
    d. Accurate location of pour in the structure.
    e. Strength requirement.
    f. Date cylinders made and broken.
    g. Technician making cylinders.
    h. Concrete temperature at placing.
    i. Air temperature at point of placement in the structure.
    j. Amount of water added to the truck at the batch plant and at the site.
    k. Slump..
    l. Unit weight.
    m. Air content.
    n. Cylinder compressive strengths with type of failure if concrete does not meet Specification requirements, Seven (7) day breaks are to be flagged if they are less than 70% of the required, 28 day strength. 28 day breaks are to be flagged if either cylinder fails to meet Specification requirements.

B. Other Tests of Concrete Required by the Testing Laboratory:
    1. Slump tests (ASTM C143) shall be made at the beginning of concrete placement for each batch plant and for each set of test cylinders made.
    2. Air entrainment (ASTM C233) tests shall be made at the same time slump tests are made as cited above.
    3. Concrete Temperature at placement at the same time slump tests are made as cited above.

C. Evaluation and Acceptance of Concrete:
    1. A strength test shall be defined as the average strength of two (2) 28-day cylinder breaks from each set of cylinders.
    2. The strength level of an individual class of concrete shall be considered satisfactory if both of the following requirements are met:
        a. The average of all sets of three (3) consecutive strength tests equal or exceed the required f'c.
        b. No individual strength tests (average of two (2) 28-day cylinder breaks) fall below the required f'c by more than 500 PSI.
        c. If either of the above requirements is not met, the Testing Laboratory shall immediately notify the Engineer by telephone. Steps shall immediately be taken to increase the average of subsequent strength tests.

D. Investigation of Low Strength Concrete Test Results:
    1. If any strength test of laboratory cured cylinders fall below the required f'c by more than 500 PSI, the Contractor shall take steps immediately to assure that the load carrying capacity of the structure is not jeopardized.

2. The Testing Laboratory shall, under the direction of the Engineer, perform non-destructive field test of the concrete in question using Swiss Hammer, Windsor Probe, or other appropriate methods and report the results the same as for cylinder test reports.
3. If the likelihood of low strength concrete is confirmed and computations indicate that the load carrying capacity of the structure has been significantly reduced, tests of cores drilled from the area in question under the direction of the Engineer will be required in accordance with ASTM C42 (Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete). In such case, three (3) cores shall be taken for each strength test more than 500 PSI below required f'c. If concrete in the structure will be dry under service conditions, cores shall be air dried (temperature 60 degrees to 80 degrees, relatively humidity less than 60 percent) for seven (7) days before test and shall be tested dry. If concrete in the structure will be more than superficially wet under service conditions, cores shall be immersed in water for at least 48 hours and tested wet. Contractor shall fill all holes made by drilling cores with an approved dry-pack concrete.
4. Concrete in an area represented by core test shall be considered structurally adequate if the average of three (3) cores is equal to at least 85% of f'c and if no single core is less than 75% of f'c. To check testing accuracy, locations of erratic core strengths may be re-tested.
5. If the above criteria are not met, and the structure adequacy remains in doubt, the Engineer may order a load test, as specified in ACI 318 for the questionable portion of the structure.
6. If the structural adequacy of the affected portion of the structure remains in doubt, the Engineer may order the structure to be strengthened by an appropriate means or torn down and re-built.
7. The costs of all investigations of low strength concrete shall be borne by Contractor.

E. Job Site Inspection by the Testing Laboratory:
1. The scope of the work to be performed by the inspector on the job site shall be as follows:
   a. Verify that air temperatures at the point of placement in the structure are within acceptable limits as specified prior to ordering of concrete by the Contractor.
   b. Inspect concrete upon arrival to verify that the proper concrete mix number, type of concrete, and concrete strength is being placed at the proper location.
   c. Inspect plastic concrete upon arrival at the job site to verify proper batching. The responsibility for adding water to trucks at the job site shall rest only with a duly appointed representative mutually agreeable to the Contractor, Heard County Board of Commissioners, and Engineer, prior to the start of any concrete operations.
   d. Obtain concrete test cylinders as specified.
   e. Perform slump tests and air entrainment tests as specified.
   f. Record information for concrete test reports as specified.
   g. Verify that all concrete being placed meets job Specifications. Reject concrete not meeting the specified requirements and immediately notify Contractor, Batch Plant Inspector, Gardner Spencer Smith Tench & Jarbeau, P.C., Engineer, and Heard County Board of Commissioners.
   h. Pick up and transport to Laboratory, cylinders cast the previous day.
   i. Check concrete placing techniques to determine that concrete deposited is uniform and that vertical drop does not exceed six feet.
   j. The job site inspector shall report any irregularities that occur in the concrete at the job site or test results to Contractor, Gardner Spencer Smith Tench & Jarbeau, P.C., Heard County Board of Commissioners, and Engineer.

F. Causes for Rejection of Concrete Delivered to the Site:
   1. A duly appointed representative agreeable to the Gardner Spencer Smith Tench & Jarbeau, P.C., Heard County Board of Commissioners and Engineer, shall reject all concrete delivered to the site for any of the following reasons:
      a. Wrong class of concrete (incorrect mix design number).
      b. Air Temperature: Air temperature limits shall be as follows:
         1) Cold Weather: Air temperature must be 40°F. and rising.
         2) Hot Weather: Air temperature must be cooler than 100°F.
         3) Concrete may be placed at other air temperature ranges only with approval to the duly appointed representative.
      c. Concrete with temperatures exceeding 95°F may not be placed in the structure without approval of the job inspector for the Testing Laboratory or other duly appointed representative.
      d. Air contents outside the limits specified in the mix designs.
      e. Slumps outside the limits specified or the mix design.
      f. Excessive Age: Concrete shall be discharged within 90 minutes of plant departure or before it begins to set if sooner than 90 minutes unless approved by the Laboratory job inspector or other duly appointed representative.

1.10 EXTENT OF SERVICES FOR STRUCTURAL STEEL AND RELATED WORK

A. Heard County Board of Commissioners Responsibility: Heard County Board of Commissioners shall pay for all initial shop and field inspections and tests as required during, the fabrication and erection of the structural steel.

B. Contractor Responsibility: Contractor shall pay for and arrange with the Testing Laboratory for the certification of all shop and field welders. The costs of all re-testing of material or workmanship not in conformance with the Contract Documents shall be borne by Contractor.

C. The Fabricator and Erector shall provide the laboratory inspector with access to all places where work is being done. A minimum of 24 hours notification shall be given prior to commencement of work.

D. Testing Laboratory Responsibility: The inspection of shop work by the Testing Laboratory shall be performed in the Fabricator's shop to the fullest extent possible. Such inspections shall be in sequence, timely, and performed in such a manner as to minimize disruptions in operations and to permit the repair of all non-conforming work while the materials in process in the fabricating shop. Inspection of field work shall be completed promptly so that corrections can be made without delaying the progress of the work. The Testing Laboratory shall provide test reports of all shop and field inspections. Shop test reports shall include shop welders certifications.

E. All test reports shall indicate types and locations of all defects found during inspection, the performed to correct such defects, statements of final measures required and approval of all welding and bolting of shop and field In addition to the parties listed, the fabricator and erector shall receive copies of all test reports.

F. Gardner Spencer Smith Tench & Jarbeau, P.C., Engineer, and Testing Laboratory reserve the right to reject any material or workmanship not in conformance with the Contract Documents at any time during the progress of the work. However, this provision does not allow waiving the obligation for timely, in sequence inspection.

G. Mill Tests of Structural Steel:
   1. Mill Order Steel: The Fabricator shall furnish certified mill test reports and an affidavit stating that the structural steel furnished meets the requirements of the grade specified on the structural drawings for all mill order steel. In case of controversy, certified reports of tests, according to ASTM A6 or A568 as applicable, made by the Heard County Board of Commissioners's Testing

Laboratory, paid for by the Contractor, shall be made to verify conformity with ASTM standards.

2. Local Stock Steel: Materials taken from stock by a Fabricator for use for structural purposes must be of a quality at least equal to that required by the ASTM specifications applicable to the classification covering the Intended use.
3. Certified mill test reports shall be accepted as sufficient record of the quality of materials carried in stock by the fabricator. In case of controversy, certified reports as specified for mill order steel shall be required.
4. If tests are required, test specimens shall be taken by Contractor under the direction of the Testing Laboratory and shall be machined by the Testing Laboratory to dimensions as required by the applicable ASTM standards.

H. Shop Inspections and Tests: The Testing Laboratory shall provide inspection at the designated fabrication shops for the designated periods of time to perform shop inspection and tests. The designated fabrication shops and time periods of inspections shall be determined in consultation with Gardner Spencer Smith Tench & Jarbeau, P.C., Heard County Board of Commissioners, and Engineer prior to the start of fabrication in a timely manner so as not to delay the fabrication process. The following tests and inspections shall be performed:
   1. Review shop drawings and shop procedures with fabricator's supervisory personnel.
   2. Review welding procedures and obtain welder certificates.
   3. Verify welding electrodes to be used and other welding consumables as the job progresses.
   4. Provide inspection of surface preparation for coating and coating operations.

I. Inspections and Tests: The Testing Laboratory shall provide inspection in the field for a period of time as determined in consultation with Gardner Spencer Smith Tench & Jarbeau, P.C., Heard County Board of Commissioners, and Engineer prior to the start of erection in a timely manner so as to not delay the start of erection. The following tests and inspections shall be made:
   1. Obtain the planned erection procedure, and review with the Erector's supervisory personnel.
   2. Check the installation of base plates for proper leveling grout type, and grout application.
   3. Verify field welding procedures and obtain welder certificates.
   4. Check steel as received in the field for possible shipping damage, workmanship, and piece marking.
   5. Check plumbing and frame alignment as erection progresses.
   6. Check required camber of floor beams.
   7. Check joint preparation and fit up, backing strips, and run-out plates for welded moment connections and column splices.
   8. Check pre-heating to assure proper temperature, uniformity and thoroughness through the full material thickness.
   9. Review welding sequence.
   10. Visually inspect field welding for size, length, and quality.
   11. Perform non-destructive examination services for various weldments of field erection determined in consultation with the Structural Engineer prior to the start of erection. The laboratory shall furnish a qualified technician with the necessary equipment to perform radiographic, ultrasonic, magnetic particle, or dye penetrant inspection as required for the item being tested and other duties as outlined for shop inspection.
   12. Check calibration of impact wrenches used in field bolted connections.
   13. Check high strength field bolted connections according to inspection procedures outlined in the "Specification for Structural Joints Using ASTM A325 or A490 Bolts". Unless specified otherwise, test one (1) bolt in 10% of the bolted

connections. If that bolt is found to be improperly tightened, test all bolts in the connection.

14. Visually inspect the welding of metal deck to the structure.
15. Perform field tests on 10% of completed shear connectors according to inspection procedures outlined in AWS 01.1.

1.11 EXTENT OF SERVICES FOR ASPHALTIC CONCRETE

A. Make one laboratory density and stability test on each type of asphaltic concrete for each day's operation in accordance with ASTM 01559. Provide one test per 5000 sf surface area.

B. Make one extraction and gradation test on each type of asphaltic concrete for each day's operation in accordance with ASTM 02726.

PART 2 PRODUCT - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 6000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Substitution limitations and procedures.

E. Procedures for Heard County Board of Commissioners-supplied products.

F. Spare parts and maintenance materials.

1.02 RELATED SECTIONS

A. Section 01 1000 - Summary: Lists of products to be removed from existing building.

B. Section 01 3500 - Substitution Procedures: Product options and substitution procedures.

C. Section 01 4000 - Quality Requirements: Product quality monitoring.

1.03 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
   1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
   2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
   3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

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

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

D. Manufacturer,' s Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Heard County Board of Commissioners.

E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Heard County Board of Commissioners.

1.04 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
   1. Submit within 15 days after date of Agreement.

2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

E. Indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

F. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. Store products to allow for inspection and measurement of quantity or counting of units.
6. Store materials in a manner that will not endanger Project structure.
7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
9. Protect stored products from damage.

B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Heard County Board of Commissioners's construction forces. Coordinate location with Heard County Board of Commissioners.

1.06 PRODUCT WARRANTIES

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

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 PRODUCTS

2.01 PRODUCT OPTIONS

A. General Product Requirements: Provide products that comply the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
   1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
   2. Standard Products: Unless custom products or nonstandard options, are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
   3. Heard County Board of Commissioners reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
   4. Where products are accompanied by the term "as selected," Gardner Spencer Smith Tench & Jarbeau, P.C. will make selection.
   5. Where products are accompanied by the term "match sample," sample to be matched is Gardner Spencer Smith Tench & Jarbeau, P.C.'s.
   6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteistics" of products.

B. Product Selection Procedures: Procedures for product selection include the following:
   1. Product: Where Specification paragraphs or subparagraphs titled "Product:" name a single product and manufacturer, provide the product named.
   2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.
   3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
   4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
   5. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Product[s]" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
   6. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Gardner Spencer Smith Tench & Jarbeau, P.C.'s sample. Gardner Spencer Smith Tench & Jarbeau, P.C.'s decision will be final on whether a proposed product matches satisfactorily.
   7. Visual Selection Specification: Where Specifications include, the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
      a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color,

pattern, or texture from manufacturer's product line that does not include premium items.

b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Gardner Spencer Smith Tench & Jarbeau, P.C. will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.

8. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 01 for allowances that control product selection and for procedures required for processing such selections.

2.02 EXISTING PRODUCTS

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

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

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

D. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

2.03 NEW PRODUCTS

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

2.04 COMPARABLE PRODUCTS

A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:

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

2.05 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Provide spare parts, maintenance, and extra products of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Comply with requirements specified in Section 01 3500 - Substitution Procedures.

3.02 OWNER-SUPPLIED PRODUCTS

A. See Section 01 1000 - Summary for identification of Heard County Board of Commissioners-supplied products.

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

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

3.03 TRANSPORTATION AND HANDLING

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

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

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

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

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

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

3.04 STORAGE AND PROTECTION

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

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

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

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

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

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

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

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

END OF SECTION

SECTION 01 7000
EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Pre-installation meetings.

C. Cutting and patching.

D. Surveying for laying out the work.

E. Field engineering.

F. General installation of products.

G. Coordination of Owner-installed products.

H. Cleaning and protection.

I. Starting of systems and equipment.

J. Demonstration and instruction of Heard County Board of Commissioners personnel.

K. Closeout procedures, except payment procedures.

L. General requirements for maintenance service.

1.02 RELATED SECTIONS

A. Section 01 1000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 01 3000 - Administrative Requirements: Submittals procedures.

C. Section 01 4000 - Quality Requirements: Testing and inspection procedures.

D. Section 01 7310 - Cutting and Patching: Additional procedures for cutting and patching work.

E. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

F. Individual Product Specification Sections:
   1. Advance notification to other sections of openings required in work of those sections.

1.03 SUBMITTALS

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

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
   1. On request, submit documentation verifying accuracy of survey work.
   2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
   3. Submit surveys and survey logs for the project record.

C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
   4. Visual qualities of sight exposed elements.
   5. Work of Heard County Board of Commissioners or separate Contractor.
   6. Include in request:
      a. Identification of Project.

b. Location and description of affected work.
c. Necessity for cutting or alteration.
d. Description of proposed work and products to be used.
e. Effect on work of Heard County Board of Commissioners or separate Contractor.
f. Written permission of affected separate Contractor.
g. Date and time work will be executed.

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

E. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.04 QUALIFICATIONS

A. For survey work, employ a land surveyor registered in 10/01/21 and acceptable to Gardner Spencer Smith Tench & Jarbeau, P.C.. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.
1. Certificates: Submit documentation signed by professional engineer or licensed surveyor certifying that location and elevation of improvements comply with requirements.

B. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in the State of Georgia.

1.05 PROJECT CONDITIONS

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

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

C. Fire Protection:
1. Keep flammable materials in non-combustible containers; store away from potential fire sources; remove flammable wastes regularly.
2. Keep temporary and permanent fire fighting facilities readily accessible; keep fire fighting routes open.
3. Do not allow smoking in areas where highly combustible or explosive materials are present.
4. Carefully supervise the operation of potential fire sources, including heating units.
5. Conduct welding operations in manner to prevent fire; comply with local regulations.

D. Physical Hazard Protection:
1. Provide barricades, warning lights, or signs as required to inform personnel and the public of hazard being protected against.
2. Barricades: Comply with regulations.
3. Provide temporary walkways where walking surfaces are hazardous.
4. Notify the Heard County Board of Commissioners before beginning work that involves hazardous operations, including use of explosives and the like.
5. Comply with other requirements and recommendations of the Contractor's or Heard County Board of Commissioners's insurance carrier relative to minimum protection of people and property.

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

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

G. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
   1. Minimize amount of bare soil exposed at one time.
   2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
   3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
   4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

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

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

J. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

K. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.06 COORDINATION

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

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

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

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

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

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

G. After Heard County Board of Commissioners occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Heard County Board of Commissioners's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

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

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

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Division 01.

PART 3 EXECUTION

3.01 EXAMINATION

A. Existing utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
   1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
   2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
      a. Description of the Work.
      b. List of detrimental conditions, including substrates.
      c. List of unacceptable installation tolerances.
      d. Recommended corrections.
   2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

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

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

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

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

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

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

3.02 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

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

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

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

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

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

G. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

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

C. Notify Gardner Spencer Smith Tench & Jarbeau, P.C. 2 weeks days in advance of meeting date.

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

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Gardner Spencer Smith Tench & Jarbeau, P.C., Heard County Board of Commissioners, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

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

B. Promptly notify Gardner Spencer Smith Tench & Jarbeau, P.C. of any discrepancies discovered.

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

D. Promptly report to Gardner Spencer Smith Tench & Jarbeau, P.C. the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Gardner Spencer Smith Tench & Jarbeau, P.C..

F. Utilize recognized engineering survey practices.

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

H. Periodically verify layouts by same means.

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

J. Site Improvements: Locate and lay out site improvements including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

K. Building Lines and Levels: Locate and layout control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

L. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather

conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.05 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing benchmarks or control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
   1. Do not change or relocate existing benchmarks or control points without prior written approval of the Architect. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
   2. Report lost or destroyed permanent benchmarks or control points promptly. Base replacements on original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
   1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
   2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
   3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
   4. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

D. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional engineer or licensed surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
   1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
   2. Recording: At Final Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.06 GENERAL INSTALLATION REQUIREMENTS

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

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

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

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

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

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

G. Where space is limited, install components to maximize space available for maintenance and to maximize ease of removal for replacement.

H. In finished areas, conceal pipes, ducts, and wiring within construction, unless otherwise indicated.

I. Coordinate exact locations of fixtures and outlets with finish elements.

J. Maintain minimum headroom clearance of 8 feet (2.4 m) in spaces without a suspended ceiling.

3.07 INSTALLATION OF COMPONENTS

A. Mounting heights: Obtain Gardner Spencer Smith Tench & Jarbeau, P.C. instructions for uncertain mounting heights.

B. Separate incompatible materials with suitable materials or spacing to prevent cathodic corrosion.

C. Provide all anchors and fasteners required and use methods necessary to securely fasten work.
   1. Allow for thermal expansion and contraction, and for building movement.

D. After installation, adjust operating components to proper operation.

E. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

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

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
   1. Allow for building movement, including thermal expansion and contraction.

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

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.08 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-conforming work.

C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

F. Restore work with new products in accordance with requirements of Contract Documents.

G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.

I. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.09 OWNER INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction forces.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
   1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
   2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.10 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use and where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27deg C) .
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

D. Concealed Spaces: Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

E. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

F. Clean areas in which work is to be done to the level of cleanliness necessary for proper execution of that work.
   1. Where dust would impair execution of work, broom- and vacuum-clean the entire interior area and keep clean.

G. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

H. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

I. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
   1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

J. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

K. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

L. Clean and provide maintenance on completed construction as frequently as necessary through the, remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

M. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.11 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Prohibit traffic from landscaped areas.

H. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.12 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Gardner Spencer Smith Tench & Jarbeau, P.C. and owner seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.13 DEMONSTRATION AND INSTRUCTION

A. Demonstrate operation and maintenance of products to Heard County Board of Commissioners's personnel two weeks prior to date of Substantial Completion.

B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

D. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Heard County Board of Commissioners's personnel in detail to explain all aspects of operation and maintenance.

F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

3.14 ADJUSTING

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

B. Testing, adjusting, and balancing HVAC systems: See Division 15.

3.15 FINAL CLEANING

A. Execute final cleaning prior to Substantial Completion.
   1. Clean areas to be occupied by Heard County Board of Commissioners prior to final completion before Heard County Board of Commissioners occupancy.

B. Use cleaning materials that are nonhazardous.

C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean filters of operating equipment.

F. Clean debris from roofs, gutters, downspouts, and drainage systems.

G. Clean site; sweep paved areas, rake clean landscaped surfaces.

H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.16 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Gardner Spencer Smith Tench & Jarbeau, P.C. and Heard County Board of Commissioners.
      a. Obtain Certificate of Occupancy for posting as directed by Heard County Board of Commissioners
      b. Obtain elevator inspection (if any) required by governing authorities for operation of equipment and mount as required.

B. Notify Gardner Spencer Smith Tench & Jarbeau, P.C. when work is considered ready for Substantial Completion.

C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Gardner Spencer Smith Tench & Jarbeau, P.C.'s review.

D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Heard County Board of Commissioners-occupied areas.

E. Notify Gardner Spencer Smith Tench & Jarbeau, P.C. when work is considered finally complete.

F. Complete items of work determined by Gardner Spencer Smith Tench & Jarbeau, P.C.'s final inspection.

3.17 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Heard County Board of Commissioners.

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 02 through 14 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
   1. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 21-23 and 26 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

B. Division 07 Section "Through-penetration Firestop Systems" for patching fire-rated construction.

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

D. Section 01 2000 - Price and Payment Procedures: Applications for payment, Schedule of Values, modifications procedures, closeout procedures.

E. Section 01 2100 - Allowances: Cash, testing, and contingency allowances.

F. Section 01 3000 - Administrative Requirements: Submittal procedures, project meetings, progress schedules and documentation, reports, coordination.

G. Section 01 4000 - Quality Requirements: Procedures for testing, inspection, mock-ups, reports, certificates; use of reference standards.

H. Section 01 6000 - Product Requirements: Fundamental product requirements, substitutions and product options, delivery, storage, and handling.

I. Section 01 7000 - Execution Requirements: Examination, preparation, and general installation procedures; preinstallation meetings; cutting and patching; cleaning and protection; starting of systems; demonstration and instruction; closeout procedures except payment procedures; requirements for alterations work.

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

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.
7. Gardner Spencer Smith Tench & Jarbeau, P.C.'s Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

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 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.

C. Miscellaneous Elements: Do not cut and patch 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.

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 & Jarbeau, P.C.'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.

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.

3.05 ATTACHMENTS

3.06

3.07

3.08

A. REQUEST FOR DEPARTMENT-UTILITY INTERRUPTION

B. DATE: _____ REQUEST NO.:_____

C. **********

D. PROPOSED INTERRUPTION: FROM: (DATE)_____

E. (TIME)_____

F. TO:(DATE)_____

G. (TIME)_____

H. **********

I. APPROVALS NEEDED:

J. _____DATE:_____

K. _____DATE:_____

L. _____DATE:_____

M. _____DATE:_____

N. **********

O. PLEASE INDICATE THE TYPE OF UTILITY TO BE AFFECTED:

P. [ ] WATER[ ] ELECTRIC[ ] PHONE[ ]GASES

Q. [ ] HVAC[ ] SEWER[ ] EXHAUST[ ]VACUUM

R. [ ] ALARM[ ] OTHER_____

S. **********

T. LOCATION OF THE UTILITY WORK TO BE DONE:_____

U. _____

V. _____

W. **********

X. COPIES:

Y. SUB-CONTRACTOR:

Z. NOTES:

AA.

BB.

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. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

B. Division 01 Section "Construction Progress Documentation" for submitting Final Completion construction photographs and negatives.

C. Division 01 Section "Execution Requirements" for progress cleaning of Project site.

D. Specification Sections for specific closeout and special cleaning requirements for products of those Sections.

E. Section 00 7200 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

F. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

G. Section 01 7000 - Execution Requirements: Contract closeout procedures.

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

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

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Gardner Spencer Smith Tench & Jarbeau, P.C. 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. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Gardner Spencer Smith Tench & Jarbeau, P.C. will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by Heard County Board of Commissioners, submit completed documents within ten days after acceptance.
   3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Gardner Spencer Smith Tench & Jarbeau, P.C. comments. Revise content of all document sets as required prior to final submission.

4. Submit two sets of revised final documents in final form within 10 days after final inspection.

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. Deliver tools, spare parts, extra materials, and similar items to location designated by Heard County Board of Commissioners. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Heard County Board of Commissioners. Advise Heard County Board of Commissioners's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records bearing Gardner Spencer Smith Tench & Jarbeau, P.C.'s approval without exception.
10. Terminate and remove temporary facilities from Project site, along with mockups, Project signs, construction tools, and similar elements.
11. Advise Heard County Board of Commissioners of changeover in heat and other utilities.
12. Submit changeover information related to Heard County Board of Commissioners 's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. 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 & Jarbeau, P.C. will either proceed with inspection or notify Contractor of unfulfilled requirements. Gardner Spencer Smith Tench & Jarbeau, P.C. 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 & Jarbeau, P.C., 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 according to Division 1 Section "Payment Procedures."
   2. Submit certified copy of Gardner Spencer Smith Tench & Jarbeau, P.C.'s Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Gardner Spencer Smith Tench & Jarbeau, P.C.. 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. Submit pest-control final inspection report and warranty.
   5. 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 & Jarbeau, P.C. will either proceed with inspection or notify Contractor of unfulfilled requirements. Gardner Spencer Smith Tench & Jarbeau, P.C. will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

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 & Jarbeau, P.C. 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: Legibly mark each item to record actual construction including:
1. Measured depths of foundations in relation to finish first floor datum.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
a. Actual routings of piping and conduits.
b. Revisions to electrical circuits.
c. Sizes and routings of ducts.
d. Actual equipment locations.
4. Particulars on concealed products which will not be easy to identify later.
5. Field changes of dimension and detail.
6. Details not on original Contract drawings.
a. Note changes made by modifications to the contract; include identification numbers if applicable.
7. 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 a 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 & Jarbeau, P.C. will make the original contract drawings available to the Contractor for printing transparencies.

I. Where record drawings are also required as part of operation and 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 operation and maintenance data into durable manuals for Heard County Board of Commissioners's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. 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 & Jarbeau, P.C., 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, or typewritten data on 24 pound paper.

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, in three parts as follows:
   1. Part 1: Directory, listing names, addresses, and telephone numbers of Gardner Spencer Smith Tench & Jarbeau, P.C., Contractor, Subcontractors, and major equipment suppliers.
   2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
      a. Significant design criteria.
      b. List of equipment.
      c. Parts list for each component.
      d. Operating instructions.
      e. Maintenance instructions for equipment and systems.
      f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
   3. Part 3: Project documents and certificates, including the following:
      a. Shop drawings and product data.
      b. Air and water balance reports.
      c. Certificates.
      d. Photocopies of warranties and bonds.

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 & Jarbeau, P.C. , 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. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
   3. Schedule training with Heard County Board of Commissioners, through Gardner Spencer Smith Tench & Jarbeau, P.C. with at least seven days' advance notice.
   4. 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. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Replace parts subject to unusual operating conditions.
o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grilles.
q. Clean ducts, blowers, and coils if units were operational without filters during construction.
r. 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.
s. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pest. Prepare and submit a written report for file.

3.07 ATTACHMENTS

1. CHECK-OFF LIST
1.
1. DOCUMENTNO. OF COPIESDATE RECEIVED
1. **********
1. CONTRACTORS WARRANTY_____
1. SUBCONTRACTORS WARRANTY_____
1. STATUTORY AFFIDAVIT_____
1. NON-INFLUENCE AFFIDAVIT_____
1. INSPECTION REPORTS
1. SITE_____
1. BUILDING_____
1. PLUMBING_____
1. ELECTRICAL_____
1. HEALTH_____
1. OTHER_____
1. FIRE MARSHAL OCCUPANCY CERTIFICATE _____
1. AS-BUILT DRAWINGS_____
1. MAINTENANCE MANUALS_____
1. STAFF INSTRUCTIONS_____
1. SPECIAL WARRANTIES_____
1. CERTIFICATE OF SUB. COMPLETION*_____
1. CERTIFICATE OF COMPLETION**_____

1.
1. I certify that, being familiar with the Contract Documents for this project, to the best of my knowledge, the items checked off herein above constitute all that are applicable to this project.
1.
1. Date submitted to Gardner Spencer Smith Tench & Jarbeau, P.C.. _____
1. Date submitted to the Heard County Board of Commissioners._____
1. CONTRACTOR_____
1. * Submit following Owner's acceptance of building for use.
1. ** Hold all other documents and submit in a package when all requirements are complete. (No exceptions, piecemeal submittal will be returned.)
1. WARRANTY BY CONTRACTOR
1.
1. **********
1.
1. OWNER: Heard County Board of Commissioners
1.
1. JOB NAME:_____
1.
1. ADDRESS:_____
1.
1. COUNTY OF:_____
1.
1. STATE OF:_____
1.
1. DATE:_____
1.
1. _____, as General Contractor on the above job does hereby guarantee that all work executed under the plans and Specifications will be free from defects of materials and/or workmanship for a period of _____Year(s), beginning_____and ending_____and that all defects occurring within the warranty period shall be replaced or repaired at no cost to Heard County Board of Commissioners.
1.
1. This guarantee covers all work as shown on the plans and specified in the Specifications and Contract Documents.
1.
1. LEGAL NAME OF CONTRACTOR
1. _____
1. By:_____
1. Title:_____
1. _____
1. Notary Public

1. This ____day of_____, 20____.
1.
1. WARRANTY BY SUBCONTRACTOR
1.
1. **********
1.
1. OWNER: Heard County Board of Commissioners
1.
1. JOB NAME:_____
1.
1. ADDRESS:_____
1.
1. COUNTY OF:_____
1.
1. STATE OF:_____
1.
1. DATE:_____
1.
1. _____, as Sub-Contractor on the above job does hereby guarantee that all work executed under the plans and Specifications will be free from defects of materials and/or workmanship for a period of _____Year(s), beginning_____and ending_____and that all defects occurring within the warranty period shall be replaced or repaired at no cost to Heard County Board of Commissioners.
1.
1. This guarantee covers all work as shown on the plans and specified in the Specifications and Contract Documents.
1.
1. LEGAL NAME OF SUBCONTRACTOR
1. _____
1. By:_____
1. Title:_____
1. _____
1. Notary Public
1. This ____day of_____, 20____.
1.

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 2000 - Price and Payment Procedures: Applications for payment, Schedule of Values, modifications procedures, closeout procedures.

C. Section 01 2100 - Allowances: Cash, testing, and contingency allowances.

D. Section 01 2300 - Alternates: Descriptions of items, administrative requirements.

E. Section 01 3000 - Administrative Requirements: Submittal procedures, project meetings, progress schedules and documentation, reports, coordination.

F. Section 01 4000 - Quality Requirements: Procedures for testing, inspection, mock-ups, reports, certificates; use of reference standards.

G. Section 01 5000 - Temporary Facilities and Controls.

H. Section 01 6000 - Product Requirements: Fundamental product requirements, substitutions and product options, delivery, storage, and handling.

I. Section 01 7000 - Execution and Closeout Requirements: Examination, preparation, and general installation procedures; preinstallation meetings; cutting and patching; cleaning and protection; starting of systems; demonstration and instruction; closeout procedures except payment procedures; requirements for alterations work.

J. 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 of Division 01 through 48. 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 & Jarbeau, P.C.'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 & Jarbeau, P.C.'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 of Division 02 through 48.

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. Wipe surfaces of mechanical and electrical equipment clean, including equipment in addition to that specified in Division 23 and 26; remove excess lubrication and other substances.
5. Remove debris and surface dust from limited-access spaces including roofs, plenums shafts, trenches, equipment vaults, manholes, attics and similar spaces.
6. Clean concrete floors in non-occupied spaces broom clean.
7. 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 4221
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section covers site work to demolish and remove from the site existing items that interfere with proposed construction and protection of existing items to remain, Cooperation with the Heard County Board of Commissioners in phasing the work to accommodate existing site users is of the essence.
   1. Demolition of designated structures and removal of materials from site.
   2. Demolition and removal of foundations and slabs on grade.
   3. Disconnecting and removal of identified utilities.
   4. Abandonment and removal of existing utilities and utility structures.

1.02 RELATED SECTIONS

A. Section 01 5000 - Temporary Facilities and Controls: Barriers, Fences and Landscape Protection.

B. Section 01 6000 - Product Requirements.

C. Section 01 7000 - Execution Requirements: Re-installation of removed components.

D. Section 01 7800 - Closeout Submittals: Project record documents.

1.03 REFERENCES

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2000.

1.04 SUBMITTALS

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

B. Shop Drawings: Indicate demolition, removal sequence, and location of salvageable items; location and construction of barricades.
   1. Site Plan: Showing:
      a. Vegetation to be protected.
      b. Areas for temporary construction and field offices.
      c. Areas for temporary and permanent placement of removed materials.
   2. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
      a. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
      b. Identify demolition firm and submit qualifications.
      c. Include a summary of safety procedures.
      d. Submit proposed dust control measures.
      e. Submit proposed noise control measures.

C. Project Record Documents: Accurately record actual locations of capped utilities and subsurface obstructions.
   1. Provide lateral location dimensions and depth of utility as surveyed from established project floor level elevations.

1.05 QUALITY ASSURANCE

A. Demolition Firm: Company specializing in type of work required by this section, with minimum five years of documented experience.

B. Comply with other requirements specified in General Conditions.

1.06 PROJECT CONDITIONS

A. It is the Contractor's responsibility to coordinate each phase of the demolition and relocation of utilities. No utilities are to be shut-off, disconnected or re-connected to a new system without proper written notification to Gardner Spencer Smith Tench & Jarbeau, P.C..

B. Existing Conditions: After the project is started, the Contractor is responsible for the condition of structures to be demolished. Heard County Board of Commissioners does not warrant that the condition of structure to be demolished will not have changed since the time of inspection.

C. Unforeseen Conditions: Should unforeseen conditions be encountered that affect design or function of project, investigate fully and submit an accurate, detailed, written report to Gardner Spencer Smith Tench & Jarbeau, P.C.. While awaiting Gardner Spencer Smith Tench & Jarbeau, P.C. response, reschedule operations if necessary to avoid delay of overall project.

1.07 REGULATORY REQUIREMENTS

A. Conform to applicable code for demolition of structures, safety of adjacent structures, dust control.

B. Obtain required permits from authorities.

C. Notify affected utility companies before starting work and comply with their requirements.

D. Do not close or obstruct roadways without permits.

E. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.

1. Test existing paint for lead content where new paint or coatings are designated to be applied. Follow Heard County Board of Commissioners's directions for termination of work and removal of contaminated materials prior to completion of contract requirements. Testing and removal of contaminated materials is not a part of this contract.

F. Active Utilities: Contractor is advised of utilities (underground and overhead) and shall protect from damage and remove or relocate as necessary for new construction. Contractor shall notify the local utility providers for field verification of utility locations if Utilities Protection Center is unable to locate Contractor shall field verify.

G. Inactive and Abandoned Utilities: Remove, plug or cap. In absence of specified requirements, plug or cap such utility lines as required by local regulations.

H. Materials demolished and items removed shall become the property of the Contractor and shall be removed from the site, except for salvageable items as specified by Heard County Board of Commissioners.

I. Utilities Protection Law (Dig Law): Comply with the State of Georgia Utilities Protection Law.

J. Test soils around buried tanks for contamination.

1.08 SEQUENCING

A. Cooperation with the Heard County Board of Commissioners in phasing the work to accommodate existing site users is of the essence.

B. Contractor shall visit the site, familiarize himself with actual conditions, and verify existing conditions in the field.

C. Before commencing work, verify bench marks and all reference points. Report any variation from the existing conditions that are indicated on the documents to Gardner Spencer Smith Tench & Jarbeau, P.C. for written instructions.

D. All existing curb and gutter, paving, structures, utilities and all other existing items that are located where proposed items are to be built shall be removed.

E. Trees indicated to remain on plans shall be saved and shall be protected by erection of a temporary fence around the tree, if needed or directed by Gardner Spencer Smith Tench & Jarbeau, P.C..

F. Provide all barricades, guards, lights and other installations required to protect persons and property during this part of the work. This shall be in addition to such protection required elsewhere in this specification.

1.09 SCHEDULING

A. Schedule demolition activities under the provisions of Section 01 3200 - Construction Progress Documentation.

B. Schedule demolition activities to precede site excavation work.

C. Contractor shall be responsible to secure the services of a private utility locator service in addition to contacting the Utilities Protection Center of the State of Georgia, Before starting any work, Contractor shall make such explorations and probes as are necessary to ascertain any wet sewer lines, water supply lines, live electrical conduits, live phone lines, live gas lines and all other utilities, and shall make sure these utilities can be broken or changed without danger or disruption to any necessary service. Disconnect and de-activate all existing utilities before proceeding with the work, except as specified above or otherwise shown on plans.

D. Demolish and remove from site the existing structures, footings, utilities, curb and gutter, slabs, walks, paving, steps, and any other item above or below ground that interferes with construction of the project as shown on plans.

E. All existing utility poles and guy wires shown within the construction area shall be removed or relocated as needed at the Contractor's expense. All other utilities, fire hydrants, meters valve boxes, cut-offs, other utilities and other installations shall be removed or relocated at the Contractor's expense.

F. Describe demolition removal procedures and schedule.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Division 31.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that utilities have been disconnected and sealed.

B. Survey existing conditions and correlate with drawings and specifications to determine extent of demolition required.

C. Insofar as practicable, arrange operations to reveal unknown or concealed structural conditions for examination and verification before removal or demolition.

D. Verify actual conditions to determine in advance whether removal or demolition of any element will result in structural deficiency, overloading, failure, or unplanned collapse.

E. Perform continuing surveys as the work progresses to detect hazards resulting from demolition construction activities.

3.02 PREPARATION

A. Hazardous Materials: Report any detection of hazardous materials to Gardner Spencer Smith Tench & Jarbeau, P.C. for further direction.

B. Provide, erect, and maintain temporary barriers and security devices . This shall be in addition to such protection required elsewhere in this specification.

C. Protect existing landscaping materials, appurtenances, and structures that are not to be demolished.

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

E. Mark location of utilities.

F. Damages: Without cost to Heard County Board of Commissioners and without delay, repair any damages caused to facilities to remain.

3.03 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent structures.

B. Cease operations immediately if adjacent structures appear to be in danger. Notify Gardner Spencer Smith Tench & Jarbeau, P.C. and authority having jurisdiction; do not resume operations until directed.

C. Conduct operations with minimum interference to public or private accesses. Maintain protected egress and access at all times.

D. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon or limit access to their property.

E. Sprinkle demolition areas with water to minimize dust. Provide hoses and water connections for this purpose.

3.04 DEMOLITION

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

B. Remove concrete slabs on grade.

C. Break up site paving in areas indicated.

D. Backfill areas excavated caused as a result of demolition.

E. Rough grade and compact areas affected by demolition to maintain site grades and contours.

F. Remove demolished materials from site.

G. Do not burn or bury materials on site. Leave site in clean condition.

H. Remove temporary work.

3.05 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Active utilities: Contractor is advised of utilities (underground and overhead) and shall protect from damage and remove or relocate as necessary for new construction. Contractor shall notify the local utility providers for field verification of utility locations.

C. Protect existing utilities to remain from damage.

D. Do not disrupt public utilities without permit from authority having jurisdiction.

E. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Heard County Board of Commissioners.

F. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Heard County Board of Commissioners.

G. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

H. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

I. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

J. Inactive and Abandoned Utilities: Remove, plug or cap. In absence of specified requirements, plug or cap such utility lines as required by local regulations.

K. Bypass Connections: Provide as necessary to maintain service to occupied areas.

3.06 POLLUTION CONTROLS

A. Control as much as practicable to spread of dust and dirt.

B. Observe environmental protection regulations.

C. Do not allow water usage that results in freezing or flooding.

D. Do not allow adjacent improvements to remain to become soiled by demolition operations.

3.07 EXISTING BUILT ELEMENTS

A. Scope:
   1. Materials demolished and items removed shall become the property of Contractor and shall be removed from the site, except for salvageable items as specified by Heard County Board of Commissioners.
   2. Remove paving and curbs as required to accomplish new work.
   3. Remove concrete slabs on grade where shown on drawings.
   4. Remove other items indicated, for salvage, relocation, and recycling.
   5. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Comply with applicable requirements of NFPA 241.
   3. Use of explosives is not permitted.
   4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   5. Provide, erect, and maintain temporary barriers and security devices.
   6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   8. Do not close or obstruct roadways or sidewalks without permit.
   9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

C. Do not begin removal until receipt of notification to proceed from Heard County Board of Commissioners.

D. Do not begin removal until built elements to be salvaged or relocated have been removed.

E. Protect existing structures and other elements that are not to be removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

F. If hazardous materials are discovered during removal operations, stop work and notify Gardner Spencer Smith Tench & Jarbeau, P.C. and Heard County Board of Commissioners; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

G. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Dismantle existing construction and separate materials.
   2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

H. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

I. Do not burn removed materials on project site.

3.08 REPAIRS AND PATCHING

A. Repair excess demolition.

B. Employ skilled workmen to perform repair work.

C. Where installation of similar new work is included, perform repairs in manner specified for installation of new work.

D. Where similar new work is not included in the project, perform repairs using approved materials that are appropriate to the repair and, where practicable, are identical to the existing materials being repaired.

E. Restore exposed finished patched areas in a manner which eliminates evidence of repairs.
   1. Continuous surfaces: Extend refinish to nearest intersection, with a neat transition to adjacent surfaces.
   2. Assemblies: Refinish entire unit.
   3. Painted piping, conduit, and duct: Clean and repaint.

3.09 CLEANING

A. Remove tools and equipment. Dispose of scrap.

B. Leave exterior areas free of debris.

C. Existing structures and site features to remain shall be returned to the condition prior to the commencement of construction.

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. Restoring easements and rights of way.
   2. Surveying as-built conditions for the purpose of obtaining required governmental approvals..
   3. Incidental work.

1.02 SUBMITTALS

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

B. Project Record Documents: Record actual locations of new utilities and services, foundations , and site work.

1.03 QUALITY ASSURANCE

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

B. Retain services of a Professional Engineer experienced in this Work and licensed in 10/01/21 for the following:
   1. Restoring easements and right of way and required as-built conditions, as required by the governmental authorities.

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' 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 & Jarbeau, P.C. in writing of visible defects and factors that could affect Substantial Completion of project..

3.02 INSTALLATION

A. Restoring the Easement and Right-of Way:
   1. The Contractor shall be responsible for all damage to private property due to his operations. He shall protect from injury all walls, fences, cultivated shrubbery, pavement, underground facilities, such as water pipe, or other utilities which may

be encountered along private and public easements. If removal and replacement are required, it shall be done so that the replacement is equivalent to that which existed prior to construction.

2. Existing lawn surfaces damaged by the construction shall be replaced. Cut and replace the sod, or restore the areas with an equivalent depth and quality of loam, seed and fertilizer. These areas shall be maintained and reseeded, if necessary, until all work under this Contract has been completed and accepted.

B. 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.

C. 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.

D. Crossing Utilities:
   1. This item shall include any extra work required in crossing culverts, water courses, drains, water mains, and other utilities, including all sheeting and bracing, extra evacuation and backfill, or any other work required for the crossing, whether or not shown on the drawings.
   2. In no case shall there be less than 4 inches between any two pipelines and structures.

E. Relocations of Existing Gas lines:
   1. Notify the proper authority of the utility involved when relocation of gas lines is required. Coordinate all work by the utility so that the progress of construction will not be hampered.

F. 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 RE-INSTALLATION TOLERANCES

A. Maximum Variation from Level and Plumb: 1/4 inch.

B. Maximum Offset from True Position: 1/4 inch.

3.04 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. Miscellaneous accessories.

1.02 RELATED SECTIONS

A. Section 03 3000 - Cast-in-Place Concrete

B. Section 04 0511 - Mortar and Masonry Grout

C. Section 07 9005 - 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 & Jarbeau, P.C.. Cost of test on unidentified bundles shall be borne by Contractor
   4. Submit three copies of each test report to Gardner Spencer Smith Tench & Jarbeau, P.C.

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 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.

2.06 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.

2.07 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.

2.08 WIRE MESH HARDWARE CLOTH

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

2.09 FLASHING MATERIALS

A. 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.

2.10 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.

2.11 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.

2.12 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.

2.13 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 CAVITIES

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

3.03 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.

3.04 DRIP EDGE FLASHING

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

3.05 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.

3.06 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.

3.07 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.

3.08 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 04 0090 - Masonry Accessories

C. Section 07 9005 - Joint Sealers

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 2021.

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 ASTM C270 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 ASTM C476 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. Comply with provisions of TMS 402/602, except where exceeded by requirements of the contract documents.

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

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

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

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

F. 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 MORTAR AND GROUT APPLICATIONS

A. Mortar Mix Designs: ASTM C270, Property Specification.

2.02 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: ASTM C207, 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 GMS: Match Existing.

E. 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 04 0070 - Cement Grout for Reinforced Masonry.

F. 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.

G. 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.

H. 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.

I. Mortar Aggregate: ASTM C144.

J. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.

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

2.03 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.

2.04 MORTAR MIXING

A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C270 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 & Jarbeau, P.C.'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.

2.05 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.

2.06 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

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 following Sections:
   1. 04 2100 - Brick Masonry
   2. 04 7200 - Cast Stone Masonry

3.04 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 ASTM C780 procedures.
   1. Test with same frequency as specified for masonry units.

C. Test and evaluate grout in accordance with ASTM C1019 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.

3.05 SCHEDULES

A. Concrete Unit Masonry mortar shall be Type S.

END OF SECTION

SECTION 04 2200
CONCRETE UNIT MASONRY

PART 1 GENERAL

1.01 SUMMARY

A. Work of this section includes providing concrete masonry units and building in the work of other trades.

1.02 SECTION INCLUDES

A. Concrete Masonry Units.

B. Concrete Brick.

C. Decorative Concrete Masonry Units.

D. Accessories.

1.03 RELATED SECTIONS

A. Section 040070 - Cement Grout for Reinforced Masonry.

B. Section 040090 - Masonry Accessories.

C. Section 040511 - Masonry Mortaring and Grouting

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

1.04 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 90 - Standard Specification for Load-Bearing Concrete Masonry Units; 1996a.

D. ASTM C 91 - Standard Specification for Masonry Cement; 1995c.

E. ASTM C 129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 1996a.

F. ASTM C 140 - Standard Test Methods of Sampling and Testing Concrete Masonry Units; 1996b.

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.

J. Portland Cement Association (PCA) - Concrete Masonry Handbook, latest edition.

1.05 SUBMITTALS

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

B. Product Data: Provide data for masonry units.

C. Samples for Verification: Submit two samples of concrete 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.
   2. Submit one sample of fire-resistant-rated bull nosed concrete masonry unit to illustrate color, texture.

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

E. Manufacturer's Certificates:
   1. Submit certificates from masonry manufacturer prior to delivery of concrete 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. Units shall be certified for compliance with specification requirements, including compressive strength, moisture content, and linear drying shrinkage.
   3. Time-rated, fire resistant masonry units shall be certified by manufacturer to comply with mix design and equivalent thickness requirements of Underwriters' Laboratories, Inc (U.L.) for time ratings indicated. Certification shall include evidence of manufacturer's qualification to manufacture fire-rated units.

1.06 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 the Architect.

B. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

C. Remove and replace masonry where appearance is unacceptable.

D. Concrete Masonry Units: Sample and test in accordance with ASTM C 140.
   1. Notify the material testing laboratory a minimum of 45 days in advance of installing concrete unit masonry, to allow for testing of the units for compression, shrinkage, and absorption. Absorption test requires 40 days.
   2. The material testing laboratory shall receive five concrete masonry units per test from masonry unit manufacturer, as designed or specified by Gardner Spencer Smith Tench & Jarbeau, P.C., and shall perform and send required test results to Gardner Spencer Smith Tench & Jarbeau, P.C.and Heard County Board of Commissioners' Owners Representative.

E. Inspection During Installation: A special inspector will continuously observe the installation of reinforced masonry. The Heard County Board of Commissioners' OR shall be responsible for monitoring the work of the special inspector and testing laboratories to ensure that the testing program is satisfactorily completed.

F. The Heard County Board of Commissioners will be responsible for the costs of original tests and inspection.

G. If core testing is required by Heard County Board of Commissioners, masonry removed by coring operations shall be replaced to match adjoining Work. Core testing shall conform with SBC, Chapter 21.

1.07 MOCK-UP PANEL

A. Locate mock-up panel where directed by the Architect.

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

1.08 PRE-INSTALLATION MEETING

A. Convene 2 weeks before starting work of this section. Meeting shall be attended by Gardner Spencer Smith Tench & Jarbeau, P.C., General Contractor, Subcontractor, and supervising mason.

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

1.09 DELIVERY, STORAGE, AND HANDLING

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

B. Keep units dry. Allow air circulation around stacked units. Wet concrete masonry units shall not be installed.

1.10 ENVIRONMENTAL REQUIREMENTS

A. Lay no masonry units when temperature 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., unless authorized in writing by the Architect.

B. When masonry work is authorized at temperatures below 40 degree F., but above freezing, provide mortar at temperature between 70 degrees F. and 100 degrees F. Maintain air temperature above 40 degrees F. on both sides of masonry for 72 hours after laying.

C. Protect masonry construction from direct exposure to wind and sun when erected in ambient air temperatures of 95 degrees in the shade and 50% humidity.

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.

1.11 JOB CONDITIONS

A. Protection of Work:
   1. Keep walls dry during erection by covering at end of each work period with a waterproof membrane. Protect partially completed walls not under construction in a similar manner. Covering shall overhang at least 2'-0" on each side of wall and shall be anchored on each side of wall.
   2. Protect finish exposed work from staining.
   3. Allow mortar droppings sticking to the unit face to dry, then remove with a trowel and lightly brush the wall surface with a bristled brush.
   4. Particular care shall be given to keeping masonry units clean in areas not to be painted.

B. Install and inspect mechanical and electrical work prior to enclosing or covering with masonry. Where runs of piping or conduit are required, cut away web of masonry unit without disturbing face or bond.

C. Coordinate installation of masonry anchors with structural system to which masonry is attached.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 x 4 inches (actual 15-5/8" by 3-5/8"), 16 x 8 inches (actual 15-5/8" by 7-5/8"), 16 x 12 inches (actual 15-

5/8" by 11-5/8"), and nominal depths as indicated on the drawings for specific locations.

2. Special Shapes: Provide non-standard blocks configured for corners, lintels, headers, control joint edges, and other detailed conditions, whether or not specifically indicated on the drawings as special.
3. Outside Corners: Provide rounded or bull-nosed units.
4. Units for use in reinforced masonry construction with exposed external corners, that cannot be provided with an integral bull-nosed unit shall be plain (square) end types with a 1" radius field-ground onto the exposed external corner to match the non-rated bull-nosed units where shown on the drawings.
5. Fire Ratings: Provide fire rated units at locations where indicated on the drawings.
   a. Manufacture of time-rated, fire-resistant masonry units shall be qualified in writing by Underwriters Laboratories, Inc., (UL) for manufacture of fire-rated units. Exposed external corners shall be bullnose type. Provide two-hour UL-rated concrete masonry at one-hour rated concrete unit masonry assemblies indicated on drawings.
   b. Units for use rated masonry construction with exposed external corners, that cannot be provided with an integral bull-nosed unit shall be plain (square) end types with a 1" radius field-ground onto the exposed external corner to match the non-rated bull-nosed units. The cells of the unit with the field-ground external corner shall be filled with concrete.
6. Load-Bearing Units: ASTM C 90, lightweight, Type II.
   a. Hollow block, as indicated.
   b. Exposed faces: Manufacturer's standard color and texture where indicated.
7. Load-Bearing Units: ASTM C 145, lightweight, Type II.
   a. Solid block, as indicated.
   b. Exposed faces: Manufacturer's standard color and texture where indicated.
8. Non-Loadbearing Units: ASTM C 129, lightweight, Type II.
   a. Hollow block, as indicated.
   b. Exposed faces: Manufacturer's standard color and texture where indicated.

B. Concrete Brick: ASTM C 55.
   1. Grade N, solid, lightweight.
   2. Size: As indicated on drawings.
   3. Special Shapes: Provide non-standard brick configured for corners.

C. Split Face Concrete Masonry Units (SFCMU): ASTM C-90.
   1. Description: Integrally colored pre-finished architectural concrete blocks with, rough-hewn texture on one or more faces of the unit.
   2. Manufacturers:
      a. Basis of design: Trenwyth Industries; Product, Split-Face: www.trenwyth.com.
      b. County Materials Corporation; Product, SplitFace: www.countymaterials.com.
      c. Domine Builders Supply; Product, Split Face: www.domineblock.com.
      d. Johnson Concrete Co; Product, Prestige Split Face: www.johnsoncmu.com.
      e. Westbrook Concrete Block Co., Inc; Product, Split Face: www.westbrookblock.com.
   3. Color: Provide integrally colored concrete masonry units from manufacturer's standard colors as selected Gardner Spencer Smith Tench & Jarbeau, P.C..
   4. Texture: Manufacturer's standard rough-hewn texture where indicated.
   5. Size: As indicated on drawings.
   6. Mortar Color: As selected by Gardner Spencer Smith Tench & Jarbeau, P.C..
   7. Fire Ratings: Provide fire rated units at locations where indicated on the drawings.

2.02 ACCESSORIES

A. Accessories: As specified in Section 040090 - Masonry Accessories.

2.03 MASONRY CLEANING COMPOUND

A. Masonry Cleaning Compound:
   1. Acceptable Products:
      a. Diedrich Technologies, Inc., Product: Architectural & Specialty Masonry Cleaner: 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. Workmanship: Install masonry plumb and true to line with straight level joints of uniform thickness. Maintain masonry clean during and after installation.
   1. Lay-out and incorporate embedded hardware items.
   2. Assist other trades with built-in items, which require cutting and fitting of masonry.
   3. Cut block units with a diamond saw or carborundum wheel. Trowel or chisel cutting is not permitted.

4. Keep cavities clear of droppings and debris. Remove promptly.

E. Reinforcing Steel: Install as indicated on Drawings. Except as otherwise indicated, install reinforcement in accordance with standards of Concrete Reinforcing Steel Institute and to requirements specified. Do not splice vertical reinforcing except where indicated on the Drawings.

F. Shoring: Provide temporary shoring for lintels with sufficient strength to carry load without deflecting. Remove temporary shoring 28 days after masonry has been installed.

G. Structural Framing Anchorage: Anchor masonry to structural framework at points of adjacency, and as follows:
1. Maintain open space of 1 inch or more between face of framing member and masonry elements.
2. Fasten anchors to structure and embed in mortar joints as masonry is laid.
3. Space anchors at maximum of 36 inches on center horizontally and 24 inches on center vertically.

H. 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 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.
2. Verify that field conditions are acceptable and are ready to receive masonry.
3. Verify that related items provided under other sections are properly sized and located.
4. Verify that reinforcing dowels are properly placed. Adjust projected vertical reinforcing dowels to be plumb in all directions prior to start of masonry work.
5. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Before Installation, examine that built-in items are in proper location, and ready for roughing into masonry work.

3.03 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.

3.04 COURSING

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

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

C. Concrete Masonry Units:

1. Bond: Match Existing.
2. Coursing: One unit and one mortar joint to equal 8 inches.
3. Mortar Joints: Concave.

3.05 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this Section and in other Sections of the Specifications.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to the opening.

D. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surface and, where possible, cut edges concealed.

E. Install only quality units; reject all defective units. No broken, chipped or cracked units shall be used.

3.06 PLACING AND BONDING

A. Concrete Masonry Units: Do not wet concrete masonry units prior to laying.

B. Foundation preparation: Sandblast tops of concrete starting surfaces, wash-off by high pressure water jet, and slurry coat surfaces with neat cement grout for bond to masonry.

C. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

D. Lay hollow masonry units with face shell bedding on head and bed joints.
   1. Install concrete masonry unit insulation in accordance with manufacturer's recommendations.

E. Install masonry with mortar to required joint thickness. Install blocks with 3/8-inch mortar bed on entire horizontal surface. Fill head joints solid, install tightly to adjoining units. Provide 3/8-inch joint thickness.
   1. Hold racking to a minimum.
   2. No toothing is permitted.
   3. If it becomes necessary to move a unit after it has been installed, remove the unit, discard the mortar, and install the unit in fresh mortar.

F. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

G. Remove excess mortar as work progresses. Keep cavities clear of mortar droppings and strike flush mortar joints facing cavity.

H. Interlock intersections and external corners.

I. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

J. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

K. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.

L. Isolate masonry partitions from vertical structural framing members with a control joint or as indicated.

M. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with sealant and backer rod.

N. Stopping Work: Lay masonry in proper sequence to avoid toothing. Rack walls back in each course at end of each work day. Before resuming, clean exposed surfaces and remove loose masonry units and mortar.
   1. Lightly wet previously laid clay masonry units which have a rate of absorption of more than 1 gram per square inch per minute (ASTM C 67), before laying fresh masonry.

O. Lay concealed masonry with all units in wythe in running bond or bonded by lapping not less than 2 inches (50 mm). Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

P. Fill space between hollow-metal frames and masonry solidly with mortar, unless otherwise indicated.

Q. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core. All built-in work shall be set plumb, level and square, to depth required for subsequent finish and trim applications.

R. Fill cores in hollow concrete masonry units with grout 24 inches (600 mm) under bearing plates, beams, lintels, post, and similar items, unless otherwise indicated.

S. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, unless otherwise indicated.
   1. Install compressible filler in joint between top of partition and underside of structure.
   2. At fire-rated partitions, install firestopping in joint between top of partition and underside of structure above to comply with Division 7 Section "Firestopping."

3.07 WEEPS

A. Install weeps in exterior veneer and cavity walls at 24 inches on center horizontally in head joint of first course of masonry immediately above through-wall flashing.

3.08 CAVITY WALL

A. Do not permit mortar to drop or accumulate into cavity air space or to plug weeps.

B. Build inner wythe ahead of outer wythe to receive cavity insulation and air/vapor barrier adhesive.

3.09 REINFORCEMENT AND ANCHORAGE - SINGLE WYTHE MASONRY

A. General: Before placing metal masonry accessories, remove loose rust, dirt, and other non-conforming coatings

B. Install horizontal joint reinforcement 8 inches on center.

C. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

D. Place continuous joint reinforcement in first and second joint below top of walls.

E. Lap joint reinforcement ends minimum 6 inches.

F. Reinforce joint corners and intersections with strap anchors 16 inches on center.

G. Do not span movement joints with reinforcement.

3.10 REINFORCEMENT AND ANCHORAGES - CAVITY WALL MASONRY

A. General: Before placing metal masonry accessories, remove loose rust, dirt, and other non-conforming coatings

B. Install horizontal joint reinforcement 16 inches on center.

C. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of openings.

D. Place continuous joint reinforcement in first and second joint below top of walls.

E. Lap joint reinforcement ends minimum 6 inches.

F. Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Space anchors at maximum of 24 inches horizontally and 24 inches vertically.

G. Reinforce joint corners and intersections with strap anchors 16 inches on center.

3.11 MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
   1. 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.
   2. Remove or cover protrusions or sharp edges that could puncture flashings.
   3. Seal lapped ends and penetrations of flashing before covering with mortar.

B. Lap end joints of flashings at least 4 inches and seal watertight with mastic or elastic sealant.

C. 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.

D. 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.

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

F. Sealing: Seal all joints in flashing to ensure watertight integrity.
   1. Lap end joints on nondeformed metal flashings at least 4 inches; seal laps with elastic sealant or mastic.

3.12 LINTELS

A. Install loose steel lintels over openings.

B. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled.
   1. Openings to 42 inches: Place two, No. 3 reinforcing bars 1 inch from bottom web.
   2. Openings from 42 inches to 78 inches: Place two, No. 5 reinforcing bars 1 inch from bottom web.
   3. Openings over 78 inches: Reinforce openings as detailed.
   4. Do not splice reinforcing bars.
   5. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
   6. Place and consolidate grout fill without displacing reinforcing.
   7. Allow masonry lintels to attain specified strength before removing temporary supports.
   8. Contractor's option: Install precast or prestressed lintels as specified and as recommended by the lintel manufacturer.

C. Maintain minimum 12 inch bearing on each side of opening.

3.13 GROUTED COMPONENTS

A. Grouting Technique: See Section 04065 for additional information.

B. Lap splices minimum 24 bar diameters.

C. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

D. Place and consolidate grout fill without displacing reinforcing.

E. At bearing locations, fill masonry cores with grout for a minimum 12 inches either side of opening.

3.14 BUILDING EXPANSION JOINTS

A. Make joints 1-inch wide, unless otherwise indicated.

B. Keep joint clear of mortar by temporarily filling with polystyrene as wall is laid.

C. Stop horizontal joint reinforcement 1-inch from expansion joint.

D. Keep clean of mortar and debris.

E. Leave joint open and clean for installation of expansion joint as specified in Expansion Joint Cover Assemblies section.

3.15 CMU CONTROL JOINTS

A. Make joint 3/8" wide, unless otherwise indicated. Where indicated, align joints in concrete unit masonry backup with brick expansion joints.

B. Stop horizontal joint reinforcement 1-inch from control joint.

C. Control joints may be build in or sawcut, in accord with PCA Handbook.

D. Build in movement joints where indicated or recommended by the PCA Handbook and field located by Gardner Spencer Smith Tench & Jarbeau, P.C., or as a minimum as follows:
   1. In running walls spaced maximum 30'-0" o.c.
   2. At corners, joint located one header or stretcher unit from corner.
   3. At intersecting walls, either of which is more than 10'-0" long.
   4. Above joints in foundations and floors and below joints in roofs and floors that bear on masonry walls.
   5. At all abrupt changes in wall height.
   6. At all changes in wall thickness, such as those at pipe or duct chases and those adjacent to columns or pilasters.
   7. At a distance of not over one-half of the allowable joint spacing from bonded intersections or corners.
   8. At door and window openings unless other crack control measures are used, such as joint reinforcement or bond beams.
      a. At one side of openings less than 6'-0" wide.
      b. At both sides of openings greater than 6'-0" wide.
   9. Where control joints occur in running walls, provide sash block with rubber control joint filler.
   10. Leave control joint open and clean for backer rod and caulking in accord with Joint Sealers section. Caulk joints exterior and interior.

E. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

F. Size control joint in accordance with Section 079005 - Joint Sealers for sealant performance.

G. Form joint as detailed.

3.16 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.

E. Install accessory materials in accord with Masonry Accessories section.
   1. Space pressure-relieving pads at control joints indicated on the drawings.
   2. Coordinate location of control joints in unit masonry backup.

F. Provide lintels and bond beams where indicated using lintel blocks laid with joints matching adjacent work. Reinforcement shall be as indicated and block filled with concrete.

3.17 REINFORCED AND GROUTED UNIT MASONRY

A. Align vertical unit masonry cells to be filled to maintain unobstructed vertical cell, continuous to foundation, equal to the cell void of an individual masonry unit. Remove mortar droppings and debris from cells.

B. Provide cleanouts at bottom of each vertical cell, at each pour of grout. Seal cleanouts after inspection of reinforcement, before grouting begins with concrete unit masonry face shell.

C. Fabricate in accord with approved shop drawings.

D. Install vertical reinforcing bar positioners at top of first course, at course below top of wall, and at maximum space of 192 vertical bar diameters between top and bottom bar positioner.

E. Provide dowels of same size as reinforcement at foundations at each vertical bar, as indicated on the drawings.

F. Install vertical reinforcement and horizontal bond beam reinforcement as indicated on drawings. Extend tops of vertical bars through openings made in bottom of bond beam units and bend horizontally into bond beam. Set anchor bolts and other devices indicated into bond beams prior to grouting.
   1. Placing tolerance for detailed position of vertical wall reinforcement: +/- 1/2".
   2. Minimum distance between masonry unit faces and reinforcing bars:
      a. Fine grout: 1/4".
      b. Coarse grout: 1/2".

G. Lap vertical bars not less than 2'-0". Extend bars into bond beams and foundation as indicated on drawings.

H. Stop horizontal bond beam reinforcement 3" back from both side of expansion and control joints.

I. At specified reinforced cells, bond beams and open cells indicated to receive grout, fill solid with grout as specified in Cement Grout For Reinforced Masonry section.

J. Wet masonry prior to placement of grout. Wet no masonry until mortar has set and wetting will not damage mortar or mortar bond.

K. Consolidate grout by working reinforcement bars and rodding non-reinforced cells.

L. Prevent grout seepage or spillage onto exposed masonry unit faces.

3.18 TOLERANCES

A. Maximum Variation from Alignment of Columns: 1/4 inch.

B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.

D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

F. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.

G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.19 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.

3.20 FIELD QUALITY CONTROL

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

B. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C 140.

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

3.21 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.

3.22 CLEANING

A. Clean concrete masonry units as follows and as directed by the concrete masonry unit manufacturer:
   1. Clean masonry after mortar is thoroughly set and cured.
   2. Scrape off adhered mortar particles by hand, using non-metallic tools.
   3. Comply with directions of concrete unit masonry manufacturer and NCMA Tek Bulletin No. 45 for cleaning CMU.

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

C. Replace defective mortar. Match adjacent work.

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

E. Use non-metallic tools in cleaning operations.

3.23 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. Provide 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.

3.24 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.

B. Excess Masonry Waste: Remove excess, clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Heard County Board of Commissioners' property.

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. Applications where framing and supports are not specified in other sections.
   5. Miscellaneous steel trim.
   6. Pipe bollards.

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 2012.

F. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2014.

G. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless 2012.

H. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2015.

I. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2009.

J. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates 2013.

K. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2014.

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 2013.

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 2015.

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 1982 (Ed. 2004).

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 STAINLESS STEEL

A. Bar Stock: ASTM A 276, Type 302 or 304.

B. Tubing: ASTM A 554, Grade MT 304.

C. Pipe: ASTM A 312/A 312M, Grade TP 304.

D. Casting: ASTM A 743/A 743M, Grade CF 8 or CF 20.

E. Plate and Sheet: ASTM A 666, Type 304.

2.03 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.

2.04 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.

2.05 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.

2.06 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.

2.07 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.

2.08 SHIP'S LADDERS

A. Provide ship's ladders where indicated. Fabricate of open type construction with structural steel channel or steel plate stringers, pipe handrails, and open steel grating treads, unless otherwise indicated. Provide all necessary brackets and fittings for installation.

2.09 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.

2.10 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.

2.11 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.

2.12 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.

2.13 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.

2.14 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.

2.15 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.

2.16 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.

2.17 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.

2.18 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 05 5210
PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Steel pipe and tube railings.

1.02 REFERENCE STANDARDS

A. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2005.

B. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2002.

C. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.

D. ASTM A 276 - Standard Specification for Stainless Steel Bars and Shapes; 2006.

E. ASTM A 480/A 480M - Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip; 2006b.

F. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2007.

G. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2003.

H. ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2006a.

I. ASTM D 1781 - Standard Test Method for Climbing Drum Peel for Adhesives; 1998 (Reapproved 2004).

J. ASTM D 1929 - Standard Test Method for Determining Ignition Temperature of Plastics; 1996 (Reapproved 2001).

K. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2008.

1.03 PERFORMANCE REQUIREMENTS

A. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
   1. Steel: 72% of minimum yield strength.

B. Structural Performance: Provide railings capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
   1. Handrails:
      a. Uniform load of 50 lbs/ft. (0.73 kN/m) applied in any direction.
      b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
      c. Uniform and concentrated loads need not be assumed to act concurrently.
   2. Top Rails of Guards:
      a. Uniform load of 50 lbs/ft. (0.73 kN/m) applied in any direction.
      b. Concentrated load of 200 lbf(0.89 kN) applied in any direction.
      c. Uniform and concentrated loads need not be assumed to act concurrently.
   3. Infill of Guards:
      a. Concentrated loads of 200 lbf (0.89 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m) at any point in the system, including intermediate rails, balusters, or other elements composing infill area.
      b. Load above need not be assumed to act concurrently with loads on top rails in determining stress on guardrails.

C. Thermal Movements: Provide exterior railings that allow for there movements resulting from the following maximum change (range) in ambient and surface temperatures by

preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.

1. Change (Range): 120 deg F (67 deg C), ambient; 180deg F (100 deg C), material surfaces.

D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.04 SUBMITTALS

A. Product Data: For the following:
1. Manufacturer’s product lines of mechanically connected railing.
2. Grout, anchoring cement, and paint products.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

C. Samples for Verification: For each type of exposed finish require:
1. 6 inch (150mm) long sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters.
2. Fittings and brackets.
3. Assembled Sample of railing system, made from full-size components, including top rail, post, handrail, and infill. Sample need not be full height.
a. Show method of finishing members at intersections.

1.05 QUALITY ASSURANCE

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

B. Source Limitations: Obtain each type of railing through one source from a single manufacturer.

C. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code-Steel."

1.06 MOCK-UP

A. Locate where directed.

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

1.07 STORAGE

A. Store handrails and railings in a dry, well-ventilated, weathertight place.

1.08 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication and indicate measurements on Shop Drawings.
1. Provide allowance for trimming and fitting at site.

1.09 COORDINATION AND SCHEDULING

A. Coordinate installation for anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

B. Coordinate installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Steel Pipe and Tube Railings:
      a. Pisor Industries, Inc.
      b. Sharpe Products.
      c. Wagner, R & B, Inc.; a division of the Wagner Companies.

   2. Tube Railings with Lights:
      a. Wagner Lumenpod 28 Assymmetric
      b. Equal by other manufacturers, pending approval

2.02 METALS, GENERAL

A. Metal Surfaces, General: Provide material with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

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

2.03 STEEL AND IRON

A. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight(Schedule 40), unless another grade and weight are required by structural loads.

B. Plates, Shapes, and Bars: ASTM A 36/A 36M.

C. Casting: Either gray or malleable iron, unless otherwise indicated.
   1. Gray Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by structural loads.
   2. Malleable Iron: ASTM A 47/A 47M.

2.04 FASTENERS

A. General: Provide the following:
   1. Aluminum Railings: Type 304 stainless-steel fasteners.
   2. Stainless-Steel Railings: Type 304 stainless-steel fasteners.
   3. Steel Railings: Plated steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.

B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.

C. Fasteners for Interconnecting Railing Components:
   1. Provide concealed fasteners for interconnecting railing components and attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for railings indicated.
   2. Provide tamper-resistant flat-head machine screws for exposed fasteners, unless otherwise indicated.

D. Anchors: Provide cast-in-place, chemical or torque-controlled expansion anchors, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent agency.

2.05 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
   1. For aluminum railings, provide type and alloy as recommended producer of metal to be welded and as required for color match strength, and compatibility in fabricated items.

B. Shop Primers: Provided primers that comply with Division 9 Section “High-Performance Coatings.”

C. Zinc-Rich Primers for High-Performance Coated Steel: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
   1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.)or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
   2. Products: Subject to compliance with requirements, provide one of the following:
      a. Carboline Company; Carbozinc 621.
      b. ICI Devoe Coatings; Catha-Coat 313.
      c. Tnemec Company, Inc.; Tneme-Zinc 90-97.

D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

E. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.06 FABRICATION

A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structure loads.

B. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural values of joined pieces.

C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

D. Form work true to line and level with accurate angles and surfaces.

E. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.

G. Connections: Fabricate railings with welded connections, unless otherwise indicated.

H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
   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 flux immediately.
   4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welding surface matches contours of adjoining surfaces.

I. Welded Connections for Aluminum Pipe: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufactures’s standard system of sleeve and socket fittings.

J. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
   1. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.

K. Form changes in direction as follows:
   1. Form changes in direction by flush bends, by inserting prefabricated flush-elbow fittings or as detailed.

L. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

M. Close exposed ends of railing members with prefabricated end fittings.

N. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch (6 mm) or less.

O. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work, unless otherwise indicated.
   1. At brackets and fittings fastened to plaster or gypsum board partitions, provide fillers made from crush-resistant material, or other means to transfer wall loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.

P. Provide inserts and other anchorage devices for connecting railing to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.

Q. For steel railing posts set in concrete, provide steel sleeves not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (13 mm) greater than outside dimensions of post, with steel plate forming bottom closure.

R. For aluminum railing posts set in concrete, provide aluminum sleeves not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (13 mm) greater than outside dimensions of post, with aluminum plate forming bottom closure.

2.07 FINSHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Provide exposed fasteners with finish matching appearance, including color and texture, of railing.

2.08 STEEL AND IRON FINISHES

A. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filling off smooth.

B. For nongalvanized steel railings, provide nongalvanized ferrous-metal fittings, brackets, fasteners, and sleeves, except galvanize anchors to be embedded in exterior concrete or masonry.

C. Preparation for Shop Priming of Uncoated Steel: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed railings:
   1. Interior Railings (SSPC Zone 1A): SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."

D. Apply shop primer to prepared surfaces of galvanized steel railings, unless otherwise indicated. Comply with requirements for specified high-performance coating.
   1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

E. Apply shop primer to prepared surfaces of steel railings, unless otherwise indicated. Comply with requirements in SSPC-PA 1, “Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel,” for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
   1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.02 INSTALLATION, GENERAL

A. Fit exposed connections together to form tight, hairline joints.

B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
   1. Do not weld, cut or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
   2. Set post plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
   3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).

C. Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

D. Adjust railings before anchoring to ensure matching alignment at abutting joints.

E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.03 RAILING CONNECTIONS

A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.

B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in Part 2 “Fabrication” Article whether welding is performed in the shop or in the field.

C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement.

D. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side, fasten internal sleeve securely to 1 side, and locate joint within 6 inches(150 mm) of post.

3.04 ANCHORING POSTS

A. Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with

nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.

B. Form or core-drill holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) larger than OD of post for installing posts in concrete.Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.

C. Cover anchorage joint with flange of same metal as post, attached to post with set screws.

D. Anchor posts to metal surfaces with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:
   1. For aluminum pipe railings, attach posts using fittings designed and engineered for this purpose.
   2. For stainless-steel pipe railings, weld flanges to post and bolt to supporting surfaces.
   3. For steel pipe railings, weld flanges to post and bolt to metal supporting surfaces.

3.05 ANCHORING RAILING ENDS

A. Anchor railing ends to concrete and masonry with round flanges connected to railing ends and anchored to wall construction with anchor and bolts.

B. Anchor railing ends to metal surfaces with flanges bolted to metal surfaces and connected to railing ends using nonwelded connections.

3.06 ATTACHING HANDRAILS TO WALLS

A. Attach handrails to wall with wall brackets. Provide brackets with 1 1/2-inch (38-mm) clearance from inside face of handrail and finished wall surface.
   1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.

B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

C. Secure wall brackets to building construction as follows:
   1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
   2. For hollow masonry anchorage, use toggle bolts.
   3. For steel-framed gypsum board partitions, fasten brackets directly to steel framing or concealed steel reinforcements using self-tapping screws of size and type required to support structural loads.

3.07 ADJUSTING AND CLEANING

A. Clean aluminum and stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.

B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

3.08 PROTECTION

A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION

SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preservative treated wood materials.

B. Fire retardant treated wood materials.

C. Concealed wood blocking, nailers, and supports.

1.02 RELATED REQUIREMENTS

A. Section {\id\#1000526} - Cast-In-Place Concrete: Setting anchors in concrete.

B. Section 07 5200 - Modified Bituminous Membrane Roofing: Miscellaneous blocking.

1.03 REFERENCE STANDARDS

A. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings 2015.

B. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings 2012.

C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2009.

D. ASTM D2898 - Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing 2010.

E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2015a.

F. AWPA C9 - Plywood -- Preservative Treatment by Pressure Processes; American Wood Protection Association; 2003.

G. AWPA C20 - Structural Lumber -- Fire Retardant Treatment by Pressure Processes; American Wood-Protection Association; 2003.

H. AWPA C27 - Plywood -- Fire-Retardant Treatment by Pressure Processes; American Wood-Protection Association; 2002.

I. AWPA U1 - Use Category System: User Specification for Treated Wood 2012.

J. PS 1 - Structural Plywood 2009.

K. PS 20 - American Softwood Lumber Standard 2010.

L. NLGA - National Lumber Grades Authority.

M. SPIB (GR) - Grading Rules 2014.

N. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17 2004, and supplements.

O. WWPA G-5 - Western Lumber Grading Rules 2011.

1.04 DEFINITIONS

A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed.

B. SPIB - Southern Pine Inspection Bureau.

1.05 SUBMITTALS

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

B. Product Data: Provide technical data on wood preservative materials, application instructions, and fire-retardant treatment.

C. Preservative-treated wood certification: Submit for Gardner Spencer Smith Tench & Jarbeau, P.C.'s information only. Submit certification by treating plant, stating

chemicals and process used, net amount of salts retained, conformance with applicable standards and moisture content after treatment.

D. Fire-retardant treatment certification: Submit for Gardner Spencer Smith Tench & Jarbeau, P.C.'s information only. Submit certification by treating plant that fire-retardant treatment materials comply with governing ordinances and that treatment will not bleed through finished surfaces.

E. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

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

1.06 QUALITY ASSURANCE

A. Lumber: Comply with PS 20 for lumber and PS 1-95 for construction and industrial plywood and approved grading rules and inspection agencies.
   1. Lumber of other species or grades, or graded by other agencies, is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

B. Design standards; spans, connections and design criteria for members not otherwise indicated shall comply with the following:
   1. American Institute of Timber Construction (AITC), "Timber Construction Manual."
   2. National Forest Products Association (NFPA):
      a. "National Design Specifications for Wood Construction," 1986 Edition, with Supplements.
      b. "Design Values for Wood Construction," July, 1986 Edition, with Supplements.
      c. "Span Tables for Joist and Rafters," 1977 Edition, with Supplements.

C. Product Identification:
   1. Lumber: Lumber shall bear the grade stamp of a listed grading rules association certified by the Board of Review of American Lumber Standards Committee (ALSC), identifying species or species combination, grade, moisture condition at time of surfacing, mill of origin and grading agency.
   2. Plywood: Plywood shall bear the stamp of the American Plywood Association (APA), indicating type, grade, thickness, exposure durability, span rating, agency compliance, species group, edging, finish and glue type.
   3. Preservative-treated wood products: Preservative-treated lumber and plywood shall bear the quality standard stamp of the applicator, indicating preservative type, exposure conditions, year of treatment, treatment plant and treatment supervising agency.
   4. Fire-retardant-treated wood products: Fire-retardant-treated lumber and plywood shall bear the stamp of Underwriters Laboratories, Inc., (UL) or other approved independent inspection agency, indicating treatment type or name, flame spread and treatment plant.

D. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
   1. Obtain each type of fire-retardant-treated wood product through one source from a single producer.

E. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

1.07 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

C. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

D. Store no seasoned materials in wet or damp portions of building.

E. Protect sheet materials from breaking corners and damaging surfaces.

1.08 WARRANTY

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

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with {\rs\#1} and requirements of specified grading agencies.
   1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).
   1. Grade-stamped commercial softwood conforming to PS 20-70 and referenced grading rules, unless otherwise indicated.

B. Sizes: Nominal sizes as indicated on drawings, S4S.

C. Moisture Content: S-dry or MC19.

D. Stud Framing (2 by 2 through 2 by 6):
   1. Species: Southern Pine.
   2. Grade: No. 2.

E. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
   1. Machine stress-rated (MSR) as follows:
      a. Fb-single (minimum extreme fiber stress in bending): 1350 psi.
      b. E (minimum modulus of elasticity): 1,300,000 psi.
   2. Species: Southern Pine.

F. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

G. Miscellaneous Blocking, Furring, Nailers, and Framing: Pressure-preservative-treated or fire-retardant-treated as specified here-in:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards and general utility purposes: Standard or No. 3.

2.03 CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

B. Plywood wall sheathing: APA Rated Sheathing, Exposure 1, Group I, thickness indicated; pressure-preservative-treated or fire-retardant-treated as specified herein.

Span ratings and load capacities shall be in accordance with fire-retardant-treatment manufacturer's design values for thickness required.

C. Other Applications:
   1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
   3. Other Locations: PS 1, C-D Plugged or better.

2.04 ACCESSORIES

A. Fasteners and Anchors: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
   1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Nails, Brads, and Staples: ASTM F 1667.
   3. Power-Driven Fasteners: CABO NER-272.
   4. Wood Screws: ASMEB18.6.1.
   5. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
   6. Lag Bolts: ASME B18.2.L.
   7. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
   8. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
      a. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
   9. Anchors: Toggle bolt type for anchorage to hollow masonry.

B. Adhesives for Field Gluing Panels to Framing: Formulation complying with APAAFG-01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturers.

2.05 FACTORY WOOD TREATMENT

A. General: Unless specifically indicated to be preservative-treated, provide fire-retardant-treated materials.

B. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
   2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

C. Fire Retardant Treatment:
   1. Manufacturers:
      a. Basis of Design: Arch Wood Protection, Inc; Product Dricon: www.wolmanizedwood.com.
      b. Chemical Specialties, Inc: www.rockwoodspecialties.com.
      c. Hoover Treated Wood Products, Inc: www.frtw.com/#sle.
      d. Koppers, Inc: www.koppersperformancechemicals.com/#sle.
      e. Substitutions: See Division 01 - Product Requirements.

2. Exterior Type: AWPA U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
    a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
    b. Do not use treated wood in direct contact with the ground.
3. Interior Type A: AWPA U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
    a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
    b. Treat rough carpentry items as indicated .
    c. Do not use treated wood in applications exposed to weather or where the wood may become wet.

D. General clarification, all drawings: All wood blocking within the building enclosure is to be fire-retardant treated.

E. Use treatment that does not promote corrosion of metal fasteners.

F. Preservative Treatment:
1. Manufacturers:
    a. Lonza Group: www.wolmanizedwood.com/#sle.
    b. Viance, LLC: www.treatedwood.com.
    c. Osmose, Inc: www.osmose.com.
    d. Substitutions: See Division 01 - Product Requirements.

G. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
2. Treat lumber in contact with roofing, flashing, or waterproofing.
3. Treat lumber in contact with masonry or concrete.
4. Treat lumber less than 18 inches above grade.
    a. Treat lumber in other locations as indicated.
5. Preservative Pressure Treatment of Plywood Above Grade: AWPA U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative.
    a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
    b. Treat plywood in contact with roofing, flashing, or waterproofing.
    c. Treat plywood in contact with masonry or concrete.
    d. Treat plywood less than 18 inches above grade.
    e. Treat plywood in other locations as indicated.

H. Preservative Pressure Treatment of Lumber in Contact with Soil: AWPA U1, Use Category UC4A, Commodity Specification A using waterborne preservative.
1. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.
2. Restrictions: Do not use lumber or plywood treated with chromated copper arsenate (CCA) in exposed exterior applications subject to leaching.

I. General clarification, all drawings: All wood blocking outside the building enclosure is to be preservative pressure treated.

J. Exterior grade plywood sheathing detailed as back-up in parapet walls is to be preservative pressure treated.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

D. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking and similar supports to comply with requirements for attaching other construction.

E. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

F. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.

G. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
   1. CABO NER-272 for power-driven fasteners.
   2. Published requirements of metal framing anchor manufacturer.
   3. Table 602.3(1), "Fastener Schedule for Structural Members," and Table 602.3(2), "Alternate Attachments," in the International One- and Two-Family Dwelling Code.

H. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.

3.03 WORKMANSHIP

A. Install wood framing and carpentry work cut square on bearings, fitted and set to required lines and levels, and secured in place.

B. Lay out the work to provide correct openings to receive work of other trades.

C. Fire-retardant-treated wood:
   1. Prevent exposure to water or moisture, and do not use id so exposed.
   2. Only end cuts shall be made. Do not rip or re surface.
   3. Attach using only hot-dipped galvanized nails and anchors.

D. Plates, blocking, nailers and miscellaneous framing:
   1. Provide 2" nominal thickness members (concealed within metal stud assemblies) to support and secure finishing materials, fixtures, accessories, partitions, specialty items and trim (i.e. shelving, wall mounted coat hook units, marker/chalk/tack boards, toilet accessories, etc.) Provide fire-retardant-treated wood at rated wall assemblies.

E. Bolt to structural steel or metal framing at 4'-0" o.c., maximum.

F. Secure to concrete and masonry using cast-in bolts, powder-activated stud, sleeve or wedge type anchors spaced 4'-0" o.c., maximum.

G. Provide anchors within 3" of ends of members.

H. Provide linear runs in maximum practicable lengths, with joints in multiple members offset 3'-0", minimum.

I. Around roof perimeter and at roof penetrations, provide blocking equal to roof insulation thickness. Attach through decking into structural members at 2'-0" o.c., maximum, starting within 3" of each end. Space ends 1/2" for venting.

3.04 SHEET MATERIAL INSTALLATION

A. Plywood wall sheathing: Install with face grain perpendicular or parallel to supports. Terminate panels over supports. Stagger end joints of adjacent panels.
   1. Allow 1/8" gap between end and edge joints for expansion and contraction.
   2. Space fasteners at 6" o.c. maximum along supported panel edges and at 1'-0" o.c. maximum at intermediate supports.
   3. Attach plywood to cold formed metal framing using self-tapping screws, as specified in Gypsum Board Assemblies Section.

3.05 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

G. Construct corners and intersections with three or more studs. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

H. Do not splice structural members between supports.

3.06 FLOOR JOIST FRAMING INSTALLATION

A. General: Install floor joists with crown edge up and support ends of each member with not less than 1-1/2 inches of bearing. Attach floor joists as follows:
   1. Where supported on wood members, by toe nailing or by using metal framing anchors.
   2. Where framed into wood supporting members, by using wood ledgers as indicated or, if not indicated, by using metal joist hangers.

B. Do not notch in middle third of joists; limit notches to one-sixth depth of joist, one-third at ends. Do not bore holes larger than 1/3 depth of joist; do not locate closer than 2 inches from top or bottom.

C. Provide solid blocking of 2-inch nominal thickness by depth of joist at ends of joists unless nailed to header or band.

D. Lap members framing from opposite sides of beams, girders, or partitions not less than 4 inches or securely tie opposing members together. Provide solid blocking of 2-inch nominal thickness by depth of joist over supports.

E. Provide solid blocking between joists under jamb studs for openings.

F. Provide double joists separated by solid blocking equal to depth of studs above.

G. Provide bridging of type indicated below, at intervals of 96 inches o.c., between joists.
   1. Diagonal wood bridging formed from bevel-cut, 1-by-3-inch nominal- size lumber, double-crossed and nailed at both ends to joists.
   2. Steel bridging installed to comply with bridging manufacturer's written instructions.

3.07 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
   1. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.

3.08 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.09 INSTALLATION OF CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
   1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
   2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
   3. Install adjacent boards without gaps.

3.10 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.

B. Allow preservative to dry prior to erecting members.

3.11 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

C. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.12 CLEANING

A. Waste Disposal: Comply with the requirements of Division 01.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 07 1300
SHEET WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sheet Waterproofing:
   1. Vertical applications.

B. Below-grade waterproofing accessories.

1.02 RELATED REQUIREMENTS

A. Division 31 - Fill.

B. Section 03 3000 - CAST-IN-PLACE CONCRETE: Concrete substrate.

C. Section 07 1323 - Foundation Drainage Fabrics: Filter fabrics.

D. Section 07 1324 - Foundation Drainage Systems: Foundation drainage.

1.03 REFERENCE STANDARDS

A. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension 2006a (Reapproved 2013).

B. ASTM D570 - Standard Test Method for Water Absorption of Plastics 1998 (Reapproved 2010).

C. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers 2000 (Reapproved 2012).

D. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact 2014.

E. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness 2005 (Reapproved 2010).

F. ASTM D4551 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Flexible Concealed Water-Containment Membrane 2012.

G. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane 2013.

H. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials 2014.

I. NRCA ML104 - The NRCA Roofing and Waterproofing Manual Fifth Edition, with interim updates.

1.04 PERFORMANCE REQUIREMENTS

A. Provide waterproofing that prevents the passage of water.

1.05 SUBMITTALS

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

B. Product Data: Include manufacturer’s written instructions for evaluating, preparing, and treating substrate, technical data, and tested physical and performance properties of waterproofing.

C. Shop Drawings: Show locations and extent of waterproofing. Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.

D. Samples: For the following products:
   1. 12-by-12-inch square of waterproofing and flashing sheet.
   2. 12-by-12-inch square of insulation.
   3. 4-by-4-inch square of drainage panel.

E. Installer Certificates: Signed by manufacturers certifying that installers comply with requirements.

F. Sample Warranty: Copy of special waterproofing manufacturer's warranty starting obligations, remedies, limitations, and exclusions before starting waterproofing.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who is acceptable to waterproofing manufacturer to install manufacturer's products.

B. Source Limitations: Obtain waterproofing materials and molded-sheet drainage panels through one source from a single manufacturer.

C. Membrane Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver liquid material to Project site in original packages with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by waterproofing manufacturer.

C. Remove and replace liquid materials that cannot be applied within their stated shelf life.

D. Store rolls according to manufacturer's written instructions.

E. Protect stored material from direct sunlight.

1.08 MOCK-UP

A. Locate where directed.

B. Mock-up may remain as part of this Work.

1.09 FIELD CONDITIONS

A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application and until liquid or mastic accessories have cured.

B. Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.

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

D. Maintain adequate ventilation during preparation and application of waterproofing materials.

1.10 WARRANTY

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

B. Special Manufacturer's Warranty: Written warranty, signed by waterproofing manufacturer agreeing to replace waterproofing material that does not comply with requirements or that does not remain watertight during specified warranty period.

C. Warranty does not include failure of waterproofing due to failure of substrate prepared and treated according to requirements or formation of new joints and cracks in substrate exceeding 1/16 inch in width.

D. Warranty Period: Five years after date of Substantial Completion.

E. Special Installer's Warranty: Written waterproofing Installer's warranty, signed by Installer, covering work of this Section, for warranty period of two years.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the following products:
   1. American Hydrotech, Inc.; VM 75.
   2. American Permaquik Inc.; PQ 7100.
   3. Carlisle Corporation, Carlisle Coating & Waterproofing Div.; CCW 860
      a. Vertical Application: CCW 860.
      b. Horizontal Application: CCW 711 Prepave.
   4. Cetco; Envirosheet.
   5. W.R. Grace & Co.; Bituthene.
      a. Vertcal Application: Bituthene.
      b. Horizontal Application: Bituthene 5000.
   6. W.R. Meadows, Inc.; Mel-Rol.
      a. Vertical Application: Mel-Rol.
      b. Horizontal Appiication: Mel-Dek.
   7. T.C. Miradri; Miradri 700.
      a. Vertical Application: Miradri 700.
      b. Horizontal Appiication: Miradri 700.
   8. Monsey Bakor; Eleasto-Seal 2000.
   9. Pecora Corporation; Duramen 700-SM.
      a. Vertical Applications: Duramem 700-SM.
      b. Horizontal Applications: Duramem 712 Pre-Pave.
   10. Polyguard Products, Inc.; Polyguard 650.
   11. Progress Unlimited, Inc.; Plastiwrap 60.
   12. Tamko Roofing Products, Inc.; TW-60.
   13. Substitutions: See Division 01 - Product Requirements.

2.02 MEMBRANE MATERIALS

A. Vertical Applications: Rubberized-Asphalt sheet 60-mil-thick, self-adhering sheet consisting of 56 mils of rubberized asphalt laminated to a 4-mil-thick, polyethylene film with release liner on adhesive side.
   1. Physical Properties: As follows, measured per standard test methods referenced:
      a. Strength: 250 psi minimum; ASTM D 412, Die C, modified.
      b. Ultimate Elongation: 300 percent minimum; ASTM D 412, Die C, modified.
      c. Low-Temperature Flexibility: Pass at minus 20 deg F; ASTM D 1970.
      d. Crack Cycling: Unaffected after 100 cycles of 1/8-inch movement; ASTM C 836.
      e. Puncture Resistance: 40 lbf minimum; ASTM E 154.
      f. Hydrostatic-Head Resistance: 150 feet minimum; ASTM D 5385.
      g. Water Absorption: 0.15 percent weight-gain maximum after 48-hour immersion at 70 deg F; ASTM D 570.
      h. Vapor Permeance: 0.05 perms; ASTM E 96, Water Method.

2.03 ACCESSORIES

A. General: Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with sheet waterproofing.
   1. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.

B. Primer: Liquid waterborne primer recommended for substrate by manufacturer of sheet waterproofing material.

C. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate by manufacturer of sheet waterproofing material.

D. Sheet Strips: Self-adhering, rubberized-asphalt composite sheet strips of same material and thickness as sheet waterproofing.

E. Liquid Membrane: Elastomeric, two-component liquid, cold fluid applied, trowel grade or low viscosity.

F. Patching Membrane: Low-viscosity, two-component, asphalt-modified coating.

G. Mastic, Adhesives, and Tape: Liquid mastic and adhesives, and adhesive tapes recommended by waterproofing manufacturer.
   1. Detail Tape: Two-sided, pressure-sensitive, self-adhering reinforced tape, 4-1/2 inches wide, with a tack-free protective adhesive coating on one side and release film on self-adhering side.
   2. Detail Strips: 62.5-mil-thick, felt-reinforced film on adhesive side.

H. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8 inch thick, predrilled at 9-inch centers.

2.04 MOLDED-SHEET DRAINAGE PANELS FOR VERTICAL APPLICATIONS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. American Wick Drain Corp., Amerdrain 520.
   2. W.R. Grace and Company, Hydroduct 220 Drainage Composite.
   3. JDR Enterprises, Inc., J-Drain 420.

B. Characteristics: Prefabricated, composite drainage panels, manufactured with a permeable geotextile facing laminated to a molding-plastic-sheet drainage core.
   1. Drainage Core: Three-dimensional, non biodegradable, molded-plastic-sheet material designed to effectively drain water under backfill pressure.
   2. Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage, made from polyolefins or polyesters; with elongation greater than 50 percent.
   3. Geotextile: Woven geotextile fabric, manufactured for subsurface drainage, made from polyolefins or polyesters; with elongation less than 50 percent.
   4. Film Backing: Polymeric film bonded to drainage core surface.

2.05 PROTECTION BOARD FOR HORIZONTAL APPLICATIONS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. W.R. Grace and Company, Bithene Asphaltic Hardboard.
   2. Koch Materials Co., Backerboard 501-A.
   3. W.R. Meadows, Inc., Sealtight Protection Course PC-2.

B. Characteristics: Premolded, multi-ply, semi-rigid board consisting of asphalt and mineral fillers sandwiched between glass mat liners or saturated felts with polyethylene facing.

2.06 INSULATION

A. Board Insulation: Extruded-polystyrene board insulation complying with ASTM C 578, square edged; of type, density, and compressive strength indicated below:
   1. Type IV, 1.6-lb/cu. Ft. minimum density and 25-psi minimum compressive strength.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Diversifoam Products.
   2. Dow Chemical Company (The).
   3. Owens Corning.
   4. T. Clear Corporation.
   5. Tenneco Building Products.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.

B. Verify that concrete has cured and aged for minimum time period recommended by waterproofing manufacturer.

C. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.

D. Verify that compacted subgrade is dry, smooth, and sound; ready to receive HDPE sheet.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean, prepare, and treat substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.

B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.

C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids.

E. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM 4258.
   1. Install sheet strips and center over treated construction and construction joints and cracks exceeding a width of 1/16 inch (1.6-mm).

F. Bridge and cover isolation joints and discontinuous deck-to-wall and deck-to-deck joints with overlapping sheet strips.
   1. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.

G. Corners: Prepare, prime, and treat inside and outside corners according to ASTM D 6135.
   1. Install membrane strips centered over vertical inside corners. Install 3/4 inch (19-mm) fillets of liquid membrane on horizontal inside corners and as follows:
      a. At footing-to-wall intersections, extend liquid membrane each direction from corner or install membrane strip centered over corner.
      b. At deck-to-wall intersections, extend liquid membrane or sheet strips onto deck waterproofing and to finished height of sheet flashing.

H. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through waterproofing and at drains and protrusions according to ASTM D 6135.

3.03 RUBBERIZED-ASPHALT SHEET APPLICATION

A. Install self-adhering sheets according to waterproofing manufacturer's written instructions and recommendations in ASTM D 6135.

B. Apply primer to substrates at required rate and allow to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.

C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 2 1/2 inch minimum lap widths and end laps. Overlay and seal seams and stagger end laps to ensure watertight installation.

1. When ambient and substrate temperatures range between 25 and 40 deg F, install self-adhering, rubberized-asphalt sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 deg F.

D. Apply continuous sheets over sheet strips bridging substrate cracks, construction, and contraction joints.

E. Seal exposed edges of sheets at terminations not concealed by metal counterflashings or ending in reglets with mastic or sealant.

F. Install sheet waterproofing and auxiliary materials to tie into adjacent waterproofing.

G. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheets extending 6 inches beyond repaired areas in all directions. Repair punctures and tears in membrane material prior to protection board or molded sheet drainage panel installation.

H. Correct deficiencies in or remove sheet waterproofing not complying with requirements, repair substrates, reapply waterproofing, and repair sheet flashings.

I. At below grade walls, extend membrane across top of footing 6" minimum. Carry membrane to within 1" of finish grade or under and up brick ledge. Trowel apply mastic at all exposed edges.

J. On horizontal applications, apply sheet waterproofing from low point to high point of decks to ensure that side laps shed water.

K. At horizontal surfaces, roll membrane immediately after placing using roller at least 2'-6" wide.

L. Apply liquid flashing at intersection of horizontal waterproofing with vertical surfaces. Apply in 1/4" wet thickness, extending 1" onto membrane and minimum 1-1/2" up face of vertical surface.

M. Lap membrane joints, 2-1/2" minimum.

N. Form 1" by 1" cement grout fillets at internal corners and at intersection of horizontal and vertical surfaces.

O. Double membrane at all corners by application of 12" wide membrane strip centered along corner. Cover strip completely with full-width sheet.

P. Apply a double layer of waterproofing membrane at all protrusions, extending minimum of 6" in each direction. Seal protrusions and membrane terminations with mastic.

Q. Install triple layer of membrane over vertical expansion joints in foundation walls in accordance with manufacturer's standard detail. Install joint filler, backer rod and sealant in joint prior to covering with membrane in accordance with manufacturer's standard detail.

R. Protect adjacent surfaces from damage not designated to receive waterproofing.

S. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions; vacuum substrate clean.

T. Do not apply waterproofing to surfaces unacceptable to membrane manufacturer.

U. Seal cracks and joints with sealant using depth to width ratio as recommended by sealant manufacturer.

V. Surfaces for Adhesive Bonding: Apply surface conditioner at a rate recommended by manufacturer, and protect conditioner from rain or frost until dry.

W. Completed installation shall be free of leaks.

3.04 MOLDED-SHEET DRAINAGE PANEL INSTALLATION

A. Place and secure molded-sheet drainage panels according to manufacturer's written instructions.

B. Install molded-sheet drainage panels over vertical membrane waterproofing immediately upon installation of membrane to substrates. Secure in place to vertical surfaces with adhesive strips at rate in accordance with manufacturer's written product data until backfilling is completed.
   1. Overlap drainage panels 2", minimum by peeling filter fabric back and nesting drainage core sections with adjacent panel; reposition filter fabric over laps.
   2. Tuck filter fabric behind panel cores at terminations.
   3. Terminate drainage mats within 6" of finished grade.
   4. At foundation drains, place drainage mats next to perforated drain lines. Peel bottom portion of filter fabric from mats and wrap around drain; tuck fabric behind pipe.

3.05 PROTECTION BOARD

A. Install protection board over membrane at horizontal applications immediately upon installation.

3.06 INSULATION INSTALLATION

A. Install one or more layers of board insulation to achieve required thickness over waterproofed surfaces. Cut and fit to within 3/4 inch of projections and penetrations.

B. On vertical surfaces, set insulation units in adhesive or tape applied according to manufacturer's written instructions.

3.07 FIELD QUALITY CONTROL

A. Heard County Board of Commissioners will provide testing services in accordance with Division 1 - Quality Requirements. Contractor shall provide temporary construction and materials for testing.

B. Flood Testing: Flood test each deck area for leaks, according to recommendations in ASTM D 5957, after completing waterproofing but before overlying construction is placed. Install temporary containment assemblies, plug or dam drains, and flood with potable water.
   1. Flood to an average depth of 2-1/2 inches with a minimum depth of 1 inch and not exceeding a depth of 4 inches. Maintain 2 inches of clearance from top of sheet flashings.
   2. Flood each area for 48 hours.

C. If leaking is found, remove water, repair leaking areas with new waterproofing materials as directed by Gardner Spencer Smith Tench & Jarbeau, P.C.; repeat flood test, and repair damage to building.

D. When area is proven watertight, drain water and remove dam.

3.08 PROTECTION

A. Do not permit traffic over unprotected or uncovered membrane.

B. Protect waterproofing from damage and wear during remainder of construction period.

C. Protect installed board insulation from damage due to ultraviolet light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

D. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

SECTION 07 1323
FOUNDATION DRAINAGE FABRICS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Section includes: Subdrainage system material at vertical waterproofed walls as complete designed working drainage system channeling liquid water to drainage piping system specified elsewhere.

1.02 RELATED SECTIONS

A. Division 31 - Earthwork.

B. Section 07 1300 - Sheet Waterproofing.

C. Section 07 1324 - Foundation Drainage Systems.

1.03 REFERENCES

A. American Society for Testing and Materials(ASTM).

1.04 DEFINITIONS

A. Terms; 1 through 4 taken from ASTM D4439-85:
   1. Geotextile: Any permeable textile used with foundation, soil, rock, earth, or any other geotechnical material, as an integral part of man-made product, structure, or system.
   2. Normal direction: Direction perpendicular to the plane of a geotextile.
   3. Permittivity: Volumetric flow rate of water per unit cross sectional area per unit head under laminar flow conditions, in the normal direction through a geotextile.
   4. Permeability: Rate of flow of a liquid under a differential pressure through a material.
   5. Transmissivity: Flow or amount of liquid water per foot of material width passing through composite system at certain maximum soil pressure against geotextile at defined hydraulic gradient.

1.05 SYSTEM DESCRIPTION

A. Performance Requirements:
   1. Geotextile:
      a. UV resistance: 70% or more when tested in accord with ASTM D4355-84.
      b. Permittivity: 205 gal/ft/width when tested in accord with ASTM D4491-85.
      c. Core material, compressive strength: 20,000PSF, minimum.
      d. Transmissivity or Flow Q with hydraulic gradient of 1 with confining stress indicated in MANUFACTURED UNITS Article in accord with ASTM D4716-87.

1.06 SUBMITTALS

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

B. Product Data: Manufacturer’s product data; indicate products supplied. Provide complete installation instructions proposed for use.

C. Samples: 1’-0” by 1’-0” subdrainage system material samples

1.07 QUALITY ASSURANCE

A. Preinstallation Conferences: Coordinate conference with conference scheduled for waterproofing materials. Follow requirements indicated in waterproofing materials section.

1.08 SEQUENCING AND SCHEDULING

A. Schedule installation after waterproofing installation and curing just prior to backfilling operations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of design JDR Enterprises, Inc., 725 Branch Drive, Alpharetta, GA 30201. Tel: (800) 843-7569.

B. Products of manufacturers listed below meeting indicated standards and specified manufacturer's product data characteristics, except as modified below, are acceptable for use, subject to compliance with specified requirements and data.
   1. Fluid Systems.
   2. Mirafi.
   3. Monsanto Company.
   4. Tensar Corp.

C. Subdrainage System Material, Characteristics:
   1. Type: JDR Enterprises, Inc.; J-Drain; 1000 Series; heavy duty core, double sided fabric with protective sheet.

D. Core:
   1. Material: Extruded HDPE; High Density Polyethylene Polymer, 0.945 density using no foaming agents.
   2. Thickness: 0.25", nominal, heavy duty.
   3. Compressive Strength : 30,000 PSF.

E. Geotextile:
   1. Material: Non-woven needle punch polypropylene.
   2. Weight; 4.5 oz. Per square yard, minimum.
   3. Treat fabric for UV stability to meet requirements listed herein.
   4. Permittivity: Meet requirements listed herein.

F. Adhesive bonding core material to geotextile: Pressure sensitive applied to core, manufacturer's standard.

G. Transmissivity of Flow Q composite construction, geotextile bonded to core when tested in accord with ASTM D4716-87 with hydraulic gradient of 1 with confining stress of 6000 PSF: 7.0 gal/ft/width in accord with ASTM D4716-87.

H. Application Adhesives, Acceptable Products:
   1. H.B. Fuller Company; Maxbond construction Adhesive.
   2. Goodyear; Plionail.
   3. Liquid Nails.

PART 3 EXECUTION

3.01 INSTALLATION

A. Foundation Wall Installation, General:
   1. Install subdrainage system material either vertically or horizontally in accord with manufacturer's reviewed installation instructions with core material facing protection board.
   2. Lap geotextile fabric joints in accord with manufacturer's installation instructions.
   3. Install subdrainage material at foundation drainage pipe material in accord with subdrainage system manufacturer's reviewed details for positive drainage directly to foundation drainage pipe.
   4. Horizontal Application: Verify backfill lifts are installed and compacted prior to installation of next subdrainage system material course.
   5. Secure subdrainage system material to wall at grade in accord with manufacturer's indicated and reviewed installation instructions.

END OF SECTION

SECTION 07 1324
FOUNDATION DRAINAGE SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Subdrainage system material at vertical waterproofed walls, specified elsewhere, as complete designed working drainage system channeling liquid water to drainage piping system.

B. Foundation, perimeter subsoil drainage systems.

C. Filter aggregate and bedding.

1.02 RELATED SECTIONS

A. Division 31 - Earthwork.

B. Section 07 1300 - Sheet Waterproofing.

C. Section 07 1324 - Foundation Drainage Fabrics.

1.03 REFERENCES

A. American Society for Testing and Materials(ASTM).

B. ASTM C4 - Clay Drain Tile.

C. ASTM C412 - Concrete Drain Tile.

D. ASTM C700 - Vitrified Clay Pipes, Extra Strength, Standard Strength, and Perforated.

E. ASTM D2311 - Perforated, Homogeneous Bituminized Fiber Pipe for General Drainage.

F. ASTM D2729 - Poly(Vinyl Chloride)(PVC) Sewer Pipe and Fittings.

1.04 DEFINITIONS

A. Bedding:
   1. Fill placed under, beside and directly over pipe, prior to subsequent backfill operation.

1.05 SUBMITTALS

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

B. Product Data: Manufacturer’s product data on pipe, and pipe accessories; indicate products supplied. Provide complete installation instructions proposed for use.

C. Samples: 1’-0” by 1’-0” material samples.

D. Project Record Documents: Record location of pipe runs, connections, cleanouts and principal invert elevations.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Engage as an experienced Installer who has completed foundation drainage systems similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Preinstallation Conferences: Coordinate conference with conference scheduled for waterproofing materials. Follow requirements indicated in waterproofing materials section.

C. Conform to applicable code for materials and installation of the work of this section.

1.07 SEQUENCING AND SCHEDULING

A. Schedule installation after waterproofing installation and curing just prior to backfilling operations.

B. Coordinate the Work with connection to the on-site underground sewer storm water system.

C. Coordinate all foundation drainage systems with project soils engineer.

PART 2 PRODUCTS

2.01 PIPE MATERIAL

A. Polyvinyl Chloride Pipe: ASTM D2729; plain end, 6 inch inside diameter; with required fittings.

B. Plastic Tubing: Flexible type; 4 to 6 inch diameter, with required fittings.

C. Use perforated pipe at drainage system; unperforated through sleeved walls.

2.02 FILTER AGGREGATE AND BEDDING

A. Filter Aggregate Materials: #57 stone.

2.03 ACCESSORIES

A. Pipe Coupling: Solid plastic.

B. Filter Fabric: Water pervious type, black polyolefin as specified in Section 07 1324 - Foundation Drainage Fabrics.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install and join pipe and pipe fittings in accordance with pipe manufacturer's instructions.

B. Place drainage pipe on minimum 3 inch bed of filter aggregate.

C. Lay pipe to slope gradients minimum of 1/2%.

D. Place pipe with perforations facing down. Mechanically join pipe ends.

E. Install pipe couplings.

F. Install aggregate at sides, over joint and top of pipe. Provide top cover compacted thickness of 12 inches.

G. Place filter fabric over leveled top surface of aggregate cover prior to subsequent backfilling operations.

H. Place aggregate in maximum 6 inch lifts, consolidating each lift.

I. Refer to Division 2 for compaction requirements. Do not displace or damage pipe when compacting.

J. Connect to storm sewer system with unperforated pipe and through installed sleeves if applicable.

3.02 FIELD QUALITY CONTROL

A. Request inspection prior to and immediately after placing aggregate cover over pipe.

3.03 PROTECTION

A. Protect finish installation.

B. Protect pipe and aggregate cover from damage or displacement until backfilling operation begins.

3.04 SCHEDULE

A. Perimeter Drainage; At exterior below grade building perimeter and surrounding elevator pit foundation walls; drain to storm sewer inlets.

END OF SECTION

SECTION 07 2500
VAPOR RETARDERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Materials to make below grade concrete slab water vapor-resistant and air tight.

B. Tape to seal joints and repair vapor retarder.

1.02 RELATED SECTIONS

A. Section 03 3000 - Cast-in-Place Concrete: Slabs on grade.

1.03 REFERENCES

A. ASTM D 882 - Tensile Properties of Thin Plastic Sheeting; 2002.

B. ASTM D 1709 - Standard Specification for Impact Resistance of Plastic Film by the Free-Falling Dart Method; 2004.

C. ASTM D 2582 - Standard Test Method for Puncture-Propagation Tear Resistance of Plastic Film and Thin Sheeting; 2003.

D. ASTM D 3776 - Standard Test Methods for Mass Per Unit Area (Weight) of Fabric; 1996 (Reapproved 2002).

E. ASTM E 84 - Surface Burning Characteristics of Building Materials; 2005.

F. ASTM E 96/E 96M - Water Vapor Transmission of Materials; 2005.

G. ASTM E 1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 1998 (Reapproved 2005).

H. ASTM E 1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 1997 (Reapproved 2004).

I. NFPA 701 - Fire Tests for Flame-Resistant Textiles and Films; 2004.

1.04 SUBMITTALS

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

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
      a. Include independent laboratory test results showing compliance with ASTM & ACI Standards.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Selection Samples: Submit manufacturer's samples of reinforced vapor retarders.

D. Verification Samples: For each product specified, submit samples representing actual product, color, and patterns, minimum size 6 inches square.

1.05 QUALITY ASSURANCE

A. Preinstallation Meeting: Convene a preinstallation meeting two weeks before start of installation of reinforced vapor retarders. Require attendance of parties directly affecting work of this section, including Contractor, Gardner Spencer Smith Tench & Jarbeau, P.C., and installer. Review installation, protection, and coordination with other work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage:
   1. Store products in manufacturer's unopened packaging until ready for installation.

2. Store materials in a clean, dry area in accordance with manufacturer's instructions.

C. Handling: Protect materials during handling and installation to prevent damage.

PART 2 PRODUCTS

2.01 UNDER-SLAB VAPOR RETARDERS

A. Products:
1. Insulation Solutions, Inc.: Viper VaporCheck II 15-mil Class A Vapor Barrier.
2. Stego Industries LLC: Stego Wrap (15-Mil) Vapor Barrier.
3. W.R. Meadows, Inc.: Perminator 15 Mil.
4. Raven Industries: VaporBlock VBLP15.
5. Reef Industries, Inc.: Griffolyn 15 Mil.
6. Substitutions: See Division 01 - Product Requirements.

2.02 ACCESSORIES

A. General: Furnish accessories recommended by vapor retarder manufacturer for intended use and compatible with vapor retarder membrane.

B. Seam Tape: High Density Polyethylene Tape with pressure sensitive adhesive.
1. Weight: 3.75 pounds per 100 feet.
2. Thickness: 35 mils.
3. 3 Inch Seam Shear: 35 pounds.

C. Pipe Boots: Provide factory-fabricated pipe boots from a compatible material and pressure sensitive tape.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine surfaces and areas to receive reinforced vapor retarders. Notify Gardner Spencer Smith Tench & Jarbeau, P.C. in writing defects of work and other unsatisfactory site conditions that would cause defective installation of vapor retarders. Do not begin installation until unacceptable conditions have been corrected.

B. Verify site dimensions.

C. Commencement of work will imply acceptance of substrate.

3.02 INSTALLATION

A. Install reinforced vapor retarders in accordance with manufacturer's instructions and ASTM E 1643 at concrete slabs.

B. Install vapor retarders continuously at locations as indicated on the drawings. Ensure there are no discontinuities in vapor retarder at seams and penetrations.

C. Install vapor retarders in largest practical widths.

D. Ensure surface beneath vapor retarder is smooth with no sharp projections.

E. Join sections of vapor retarder and seal penetrations in vapor retarder with pressure sensitive tape. Ensure vapor retarder surfaces to receive pressure sensitive tape are clean and dry.

F. Immediately repair holes in vapor retarder with self-adhesive repair tape.

G. Seal around pipes and other penetrations in vapor retarder with pipe boots in accordance with manufacturer's instructions.

H. Lay vapor retarder over interior building area to receive concrete slab; lap edges 6" and seal with pressure sensitive tape over entire lap. Apply membrane in 8'-0" width. Lay membrane with seams perpendicular to and lapped in direction of pour. Turn edges of membrane up to within 1/2" of top of slab at intersection with vertical surfaces.

I. Where expansion or control joints are indicated in slab, lay vapor retarder continuous under joint filler.

J. Seal openings in vapor retarder around pipes and other protrusions with pressure sensitive tape. Fold at corners to form envelope.

K. No penetrations of the vapor retarder is allowed except for reinforcing steel and permanent utilities.

L. Repair damaged areas by cutting patches of vapor retarder, overlapping damaged area 6 inches and taping all four sides with pressure sensitive tape.

3.03 PROTECTION

A. Protect vapor retarder installation from damage until concrete slab is in place.

B. Immediately repair damaged vapor retarder in accordance with manufacturer's instructions.

END OF SECTION

SECTION 07 4120
PREFORMED METAL ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured preformed steel architectural roofing and wall system complete with perimeter and penetration flashing, closures, Trim, insulation and underlayments.

1.02 REFERENCES

A. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2002a.

B. ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2002.

C. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2002a.

D. ASTM B 209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric); 2002a.

E. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2001.

1.03 DESIGN REQUIREMENTS

A. Submit design calculations, indicating compliance with specified performance criteria. Indicate fastener types and spacings. Design calculations shall bear the seal of a professional engineer licensed in the State of Georgia. Indicate that the engineer has reviewed shop drawings.

B. Thermal Movement: Completed metal roofing system shall be capable of unlimited thermal movement.

C. Uniform wind load capacity: Installed roof system shall withstand positive and negative design wind loading pressures complying with the Standard Building Code.

D. UL wind uplift resistance classification: Roofing system shall be classified as Class UL 90, as defined by UL 580 and ASTM E-1592 in field of roof, as stated in calculation submittals herein specified.

E. Static pressure air infiltration: Completed roof system shall have maximum of 0.08 cfm/sq. ft. with 4.0 psf air pressure differential per ASTM E331-91 and ASTM E-1680.

F. Water penetration (static pressure): No evidence of uncontrolled leakage under 5.0 gal/hr. spray at 4.0 psf pressure differential per ASTM E331-96 and ASTM E-1646.

G. Capacities for gauge, span or loading other than those tested may be determined by interpolation of test results within the range of test data. Extrapolation for conditions outside test range are not acceptable.

1.04 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Shop drawings: Show roofing system with flashing and accessories in plan and elevation; sections and details at full scale. Include metal thicknesses and finishes, panel lengths, joining details, anchorage details, flashings and penetrations, girt locations, expansion provisions and supports. Indicate relationships with adjacent and interfacing work.

C. Product data: Include manufacturer's detailed material and system description, installation instructions, engineering performance data and finish specifications.

D. Intent to warrant and certifications:

1. Submit an Intent to Warrant executed by authorized representative of metal roofing manufacturer, stating the following (use exact wording): "The metal roofing system manufacturer _____ has reviewed drawings and specifications, conditions affecting the work and the relationship of metal roofing system with related work, and thereby proposes to provide the warranty as specified herein without further stipulation. Attached are applicator certification and certification that specified system, materials, surfaces and conditions, are acceptable for purpose of providing specified warranty".
2. Submit certification that proposed applicator is approved for warranted work by metal roofing manufacturer.
3. Submit certification from authorized representative of metal roofing manufacturer stating that specified system and materials, as well as indicated surfaces and conditions, are acceptable for purpose of providing specified warranty.
4. Submit certification from authorized representative of metal roofing manufacturer, stating that proposed roof system meets design and performance criteria, and specified requirements.

E. Test reports:
1. Submit reports by independent testing laboratory to support structural calculations and show compliance with specified performance criteria.
2. Test shall have been made for substantially identical systems within the ranges of specified performance criteria.
3. If the test data is not available or if data does not represent project conditions, Contractor shall be responsible for securing satisfactory tests by an independent testing agency acceptable to Gardner Spencer Smith Tench & Jarbeau, P.C., with cost of such testing borne by the Contractor

F. Samples: Submit two samples of panel section, at least 2'-0" in length by full width, indicating thickness, profile, texture, sheen and color. Submit samples of panel clips, closures and accessory items.

1.05 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum 12 years of documented experience.

B. Installer: Company specializing in performing the work of this section approved by manufacturer.

C. Applicable erection tolerances; maximum variation from true planes or lines: 1/4" in 20'-0"; 3/8" in 40'-0" or more.

D. Manufacturer representative shall inspect the project a minimum of 3 times a week and shall provide written and photgraphic project reports on a weekly basis.

1.06 DELIVERY, STORAGE, AND PROTECTION

A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

B. Store prefinished material off ground and protected from weather. Prevent twisting, bending, or abrasion, and provide ventilation to stored materials. Slope metal sheets to ensure drainage.

C. Prevent contact with materials that may cause discoloration or staining of products.

D. Inspect materials upon delivery. Reject and remove physically damaged or marred material from project site.

1.07 WARRANTY

A. See Section 01780 - Closeout Submittals, for additional warranty requirements.

B. Endorse and forward to Heard County Board of Commissioners the following warranties:

1. Manufacturer's twenty year finish warranty covering refinishing of fluoropolymer coating due to imperfections, checking, crazing, peeling, chalking or fading, in accord with AAMA 605.2 (R1994).
2. Installer's twenty year warranty covering roofing system installation and watertightness.
3. Warranties shall commence on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 GALVALUME ROOFING SYSTEM

A. Acceptable products; subject to compliance with specified requirements.
   1. Basis of design: Innovative Metals Company (IMETCO).
   2. Centria SRS2 System.
   3. Sun Metals Inc.

B. Materials:
   1. Galvalume roof panel and flat stock materials: Minimum 24 ga., aluminum-zinc alloy (galvalume) coated, commercial grade steel meeting ASTM A792-96, with minimum yield strength of 50,000 psi; coated both sides with 55% aluminum/45% zinc alloy applied by the continuous hot-dipped method, minimum 0.55 oz./sq. ft. coverage as determined by triple-spot test method, regular spangle.
   2. Galvalume gutters, downspouts, miscellaneous flashing and sheet metal: Minimum 22 ga. Refer to Sheet Metal Flashing and Trim section.
   3. Manufactured copings: Minimum 24 ga. Refer to Sheet Metal Flashing and Trim section.

C. Characteristics:
   1. Configuration: Standing seams incorporating snap locking seams with one piece concealed anchor clips allowing unlimited thermal movement, and factory installed sealant, that does not come in contact with clip, to prevent entrance or passage of water.
   2. Panels are to match existing panels.
   3. Seam height: 1-3/4", minimum.
   4. Panel width: 1'-6".
   5. Panel surface: Smooth.
   6. Stiffener ribs: 3/8" maximum height, spaced 4" to 6" o.c., parallel to seams.

2.02 ACCESSORIES

A. Gaskets: Manufacturer's standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant.

B. Butyl sealant for concealed joints:
   1. Acceptable products:
      a. Pecora Corp., BC-158.
      b. Protective Treatments, Inc., 757.
      c. Tremco, Inc., Butyl Sealant.
      d. W.R. Meadows, Inc., Elastomeric Butyl Caulk.
   2. Characteristics:
      a. Type: One-part butyl sealant.
      b. Colors: As selected by Gardner Spencer Smith Tench & Jarbeau, P.C. from manufacturer's standard selection.

C. Waterproof membrane underlayment for application directly under roofing, for installation under metal copings, for slopes less than 4:12 and for hips, ridges, valleys and low edge starter course:
   1. Acceptable products; subject to compliance with specified requirements:
      a. Polyguard products, Inc., Polyguard Deck Guard.
      b. W.R. Grace, Vycor Ultra.

c. Nicolon Mirafi Group, Miradri WIP 300HT.

2. Characteristics:
   a. Type: Self-adhering rubberized asphalt sheet complying with ASTM D1790-94.
   b. : 40 mils minimum.
   c. Tensile strength: 250 psi minimum when tested in accord with ASTM D412-97.
   d. Elongation: 250% when tested in accord with ASTM D412-97, Die C Modified.
   e. Provide primers, sealants and accessories required for a waterproof installation.
3. Bituminous coating for separation of dissimilar materials: Cold-applied, asphalt mastic meeting SSPC-Paint 12-82, minimum 30 mils thickness.

D. Fasteners: Manufacturer's standard type to suit application; with soft neoprene washers, steel, hot dip galvanized. Fastener cap same color as exterior panel.

E. Field Touch-up Paint: As recommended by panel manufacturer.

F. Provide miscellaneous accessories for complete installation. Accessories shall be furnished by roofing system manufacturer.

2.03 METAL FINISH

A. Fluoropolymer finish:
1. Two-coat, factory-applied, baked-on 70% fluoropolymer coating system based on Atochem North America, Inc., Kynar 500 or Ausimont U.S.A., Inc., Hylar 5000 resin (polyvinylidene fluoride, PVDF), formulated by a licensed manufacturer and applied by manufacturer's approved applicator to meet AAMA Publication 605.2-90.
2. Coating system shall provide minimum 1.2 mil dry film thickness consisting of 0.25 (+/- 0.05) mil primer and minimum 1.0 mil color coat.
3. Colors: As selected by Gardner Spencer Smith Tench & Jarbeau, P.C. from non-exotic range of licensed manufacturers' full-line colors.

B. Finish on unexposed surfaces: Mill finish for aluminum, 0.5 mil thickness neutral washcoat for steel.

2.04 ROOF INSULATION

A. Isocyanurate roof insulation:
1. Type: Rigid isocyanurate boards permanently bonded to non-asphaltic glass facing sheets.
   a. Water absorption: Less than 1% volume in accord with ASTM C518-91.
   b. Dimensional stability: 2% maximum at 7 days in accord with ASTM C209-92.
   c. Compressive strength: 18 psi minimum in accord with ASTM D1621-94.
   d. Density: 2.0 pcf nominal in accord with ASTM D1622-93.
   e. Moisture Vapor Transmission: Less than 1 perm in accord with ASTM E96-94.
   f. temperature: -100 degrees F. to 122 degrees F.
   g. Flame spread: 25 in accord with ASTM E84-97a.
2. Thickness: 2" minimum, based on stabilized (not aged) R-value requirements.
3. Stabilized R value at 75 degrees F. in accord with NRCA/MRCA Joint Technical Bulletin: 5.6/in. minimum; 11.2 average, total R value for specified thickness. Aged R-values are not acceptable.
4. Fire hazard classification: FM Class 1, meeting the requirements of FM 4450.

B. Insulation fastener system for attachment to metal decks; Type required by roofing system manufacturer and meeting characteristics and wind uplift requirements:

1. Corrosion resistance: Pass FM 4470 Corrosion Test, modified DIN 50018 standard, with a maximum of 15 % red rust after 15 wet and dry acidic atmosphere cycles in Kesternich cabinet.
2. Plates: Minimum 3" diameter, non-corrosive material.

2.05 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form flashing components from full single width sheet. Provide shop-fabricated mitered corners, joined using closed-end pop rivets and joint sealant.

C. Fabricate roofing and related sheet metal work in accord with approved shop drawings and applicable standards.

D. Solder sheet metal joints prior to finishing with heavy, well heated coppers. Pre-tin joints not less than 1-1/2" wide. Provide 1" minimum soldered joints. after soldering, wash joints and neutralize remaining acid with alkaline solution.

E. Provide linear sheet metal items in minimum 10'-0" sections, except as otherwise noted. Form flashing using single pieces for full width. Provide shop-fabricated, mitered and joined corners, with minimum 2'-0" long legs.

F. SMACNA Manual fabrication requirements: Refer to Sheet Metal Flashing and Trim section.

G. The metal system manufacturer cannot be the installation contractor and the installation contractor annot be the manufacturer.

H. No field or jobsite roll forming of metal roofing panels allowed.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that building framing members are ready to receive panels.

3.02 PREPARATION

A. Examination:
1. Provide Heard County Board of Commissioners and Gardner Spencer Smith Tench & Jarbeau, P.C. with notice of each inspection at least seven days prior to proposed inspection time.
2. Inspections shall be performed by roof manufacturer's authorized representative.
3. Examine alignment and placement of substrates before proceeding with installation of preformed metal roofing. Acceptance shall be given prior to and after underlayment installation. Do not proceed until substrates are acceptable.
4. Obtain manufacturer's written acceptance of substrates prior to roofing installation.

B. Pre-roofing conference: Prior to beginning metal roofing work, a pre-roofing conference shall be held to review work to be accomplished.
1. Contractor, Gardner Spencer Smith Tench & Jarbeau, P.C., metal roofing subcontractor, metal roofing system manufacturer's representative and all subcontractors who have equipment penetrating roof or whose work involves access to roof shall be present.
2. Contractor shall notify all parties at least seven days prior to time for conference.
3. Contractor shall record minutes of meeting and shall distribute copies of minutes to attending parties.

C. Install gypsum board underlayment over structural metal deck in accord with code requirements. Stagger end joints one-half board length. Bear edges on deck ribs.

D. Isocyanurate insulation for installation over metal decks:
1. Install insulation in one layer over sloped deck and gypsum board underlayment.

2. Lay boards parallel with eaves. Stagger end joints in snug contact with gaps not to exceed 1/4".
3. Install pressure-preservative-treated wood blocking equal to insulation thickness along eaves, rakes and cut-outs, as specified in Rough Carpentry section.
4. Attach insulation to deck with screws spaced as directed by manufacturer to meet specified wind uplift requirements. Drive screws tight to insulation face, with screw heads flush with surface of insulation.
5. Install only as much insulation each work period as can be made dry by end of same work period.
6. Immediately following installation, install waterproof membrane underlayment and roofing.

E. Install waterproof membrane underlayment over roof insulation at all areas:
1. Install membrane underlayment fully adhered to substrates in accord with manufacturer's product data.
2. If required, prime surfaces to receive membrane materials. Allow primer to dry until tack-free. Prime only area which can be covered within 24 hours of primer application.
3. Install membrane materials with side and end laps lapped as recommended by product data. Begin installation at low points, lapping succeeding sheets to shed water.
4. Membrane applications shall be fully adhered, smooth, straight and free of blisters, buckles, fishmouths and wrinkles affecting the complete adherence of the membrane. Patch and repair defective work in accord with manufacturer's product data. Replace defective areas.
5. Double membrane at changes in plane by application of a centered membrane strip. Cover strip completely with full width sheet.
6. Seal around protrusions and at terminations in accord with product data.
7. Repair punctures and tears in membrane by patching with membrane material prior to protection board installation. Towel-apply mastic at exposed edges of patch.

3.03 ROOFING AND FLASHING INSTALLATION

A. Install roofing and flashings in accord with approved shop drawings and manufacturer's product data, within specified erection tolerances.

B. Isolate dissimilar materials with waterproof membrane subflashing or bituminous coating. Use gasketed fasteners to prevent corrosive action between fastener, substrate and panels.

C. Exposed anchors and other components shall be prefinished to match finish of panels and trim. Limit exposed anchors to extent indicated on shop drawings.

D. Anchorage shall allow for temperature expansion/ contraction movement within specified range without stress or elongation of panels, clips or anchors. Attach clips to structural supports using anchors of size and spacing in accord with manufacturer's product data and design calculations to resist specified uplift and thermal movement forces.. Use minimum two fasteners per clip.

E. Install roof panels in single lengths, from top to bottom of run, with no exposed fasteners or joints. Seal all terminations in accord with roofing system manufacturer's product data.

F. Coordinate flashing and sheet metal work to provide weathertight conditions at roof terminations. Fabricate and install in accord with standards of SMACNA Manual and NRCA Details, using continuous cleats at all exposed edges. No exposed sealant joints shall be used to obtain primary watertightness.

G. Penetrations of the metal roofing shall only be allowed where no other location is possible. Where penetrations are avoidable, they shall be located in the center of the

affected panel, with clearance available to each adjacent seam. No penetrations shall occur over seams. Penetration flashing shall allow for differential movement between the roof assembly and the penetration. Penetration flashing shall be watertight; provide water diverter above the penetration, adhered to the roof panel with elastomeric silicone sealant.

H. Provide for temperature expansion/ contraction movement of panels at roof penetrations and roof-mounted equipment in accord with system manufacturer's product data and design calculations.

I. Installed system shall be true to line and plane and free of dents, oil cans and physical defects.

J. Form joints in linear sheet metal to allow for 1/2" minimum expansion at 20'-0" o.c., maximum, and 8'-0" from corners. Provide 1'-0" wide backup plate at intersections. Form plates to profile of sheet metal item. Exposed fasteners shall be only rivets, used only where no other fastening is possible.

K. At joints in linear sheet metal items, set sheet metal over backup plate in two beads of butyl sealant, 1/4" in diameter, minimum. Extend sealant over all metal surfaces. Mate components for positive seal. Allow no sealant to migrate onto exposed surfaces.

L. Coping, gutters, downspouts and other flashing elements: Refer to Sheet Metal Flashing and Trim section.

M. Remove damaged work and replace with new, undamaged components.

N. Touch up edges where panels are field cut, using paint furnished by roofing panel manufacturer and matching exposed panel surface finish.

O. Clean exposed surfaces of roofing and accessories after completion of installation. Leave in clean condition at Date of Substantial Completion. Touch up minor abrasions and scratches in finish.

3.04 CLEANING

A. Remove site cuttings from finish surfaces.

B. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

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 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.

1.03 ADMINISTRATIVE REQUIREMENTS

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

1.04 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.

1.05 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 & Jarbeau, P.C..
   3. Samples shall be actual materials or literature depicting actual colors of standard color materials. Gardner Spencer Smith Tench & Jarbeau, P.C. 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.

1.06 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.

1.07 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.

1.08 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.

1.09 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.

1.10 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 & Jarbeau, P.C. and get sealer manufacturer's recommendations for alternative procedures.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.11 COORDINATION

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

1.12 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 & Jarbeau, P.C.

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

2.04 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 & Jarbeau, P.C. from manufacturer's standard colors..

2.05 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 & Jarbeau, P.C. from manufacturer's standard colors.

2.06 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.

2.07 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. Exterior joints in masonry, structural precast, metal panels, stucco, including control joints: Polyurethane sealant.

B. Exterior and interior horizontal traffic-bearing joints, excluding ceramic tile joints: Polyurethane sealant for horizontal traffic-bearing surfaces.

END OF SECTION

SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated hollow metal doors and frames.

B. Thermally insulated hollow metal doors with frames.

1.02 RELATED REQUIREMENTS

A. Section 042200 - Concrete Unit Masonry: Adjacent construction.

B. Section 08 7100 - Door Hardware.

1.03 ABBREVIATIONS AND ACRONYMS

A. ANSI - American National Standards Institute.

B. ASCE - American Society of Civil Engineers.

C. HMMA - Hollow Metal Manufacturers Association.

D. NAAMM - National Association of Architectural Metal Manufacturers.

E. NFPA - National Fire Protection Association.

F. SDI - Steel Door Institute.

G. UL - Underwriters Laboratories.

1.04 REFERENCE STANDARDS

A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.

B. ANSI/SDI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames 2007 (R2011).

C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100) 2014.

D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames 2011.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2015.

F. ASTM C236 - Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box; 1989 (Reapproved 1993).

G. ASTM C1363 - Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus; 2011.

H. DHI A115 Series - Specifications for Steel Doors and Frame Preparation for Hardware; Door and Hardware Institute; 2000 (ANSI/DHI A115 Series).

I. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames 2007.

J. NAAMM HMMA 860 - Guide Specifications for Hollow Metal Doors and Frames 2013.

K. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames 2006.

L. NAAMM HMMA 862 - Guide Specifications for Commercial Security Hollow Metal Doors and Frames 2013.

M. NAAMM HMMA 865 - Guide Specifications for Sound Control Hollow Metal Doors and Frames 2013.

N. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2016.

O. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives 2016.

P. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies 2012.

Q. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames 2013.

R. UL (DIR) - Online Certifications Directory current listings at database.ul.com.

S. UL 10B - Standard for Fire Tests of Door Assemblies Current Edition, Including All Revisions.

T. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.

1.05 SUBMITTALS

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

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

D. Certificates:
1. Provide manufacturer's certification that products comply with referenced standards.
2. Provide evidence of manufacturer's membership in the Steel Door Institute.

E. Door, frame, and hardware schedule in accordance with SDI 111.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.
1. Hollow metal distributor company who is a direct account of the manufacturer of the products furnished. In addition, that distributor must have in their regular employment an Architectural Hardware Consultant (AHC), a Certified Door Consultant (CDC) or an Architectural Openings Consultant (AOC), who will be available to consult with Gardner Spencer Smith Tench & Jarbeau, P.C. and Contractor regarding matters affecting the door and frame opening.

B. Maintain at project site copies of reference standards relating to installation of products specified.

C. Quality Standard: Comply with SDI 100.

D. Manufacturer Qualifications: Provide all products from a single manufacturer who is a member of the Steel Door Institute.

E. Labeled Assemblies: At all locations where fire-rated door and frame assemblies are required , provide assemblies which comply with NFPA 80 and have been tested and labeled in accordance with ASTM E 152 by agency acceptable to governing authorities

F. Allowable erection tolerances:
1. Variation from specified clearances: +/- 1/32".
2. Variation in face alignment, pairs of doors: +/- 1/16".
3. Variation in face alignment between door and frame: 1/8" maximum.

G. Performance criteria:
1. Physical endurance: Comply with performance level for specified grade classification in accord with ANSI/SDI-100-03 and ANSI A250.4-94 for doors and hardware reinforcing, ANSI A250.5-94 for frames and anchors.
2. Finish: Comply with standard performance criteria of ANSI A224.1-90 for primed steel surfaces.

3. Thermal performance: Minimum aged value of U = 0.10 (R = 10.2) or better, apparent thermal performance in accord with SDI 113.
4. Air infiltration: Maximum 1.25 cfm/1.f. at 1.567 psi (25 mph) in accord with SDI-116.
5. Acoustical performance: STC of 25 or better in accord with SDI-114 and ASTM E90-97.

H. Coordination: Transmit copy of final shop drawings to wood door manufacturer to allow prefitting of wood doors to steel frames.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
1. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.

B. All doors and frames shall be stored vertically under cover.

C. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

D. The units shall be placed on at least 4" high wood sills or in a manner that will prevent rust or damage.

E. Provide a 1/4" space between the doors to promote air circulation.

F. If the shipping wrap on the door becomes wet, it must be removed immediately.

G. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Products of the following SDI manufacturers, provided they comply with the requirements of the contract documents, will be among those considered acceptable:
1. Amweld Building Products, Inc: www.amweld.com.
2. Ceco Door Products: www.cecodoor.com.
3. Curries Company: www.curries.com.
4. Steelcraft Manufacturing Company: www.steelcraft.com.
5. Windsor Republic Doors: www.republicdoor.com.

B. Substitutions: See Division 01 - Product Requirements.

2.02 DOORS AND FRAMES

A. Fabrication standard: Except for more stringent requirements specified, comply with ANSI/SDI-100-91, including performance levels as referenced.

B. Steel:
1. Interior doors and frames: Fabricate of cold-rolled steel sheet meeting ASTM A366-96. For doors scheduled as galvanized or galvannealed steel sheet meeting ASTM A653-96, Designation A60 or G60; wipe coat not acceptable.
2. All exterior, kitchen, dishwashing and serving line doors and frames: Fabricate of commercial quality, hot-dipped, galvanized or galvannealed steel sheet meeting ASTM A653-96, Designation A60 or G60; wipe coat not acceptable.

C. Finish for steel: Prime painted steel surfaces in compliance with ANSI A224.1-90.
1. Interior doors and frames: One coat of manufacturer's standard rust-inhibitive primer.
2. Exterior doors and frame: One coat of manufacturer's standard rust-inhibitive primer after chemical treatment of galvanized surface for paint adhesion.

D. Door classification:
   1. Standard interior hollow metal doors: Grade III, 16 ga., Extra Heavy Duty, Model One with edge seams, 1-3/4" thickness.
   2. Label fire-resistive composite metal doors: Grade III, 16 ga., Extra Heavy Duty, Model One with edge seams, 1-3/4" thickness, with mineral fiberboard core for all ratings over 20 minutes.
   3. Exterior Insulated composite metal doors: Grade III, 16 ga., Extra Heavy Duty, Model One with edge seams, 1-3/4" thickness, with polystyrene core.

E. Door characteristics:
   1. Edge bevel: Vertical edges beveled 1/8" in 2"; double-acting doors rounded on 2-1/8" radius. Non-handed door blanks with filler plates are not acceptable.
   2. Top and bottom edges: Flush, welded, minimum 18 ga. steel. Provide weep holes in bottom edge of exterior doors.
   3. Join door edges by continuous weld extending the full height of door. Grind, fill and dress welds smooth to make invisible and provide smooth flush surface.
   4. Astragals: Split type, 12 ga., material. Fire-rated "B" and "C" labeled doors shall be of type not requiring astragals to obtain rating.

F. Frame construction including sidelights and borrowed lite frames:
   1. Welded frames: 14 ga., with backbend returns, setup arc welded, with all joints, including face, flange and throat, full welded, dressed and ground smooth; no mechanical interlocking allowed. Provide welded frames with temporary spreaders during shipping, storage and erection.
   2. Transom bars and mullions: Shop fabricate from same material as door frames, setup arc welded, with all joints, including face, flange and throat, full welded, dressed and ground smooth; no mechanical interlocking allowed. Fabricate in largest size sections allowed by shipping and installation restrictions. Field joints shall occur only as indicated on approved shop drawings.
   3. Machine door frames for hardware scheduled for installation on that frame. Filler plates installed at unused openings will not be acceptable.
   4. Mortar guards: Provide properly sized frame mortar guards at hardware locations.
   5. Joints:
      a. Dress welded joints and ground smooth, indistinguishable in complete work.
      b. Make non-welded connections with tight fitting, closed joints.
      c. Make joints with aligned faces and arrises.

G. Frame anchors:
   1. Wall anchors for frame attachment to masonry construction: Adjustable, flat, minimum 18 ga. corrugated or perforated, T-shaped steel anchors with leg not less than 2" wide by 10" long. Provide one anchor per jamb for each 2'-0" of height or fraction thereof. Anchors for fire-rated frames shall be labeled type.
   2. Wall anchors for frame attachment to drywall partitions: Manufacturer's standard adjustable type for attachment to studs. Provide one anchor per jamb for each 2'-0" of height or fraction thereof. Anchors for fire-rated frames shall be labeled type.
   3. Typical floor anchors: Provide frames with minimum 18 ga. anchors for attachment to floor. For wall conditions that do not allow for the use of a floor anchor, provide an additional jamb anchor. Anchors for fire-rated frames shall be labeled type.
   4. In-place masonry or concrete: 3/8" countersunk, flat head, stove bolts in expansion shields, spaced 6" maximum from top and bottom of frame and at 2'-0" o.c., maximum, between. Anchors for fire-rated frames shall be labeled type.

H. Applied stops: Formed, 20 ga. steel with mitered corners. Attach using countersunk oval head machine screws at 1'-0" o.c., maximum.

I. Preparation for hardware and anchors:

1. Reinforcement: Reinforce components for hardware installation in accord with ANSI/SDI-100-91.
2. Punch single leaf frames to receive three silencers; double leaf frames to receive two silencers per leaf, at head. Protect holes from grout.
3. Factory-prepared hardware locations shall be in accord with ANSI/SDI 100-91 ANSI/SDI 107.
4. Provide grout shields where frames in masonry walls are cut or drilled.
5. Install hardware reinforcement and anchors without distortions or blemishes on exposed surfaces.
6. Head shall have 12 gage door closer reinforcement sleeve, full width and length of head, whether or not closers are called for. No mutes or mute holes.

2.03 ACCESSORIES

A. Grout for Frames: Portland cement grout with maximum 4 inch slump for hand troweling; thinner pumpable grout is prohibited.

B. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

C. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

2.04 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

B. Remove welded-in shipping spreaders installed at factory.

C. Prior to installation and with installation spreaders in place, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:
   1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
   2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
   3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
   4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

D. Drill and tap doors and frames to receive nontemplated mortised and surface-mounted door hardware.

3.03 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Install fire rated units in accordance with NFPA 80, NFPA 257 and UL 9.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

E. Install door hardware as specified in Section 08 7100.

F. Coordinate installation of electrical connections to electrical hardware items.

G. Touch up damaged factory finishes.

3.04 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

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

3.05 STEEL FRAMES

A. General:
   1. Install hollow metal frames in accord with ANSI/SDI 100-03 and SDI 105-92, approved shop drawings and product data.
   2. Clearance between frame and interfacing wall surfaces shall be 1/16" maximum.
   3. Shimming of door hinges is not an acceptable correction of door frames installed out of erection tolerance.

B. Welded frames:
   1. Set welded frames in position prior to beginning partitions work. Brace frames until permanent anchors are set.
   2. Set anchors for frames as work progresses. Install anchors at hinge and strike levels. Fully grout frames in masonry walls as specified in Concrete Unit Masonry section.
   3. Remove temporary braces and spreaders after wall construction is complete.
   4. Install welded frames in prepared openings in concrete and masonry walls using countersunk bolts and expansion shields. Fully grout in place.
   5. Solidly pack mineral-fiber insulation behind frames in metal-stud partitions.
   6. Weld field splices in borrowed lite frames and grind smooth.
   7. Fire-rated frame: Install in accord with requirements of NFPA No. 80-92 and No. 105-93.

3.06 STEEL DOORS

A. Install hollow metal doors in frames, using hardware specified in Finish Hardware section. Shimming of door hinges is not an acceptable repair of warped doors or door frames out of erection tolerances.

B. Edge clearances at doors:
   1. Between door and frame, at head and jambs: 1/8".
   2. At meeting edges of pairs of doors and at mullions: 1/8" to 1/4" (1/8" for fire-rated doors).
   3. At transom panels, without transom bars: 1/8".
   4. At sills without thresholds: 3/8" maximum above finish floor.
   5. At sills with thresholds: 3/8" maximum above top of threshold.
   6. Between face of door and door stop: 1/16".

C. Fire-rated doors: Install in accord with requirements of NFPA No. 80-99 and No. SDI 105-92.

3.07 ADJUSTING AND CLEANING

A. Adjust for smooth and balanced door movement.

B. Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective

work, including standard steel doors or frames that are warped, bowed, or otherwise unacceptable.

C. Clean grout and other bonding material off standard steel doors and frames immediately after installation.

D. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.

E. Galvannealed Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION

SECTION 08 7100
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed. As required, the work of this section shall also include those electrical items and connections required for proper operation of electrically charged devices and as specified within the hardware schedule.

1.02 RELATED DOCUMENTS

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

B. This Section Includes the Following:
   1. Butts and Hinges.
   2. Cylinders.
   3. Locksets and Trim.
   4. Door Stops.
   5. Weather-Stripping / Gasketing.
   6. Drip Strips.
   7. Thresholds.
   8. Fasteners.

1.03 RELATED SECTIONS

A. Section 081113 - Hollow Metal Doors and Frames.

B. Division 26 - Electrical.

C. Division 26 - Fire Alarm Systems.

1.04 SYSTEM DESCRIPTION

A. Design Requirements:
   1. Exit doors, including each leaf of a pair of doors, shall always be operable from the inside by the simple turn of a lever or by pushing an exit device without the use of a key or any special knowledge or effort; this includes doors of toilet and storage rooms.
   2. Unless otherwise specified, hand activated door opening hardware shall be located 36 inches above the finish floor.
   3. Dead bolts are not permitted unless operable with a single effort by a lever type hardware.
   4. The force applied to operate exit hardware shall not require more than 15 lbs. applied in the direction of travel.
   5. Refer to applicable Headings for system description for electric and electro-pneumatic hardware products.

1.05 REFERENCES

A. Standards of the following as referenced:
   1. American National Standards Institute (ANSI)
   2. Door and Hardware Institute (DHI)
   3. Factory Mutual (FM)
   4. National Fire Protection Association (NFPA)
   5. Underwriters' Laboratories, Inc. (UL)
   6. UL 10C - Fire Tests Door Assemblies
   7. Warnock Hersey

B. Regulatory Requirements:
   1. Comply with IBC requirements.
   2. Hardware for fire doors shall conform to requirements of UL - Fire Protection and Accident Hazard Equipment and the Georgia Fire Marshal, NFPA - 80 and IBC requirements for positive pressure testing.
   3. All hardware shall meet the requirements of IBC.
   4. Department of Justice, Office of the Attorney General, Americans with Disabilities Act, Public Law 101-336 (ADA).
   5. CABO/ANSI A117.1: Providing Accessibility and Useability for Physically Handicap People, 1992 edition.
   6. State of Georgia Accessibility Code 120-3-20.
   7. NFPA 101 Life Safety Code, with Georgia Amendments.

1.06 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification sections.

B. Shop Drawings:
   1. Wiring Diagrams: Submit diagrams, templates, instruction, and installation manuals, for electrical and electronic hardware.

C. Product Data:
   1. To include manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.

D. Finish Hardware Schedule:
   1. Hardware Schedule should be coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
   2. Schedule Content: Based on hardware indicated, organize schedule into vertical format "hardware sets" indicating complete designations of every item required for each door or opening. Use specification Heading numbers with any variations suffixed a, b, etc. Include the following information:
      a. Type, style, function, size, and finish of each hardware item.
      b. Name and manufacturer of each item.
      c. Fastenings and other pertinent information.
      d. Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
      e. Explanation of all abbreviations, symbols, and codes contained in schedule.
      f. Mounting locations for hardware.
      g. Door and frame sizes and materials.
      h. Keying information.
      i. Cross-reference numbers used within schedule deviating from those specified.
         1) Column 1: State specified item and manufacturer.
         2) Column 2: State prior approved substituted item and its' manufacturer.
   3. Submit Schedule to include recap sheet:
      a. Include manufacturer’s name, catalog number, relevant dimensions, fasteners, location of item in Work, door index number, frame material, door material, door size and thickness, door type, handing, fire-rating (if any), and sound-rating (if any).
      b. Hardware shall be listed by "Headings" in following manner:
         1) HEADING NO. 1
         2) 1 SINGLE/PAIR OF DOORS NO. (Room and Number) from/to (Room and Number)

3) 1 SINGLE/PAIR OF DOORS NO. (Room and Number) from/to (Room and Number)
4) SPEC. NO. List the appropriate numbers from the specified LIST OF FINISH HARDWARE
5) List of finish hardware
6) HEADING NO. 2, etc.

4. Submittal Sequence:
   a. Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
   b. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

E. Templates:
   1. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

F. Material Samples:
   1. Submit Samples of door hardware as required by Gardner Spencer Smith Tench & Jarbeau, P.C..

G. Submittal Review Time:
   1. In lieu of what is specified in Division 01 - Administrative Requirements, allow at least twenty-eight (28) days in the Milestones Schedule for Gardner Spencer Smith Tench & Jarbeau, P.C. and/or Heard County Board of Commissioners's OR review following receipt of submittal.

H. Contract closeout submittals:
   1. Operation and maintenance data: Complete information for installed door hardware.
   2. Warranty: Completed and executed warranty forms.
   3. Bitting Records: Complete key bitting records to be submitted to Owner’s Representative prior to project closeout.

1.07 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.

B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced architectural hardware consultant (AHC) who is available to Heard County Board of Commissioners's OR, Gardner Spencer Smith Tench & Jarbeau, P.C., and Contractor, at reasonable times during the course of the Work, for consultation.

C. Contractor to set up and attend the following:
   1. Meet with installer, supplier and representatives of lock, closer and exit device manufacturers prior to commencing installation of door hardware. Instruct installer in proper installation of specified products.
   2. Meet with Heard County Board of Commissioners's OR, supplier, and electrical and security contractors to coordinate all electrical hardware items. Supplier to provide wiring diagrams, riser diagrams, elevation drawings and operational narratives as required by the General and sub-contractors.

D. Require supplier to meet with Heard County Board of Commissioners's OR to finalize keying requirements and to obtain final instructions in writing.

E. Required supplier to meet with installer prior to beginning of installation of door hardware.

F. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges and seals whether listed in the Hardware Schedule or not. All hardware shall comply with standards UL 10C (Positive Pressure testing).
   1. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".

G. Coordinate and deliver templates or physical Samples of finish hardware items to manufacturer of interfacing items, such as doors and frames, in a timely manner to insure orderly progress of Work.

H. Comply with the following as a minimum requirement:
   1. Conform to Builders Hardware Manufacturers Association (BHMA) Finish Code, latest edition.
   2. Comply with ANSI A 117.1 and recommendations of ADA-AG.

1.08 DELIVERY, STORAGE AND HANDLING

A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.

B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.

C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.

D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).

E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.09 COORDINATION

A. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

B. Furnish templates for door and frame preparation.

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

D. Coordinate Heard County Board of Commissioners's keying requirements during the course of the Work.

1.10 WARRANTY

A. Manufacturer shall provide a minimum two (2) year material warranty except as follows:
   1. Provide a thirty (30) year manufacturer's material warranty for door closers.

2. Provide a five (5) year manufacturer’s material warranty for locksets and exit devices.

1.11 EXTRA MATERIALS

A. Extra Materials:
1. If applicable, provide five (5) percent or a minimum of one, whichever is greater, of the following hardware: locksets, exit devices, closers, and electric or electronic hardware. Transmit to Heard County Board of Commissioners's OR before Substantial Completion.

1.12 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Heard County Board of Commissioners's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 PRODUCTS

2.01 MANUFACTURERS:

A. Obtain all items of each type from the same manufacturer.

B. Where a particular manufacturer's product is specified, products of other manufacturers will be considered for substitution.

C. Manufacturer's Names and Trade Names: Display of names, logos, or other identification is acceptable on lock or hinge edge of door, but not where visible on either face of door.
1. Exception: Required fire labels.
2. Exception: As directed by or acceptable to Gardner Spencer Smith Tench & Jarbeau, P.C..
3. Exception: Manufacturer's name or other identification on rim of lock cylinders.

2.02 MATERIALS

A. Butts and Hinges:
1. Acceptable manufacturers:
a. Hager Hinge Company
b. Stanley Works
c. Ives*
d. Bommer
2. Characteristics:
a. Width of hinges shall be of sufficient size to clear trim and sized in accordance with specified manufacturer’s published recommendations. Where provided with magnetic holders, hinge width shall be of sufficient size to ensure door is parallel to wall when magnetic holders are engaged.
b. Furnish one pair of hinges for door leaves up to 5 feet high. Furnish one additional hinge for every additional 30 inches or fraction thereof.
c. Butts for doors shall be non-rising, loose pins, with button tip, except as otherwise indicated, provide hinge pins as follows:
1) Out-Swing Exterior Doors: Non-removable pins.
2) Out-Swing Corridor Doors with Locks: Non-removable pins.
3) Interior Doors: Non-rising pins.
4) Tips: Flat button and matching plug. Finished to match leafs.
d. Exterior doors to have non-ferrous hinges with stainless steel pins and bearings. Fire-rated doors to have steel or stainless steel hinges.

B. Continuous Hinges:
1. Acceptable manufacturers:
a. Ives*

b. Select
c. Markar

2. Characteristics:
   a. Continuous gear hinges to be manufactured of extruded 6063-T6 aluminum alloy with anodized finish, or factory painted finish as scheduled.
   b. All hinges to be manufactured to template. Uncut hinges to be non-handed and to be a pinless assembly of three interlocking extrusions applied to the full height of the door and frame without mortising.
   c. Vertical door loads to be carried on chemically lubricated polyacetal thrust bearings. Door and frame leaves to be continually geared together for the entire hinge length and secured with a full cover channel. Hinge to operate to a full 180o.
   d. Hinges to be milled, anodized and assembled in matching pairs. Fasteners to be steel self-drilling, self-tapping 12-24 x 3/4".
   e. Provide UL listed continuous hinges at fire doors. Continuous hinges at fire doors to meet the required ratings without the use of auxiliary fused pins or studs.
   f. All hinges to have replaceable bearings or carry a life-time warranty.
   g. The following doors to be furnished with full-length continuous gear type hinges:
      1) Student Dining and Performing Arts entries and exits.
      2) Student Multi-Occupancy Toilets.
      3) Locker Rooms.
      4) Gymnasium exits.
      5) 42-inch wide or wider doors.
      6) Corridor doors opening to the exterior.
      7) Vestibule doors.
      8) Cross-corridor doors not equipped with hold-open devices.
      9) Stair doors.

C. Cylinders:
   1. Acceptable manufacturers:
      a. Best Access Systems* (Note: Permanent cores supplied by Heard County Board of Commissioners)
      b. All cylinders shall be one manufacturer. No deviation will be considered.
   2. Characteristics:
      a. Equip locks with cylinders for small format interchangeable-core pin tumbler inserts. Furnish only temporary inserts for the construction period and remove these when directed by the Heard County Board of Commissioners.
      b. Installation of the permanent cores and keys by Heard County Board of Commissioners.
      c. Metals: Construct lock cylinder parts from brass or bronze, stainless steel or nickel silver.
      d. Key Material: Provide keys of nickel silver only.
      e. Key Quantity: Provide ten (10) construction master keys and three (3) construction control keys. Construction master keys are to be delivered to the contractor with the locksets.
      f. Deliver construction master keys and construction control keys to Heard County Board of Commissioners's OR.

D. Locksets and Trim:
   1. Acceptable manufacturers:
      a. Best Access Systems 35H Series x 16H
      b. Schlage L9000x07N* (Note: Basis of Design, Owner Preferred)
      c. Sargent 8200xLNB

2. Characteristics:
   a. Chassis: cold-rolled steel, handing field-changeable without disassembly.
   b. Latchbolts: 3/4-inch throw, stainless steel, anti-friction type.
   c. Lever Trim: through-bolted, accessible design, cast lever as scheduled. Spindles: independent break-away.
   d. Thumbturns: accessible design not requiring pinching or twisting motions to operate. Provide ADA thumbturns (Basis of Design: Schlage 09-509 x L583-363).
   e. Deadbolts: stainless steel, 1-inch throw.
   f. Electric operation: manufacturer-installed continuous duty solenoid.
   g. Strikes: curved lip type with exposed edges and corners rounded, of sufficient length to protect jamb and trim, and to not extend more than 1/8 inch beyond trim, jambs or face of doors in pairs. At out-swinging pairs with overlapping astragal, strike to have a 7/8” lip-to-center dimension. Dust box to be provided for door strikes.
   h. Scheduled Lock Series and Design: Schlage L series, 07N design.
   i. Certifications:
      1) ANSI A156.13, 1994, Grade 1 Operational.
      2) ANSI/ASTM F476-84 Grade 30 UL Listed.
3. Outside lever to be pinned. Inside lever to be by "Allen Head Set Screw" or by "Spanner Ring Nut".
4. Locksets throughout to be lever type of same manufacture.
5. Provide locks with occupancy indicator at all single teacher toilets (Schlage L9480 x 09-611 x L583-375).
6. Provide “Classroom Security Indicator” function (Basis of Design: Schlage Vandlgard LV9071 x L283-711) with clutching levers and visual verification of locked/unlocked status of outside trim at all classroom doors and where indicated.

E. Exit Devices:
1. Acceptable manufacturers:
   a. Von Duprin*, 98/35 Series.
   b. All exit devices shall be one manufacturer. No deviation will be considered.
2. Characteristics:
   a. Unless otherwise specified, exterior doors to be furnished with rim touch bar device. Right hand reverse active leaf - night latch function x cylinder x hardened cylinder ring x pull x sex nuts and bolts. Left-hand reverse inactive leaf - exit only x pull x sex nuts and bolts.
   b. Unless otherwise specified, interior doors to be furnished with rim touch bar device. Right hand reverse active leaf - lever handle x cylinder x sex nuts and bolts. Left hand reverse inactive leaf - exit only x sex nuts and bolts.
   c. All exit devices to be "UL" listed for life safety. All exit devices for fire rated openings to have "UL" labels for "Fire Exit Hardware."
   d. Exit devices throughout to be touch bar types of same manufacture.
   e. Lever design to match lock levers.
   f. Exit devices to be furnished sized for the specific door width and height.
   g. All exit devices mounted on labeled wood doors to be mounted on the door in accordance with the door manufacturer’s requirements.
   h. All trim to be thru-bolted to the lock stile case. All devices to be installed with sex nuts and bolts (SNB).
   i. All exit devices to be made of brass, bronze, stainless steel, or aluminum material, plated to the standard architectural finishes to match the balance of the door hardware. Painted finishes are not acceptable.
   j. Provide glass bead conversion kits to shim exit devices on doors with raised glass beads.

k. Equip rim exit devices with a roller strike. Provide 499F strikes at all fire rated doors with removable mullions.
l. All exit devices to be non-handed.
m. Touchpad to extend a minimum of 1/2 of the door width. Touchpad height to exceed height of mechanism case or rail assembly to eliminate pinch parts. If touchpad height does not exceed height of mechanism case/rail assembly, provide insert/filler on top and bottom of touchpad along mechanism case/rail assembly to prevent pinch part. Plastic touch pads are not acceptable.
n. All latchbolts to be the deadlocking type. Latchbolts to have a self-lubricating coating to reduce wear. Plated or plastic coated latchbolts are not acceptable.
o. Where removable mullions are used, provide the type controlled by a key cylinder under the master key system. (KR - key removable). On new additions, use KR mullions on doors where removable mullions are needed.
p. No vertical rod exit devices to be used on exterior doors.
q. Dogging mechanism to be mechanical hook and eye type. No plastic dogging cams to be allowed. Use hex-key type dogging.
r. Exit devices to include impact resistant, flush mounted end cap design to avoid damage due to carts and other heavy objects passing through an opening. End cap to be of heavy-duty metal alloy construction with horizontal adjustment to provide flush alignment with device cover plate. When exit device end cap is installed, no raised edges will protrude.

3. Provide “Classroom Security Indicator” function (Basis of Design: Von Duprin 98-2SI) with visual verification of locked/unlocked status of outside trim at all classroom doors and where indicated.

F. Door Closers:
1. Acceptable manufacturers:
a. LCN Closers*, 4040XP X MC.
b. All closers shall be one manufacturer. No deviation will be considered.
2. Characteristics:
a. Door closers to have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder.
b. All closers to utilize a stable fluid withstanding temperature range of 120°F to -30°F without seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors to be provided with temperature stabilizing fluid that complies with UL 10C.
c. Spring power to be continuously adjustable over the full range of closer sizes and allow for reduced opening force for the physically handicapped. Hydraulic regulation to be by tamper-proof, non-critical valves. Closers to have separate adjustment for latch speed, general speed and back check.
d. All closers to have solid forged steel main arms (and forearms for parallel arm closers) and, where specified, to have a cast-in solid stop on the closer shoe ("CUSH"). Where door travel on out-swing doors must be limited, use "CUSH or SCUSH" type closers. Auxiliary stops are not required when “CUSH” type closers are used.
e. Overhead concealed closers to have spring power adjustable for 50% increase in closing power and fully mortised door tracks.
f. All closers (overhead, surface and concealed) to be of one manufacturer and carry manufacturer's thirty (30) year warranty. Electric closers to carry manufacturer’s two (2) year warranty.
g. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable

units complying with ADA and ANSI A-117.1 provisions for door opening force.

h. Unless otherwise indicated, closers to be installed to allow door swing as shown on plans. Doors swinging into exit corridors to provide for corridor clear width as required by code. Where possible, mount closers inside rooms.
i. All closers to have full, deep-drawn, one-piece metal covers (MC). Covers with welded or mitered edges are not acceptable.
j. All closers to be installed with thru-bolts and machine screws (TBWMS).
k. Powder coating finish to be certified to exceed 100 hours salt spray testing by ETL, an independent testing laboratory used by BHMA for ANSI certification.
l. Combination Door Closers and Holders: Provide units designed to hold door in open position under normal usage and to release and automatically close door under fire conditions. Incorporate an integral electromagnetic holder mechanism designed for use with UL listed fire detectors, provided with normally closed switching contacts.
m. Magnetic Door Holders: Provide heavy duty wall or floor mounted units with metal housing and complete mounting hardware. Provide extensions as required. Provide 24V holding coils unless otherwise scheduled.
n. Door closers to conform to ANSI A156.4, Grade 1, IBC and ADAAG 4.13.10 - Door Closers.
o. Provide spacer block or support bracket for securing fifth screw on closer arm shoe. Provide special brackets, shoes or other attachment devices as required to suit frame and door conditions.
p. Maximum pressure to operate doors to not exceed following:
    1) Fire rated doors: The authority having jurisdiction may determine the maximum force, not to exceed 15.0 lbs, to operate fire doors to achieve positive latching.
    2) Exterior doors: 8.5 lbs.
    3) Interior doors: 5.0 lbs.
q. The General Contractor to furnish a certificate, executed by a representative of the closer manufacturer, that all closers have been inspected and adjusted, are operating as designed and have been installed in accordance with the manufacturer's instructions.
r. Door closers to be installed at the following:
    1) Exterior doors.
    2) Fire rated doors.
    3) Corridor doors.
    4) Toilet Room doors.
    5) Storage Room doors

G. Protection Plates: Furnish kick plates of 10 inches x 2 inches less door width on single doors, 10 inches x 1 inch less door width on pairs of doors. Provide one plate for push side of closer-equipped doors. Furnish mop plates of 4 inches x 1 inch less door width on doors swinging into toilet rooms.
1. Acceptable manufacturers:
    a. Trimco
    b. Ives
    c. Rockwood Manufacturing*
2. Characteristics:
    a. Provide manufacturers standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
    b. Materials:
        1) Metal Plates: Stainless Steel, .050 inch (U.S. 18 gage).

c. Fabricate protection plates not more than 2 inches less than door width on hinge side and not more than 1 inch less than door width on pull side.
d. Heights:
   1) Kick plates to be 8 inches in height.
   2) Mop plates to be 8 inches in height.
   3) Armor plates to be 30 inches in height.
e. Kick and mop plates shall be a minimum 0.050 inch thick; Type 304 stainless steel, with finished beveled edges (B4E).

H. Power Operators:
1. Acceptable manufacturers:
   a. LCN*, 4640 Series.
   b. All power operators shall be one manufacturer. No deviation will be considered.
2. Characteristics:
   a. Where low kinetic energy, as defined by ANSI Standard Al 56.19, power operators are indicated for doors required to be accessible to the disabled, provide electrically powered 4640 series operators complying with the 1990 ADA for opening force and time to close standards.
   b. Full closing force to be provided when the power or assist cycle ends.
   c. All power operator systems to include the following features and functions:
   d. Provisions for separate conduits to carry high and low voltage wiring in compliance with the National Electrical Code, Section 725-31.
   e. Operator designed to prevent damage to the mechanism if the system is actuated while the door is latched or if the door is forced closed during the opening cycle.
   f. All covers, mounting plates and arm systems to be powder coated and successfully pass a minimum of 100 hours testing as outlined in ANSI Standard Al56.18.
   g. UL listed for use on labeled doors.
   h. All operators to be non-handed with spring power over a range of at least four sizes; either 1 through 4 or 2 through 5.
   i. Provisions in the control box or module to provide control (inputs and outputs) for electric strike delay, auxiliary contacts, sequential operation, fire alarm systems, actuators, swing side sensors and stop side sensors.
   j. When an obstruction or resistance to the opening swing is encountered, the operator will pause at that point, and then attempt to continue opening the door. If the obstruction or resistance remains, the operator will again pause the door.
   k. Easily accessible main power and maintain hold open switches provided on the operator.
   l. An electronically controlled clutch to provide adjustable opening force.
   m. A microprocessor to control all motor and clutch functions.
   n. An on-board power supply capable of delivering both 12V and 24V outputs up to a maximum of 1.0 ampere combined load.
   o. All input and output power wiring to be protected by slow blow fuses. Fuses to be easily replaceable without special tools or component replacement.
   p. Actuators to have a stainless steel touch plate that measures 4-1/2" in diameter and features a blue filled handicap symbol. The actuator to be weather resistant and provide normally open momentary contacts. The actuator designed to mount in a standard single gang box (2" wide, 4" high and 2" deep).
   q. Power door operators will be provided with a two (2) year warranty.
   r. Installation of the automatic door operators to be performed by a trained installer, skilled in the installation of automatic door operators and

equipment. Factory training provided by the operator manufacturer is recommended. All low voltage switch hookups are the responsibility of the operator installer, as well as temporary wiring hookup to plug into wall outlet for test of system. Final hookup of 115VAC power will be handled by and coordinated with the General Contractor's electrical contractor.

I. Overhead Door Stops and Holders:
   1. Acceptable manufacturers:
      a. Glynn Johnson*
      b. Rixson Firemark
   2. Characteristics:
      a. Provide heavy duty door stops and holders of stainless steel.
      b. Stops and holders to be installed with the jamb bracket mounted on the stop.
      c. All surface-mounted overhead stops and holders to be installed with sex nuts and bolts (SNB).

J. Floor Stops and Bumpers:
   1. Acceptable manufacturers:
      a. Trimco
      b. Ives*
      c. Rockwood
   2. Characteristics:
      a. Refer to Part 3, Hardware Schedule.
      b. Floor stops to be mounted to protect door and trim.
      c. Furnish stop of appropriate height, minimum 3/4" above undercut of door.
      d. Where the specified floor stop cannot be installed, or would present a pedestrian hazard, omit and furnish a heavy-duty overhead stop (US32D finish) or, if closer is specified, furnish closer with integral spring-cushion stop arm.

K. Weather-stripping / Gasketing:
   1. Acceptable manufacturers:
      a. National Guard Products, Inc.*
      b. Reese Industries
      c. Zero Weatherstripping Co., Inc.
   2. Characteristics:
      a. Install gaskets and intumescing seals on fire rated doors and frames.
      b. Unless otherwise specified, install weather-stripping on doors from air-conditioned spaces to the exterior: fastener-applied frame seals, nylon-brush door sweeps, and, at pairs, astragals.
      c. Types: Indicated in Hardware Headings.

L. Drip Strips:
   1. Acceptable manufacturers:
      a. National Guard Products, Inc.*
      b. Pemko.
      c. Zero Weatherstripping Co., Inc.
   2. Characteristics:
      a. Unless otherwise specified, install drip strips on all exterior doors that do not have cover: fastener-applied frame seals.
      b. See schedule for requirements.

M. Thresholds:
   1. Acceptable manufacturers:
      a. National Guard Products, Inc.*
      b. Reese Industries
      c. Zero Weatherstripping Co., Inc.

2. Types: Indicated in Hardware Headings.
3. Unless otherwise specified, thresholds shall conform to accessibility standards ANSI A 117.1.

N. Push Plates:
1. Acceptable manufacturers:
   a. Trimco
   b. Ives*
   c. Rockwood Manufacturing
2. Characteristics:
   a. Exposed Fasteners: Provide manufacturers standard exposed fasteners.
   b. Material to be extruded/forged, stainless steel. Refer to Part 3, Hardware Schedule.
   c. Plates to be 0.050 thick, 6 inches x 16 inches minimum, beveled on four (4) edges.
   d. Hardware Cutouts: Push plates installed over locking hardware to have cylinder and turn lever cutouts as required.

O. Pull Plates:
1. Acceptable manufacturers:
   a. Trimco
   b. Ives*
   c. Rockwood
2. Characteristics:
   a. Provide concealed thru-bolted trim on back to back mounted pulls, but not for single units.
   b. Material to be extruded/forged/cast, stainless steel. Refer to Part 3, Hardware Schedule.
   c. Pulls to have protective plate mounted under pull, 0.050 inches thick, 4 inches x 16 inches beveled on four (4) edges.
   d. Hardware Cutouts: Pull plates installed over locking hardware to have cylinder and turn lever cutouts as required.

P. Door Bolts/Coordinators:
1. Acceptable manufacturers:
   a. Trimco
   b. Ives*
   c. Rockwood Manufacturing
2. Characteristics:
   a. Flush bolts to be forged brass 6-3/4" x 1", with 1/2" diameter bolts. Plunger to be supplied with milled surface one side which fits into a matching guide.
   b. Automatic flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
   c. Self-latching flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
   d. Automatic flush bolts and self-latching flush bolts to be UL listed for fire door application without bottom bolts.
   e. Coordinator to be soffit mounted, non-handed, fully automatic UL listed coordinating device for sequential closing of paired doors with or without astragals.
   f. Provide filler pieced to close the header. Provide brackets as required for mounting of soffit applied hardware.
   g. Rub plate for automatic bolts to be provided for active door.
   h. Provide dust proof strikes for bottom bolts.

i. Provide brackets as required for items fastened to coordinators.
j. Provide door rub plates for both doors with coordinators.

Q. Push Pull Sets:
1. Acceptable manufacturers:
a. Trimco
b. Ives*
c. Rockwood Manufacturing
2. Characteristics:
a. Refer to Part 3, Hardware Schedule for mounting systems.
b. Material to be solid rod, stainless steel.
c. Provide sets sized as shown in Part 3, Hardware Schedule.

R. Protective Plates:
1. Acceptable manufacturers:
a. Trimco
b. Ives*
c. Rockwood Manufacturing
2. Characteristics:
a. Provide manufacturers standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
b. Materials:
1) Metal Plates: Stainless Steel, .050 inch (U.S. 18 gage).
c. Fabricate protection plates not more than 2 inches less than door width on hinge side and not more than 1 inch less than door width on pull side.
d. Heights:
1) Kick plates to be 8 inches in height.
2) Mop plates to be 8 inches in height.
3) Armor plates to be 30 inches in height. Armor plates on fire doors to comply with NFPA 80.

S. Silencers:
1. Acceptable manufacturers:
a. Hager
b. Ives*
c. Rockwood Manufacturing
2. Provide three (3) for each single door; two (2) for each pair of doors.
3. Omit silencers at openings scheduled to receive perimeter gasketing.

T. Key Cabinet and System:
1. Acceptable manufacturers:
a. Telkee, Inc.
b. MMF Manufacturing
c. Key Systems Inc.
2. Provide a key control system including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150 percent of the number of locks required for the Project.
3. Provide multiple drawer type cabinet.

U. Security Equipment:
1. Acceptable manufacturers:
a. Schlage Electronics*
2. Characteristics:
a. Provide items as found in Hardware Headings.
b. Coordinate security equipment with Electrical.

V. Magnetic Holders provided and installed by hardware supplier: Coordinate electrical devices with Division 26 and the Drawings.

W. Fasteners: Shall match finish of hardware. Provide fasteners for all hardware at toilet rooms, custodian rooms, kitchen doors, and exterior doors: stainless steel for chrome, aluminum, or stainless finish hardware; brass or bronze for brass or bronze finish hardware. Provide Phillips flat-head screws complying with the following requirements:
   1. For metal doors and frames install machine screws into drilled and tapped holes.
   2. For wood doors and frames install threaded-to-the-head wood screws.
   3. For fire-rated wood doors install #12 x 1-1/4 inch, threaded-to-the-head steel wood screws.
   4. Finish screw heads to match surface of hinges or pivots.

2.03 MATERIALS AND FABRICATION

A. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise acceptable to Architect.
   1. Manufacturer's identification will be permitted on rim of lock cylinders only.

B. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.

C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
   1. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
   2. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
   3. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners. Use thru-bolts for installation of all closers, exit devices and overhead stops. Coordinate with wood doors and metal doors and frames where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

2.04 FINISH

A. Unless otherwise specified, finish of hardware shall be dull chromium-plated BHMA 652 for steel-based metals, BHMA 626 for brass-based metals, except for kickplate, levers, escutcheons, push plates, continuous hinges, lock strike plates, and exit device touch bars, which shall be BHMA 630. Levers for locksets and exit devices shall be BHMA 630.

B. Unless otherwise specified, overhead door closers and brackets shall be BHMA 689, to match other finish hardware in same room or space.

C. Match items to the manufacturer’s standard color and texture finish for the latch and lock sets (or push-pull units if no latch of lock sets).

D. Provide finishes that match those established by ANSI or, if none established, match the Architect’s sample.

E. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

F. The designations used to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.
   1. Hinges (Exterior): 630 (US32D) Satin Stainless Steel
   2. Hinges (Interior): 652 (US26D) Satin Chrome Plated Steel
   3. Continuous Hinges: 628 (US28) Clear Anodized Aluminum finish to match doors @ aluminum entrance systems
   4. Flush Bolts: 626 (US26D) Satin Chrome Plated Brass/Bronze
   5. Automatic and Constant Latching Bolts: 630 (US32D) Satin Stainless Steel
   6. Locks: 630 (US32D) Satin Stainless Steel
   7. Exit Devices: 628 (US28) chassis, 689 (Powder Coated) covers, and 630 (US32D) touch pads
   8. Door Closers: 689 (AL) Powder Coat
   9. Push Plates: 630 (US32D) Satin Stainless Steel
   10. Pull Plates: 630 (US32D) Satin Stainless Steel
   11. Push Pull Sets: 630 (US32D) Satin Stainless Steel
   12. Protective Plates: 630 (US32D) Satin Stainless Steel
   13. Floor Stops: 626 (US26D) Satin Chrome Plated Brass/Bronze
   14. Wall Stops: 630 (US32D) Satin Stainless Steel
   15. Overhead Stops and Holders: 630 (US32D) Satin Stainless Steel
   16. Thresholds/Weatherstripping: 627/628 (US27/US28) Aluminum

PART 3 EXECUTION

3.01 INSTALLATION

A. Finish hardware shall be installed as specified in Finish Hardware Schedule.
   1. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
      a. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
   2. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage and reinstallation, or application of surface protection, with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.
   3. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
   4. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
   5. Provide necessary screws, bolts, anchors, and fastenings of required sizes and type for proper installation of hardware. Exposed screws to have Phillips heads and wood screws to be fully threaded.
   6. Fitting: Hardware to be accurately fitted and, with exception of prime-coated butt or continuous hinges, bar-type coordinators and flat astragals, to be removed before finish painting is installed. Upon completion of finish painting and/or sealing, permanently install the hardware.
   7. Anchorage of Hardware: Hardware fastened to concrete, masonry or gunite construction to be provided with drop-in expansion anchors by "Red Head Multi Set II" or "Rawl Steel". Pilot holes of suitably lesser diameter to be drilled prior to the insertion of wood and sheet metal screws.

8. Door escutcheons and push plates to be installed with stainless steel or bronze, oval, Phillips head fully threaded screws, not less than 3/4 inch - No. 6.
9. Exit devices to be mounted with non-ferrous sex nuts and fully threaded machine screws, except where through bolts engage outside trim of locking case.
10. Door closers to be installed for maximum degree of opening of each door.
11. Following to be installed with sex nuts and fully threaded machine screws.
    a. Door closers
    b. Exit devices
    c. Door pulls
    d. Surface-mounted overhead stops and holders
12. Install exterior door stops as required. On new concrete, stops to be installed with 1/4-20 screws. On asphalt concrete, stops to be installed with 1/4-20 screws to an anchor plate set in a concrete monument. Anchor plate to be Trimco 1268, or equal. Floor stops are not to be located in the path of travel and are to be located not more than 4 inches from walls.
13. Kick plates to be installed with screws at each corner and screws evenly spaced along each side not more than 3 inches apart on centers.
    a. Except on wood doors, screws to be undercut pan head.
14. Thresholds to be installed with 1/4-20 screws, Pour-Roc and coped to trim.
    a. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers."
15. Sound Seals and Weatherstripping / Gasketing:
    a. Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.
    b. A mounting screw to be installed within 2 inches of cuts or corners of weatherstripping and/or gasketing.
    c. Weatherstripping and/or gasketing to be installed with No. 8 - 3/4 inch Tek Phillips pan head screws.

3.02 ADJUSTING AND CLEANING

A. Before Substantial Completion, hardware shall be cleaned and inspected. Where hardware is deemed defective, repair or replace as required.

B. Door Closers: Final adjustments shall be performed before Substantial Completion, with mechanical system balanced and in operation.

C. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
    1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to function properly with final operation of heating and ventilating equipment.

D. Clean adjacent surfaces soiled by hardware installation.

3.03 EXAMINATION

A. Upon completion of installation, verify correct installation of hardware, according to reviewed Hardware Schedule and Keying Schedule. Verify that all finish hardware is in optimum working condition.

B. Door Hardware Supplier's Field Service
    1. Inspect door hardware items for correct installation and adjustment after complete installation of door hardware.

2. Instruct Heard County Board of Commissioners's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
3. File written report of this inspection to Gardner Spencer Smith Tench & Jarbeau, P.C..

C. Prior to project completion, representatives of the lock, exit device and overhead closer manufacturer(s) shall inspect and adjust all units and certify that all units are installed in accordance with the manufacturer's instructions, and are regulated properly and functioning correctly. A written report shall be provided to Gardner Spencer Smith Tench & Jarbeau, P.C. as to the inspection and shall include appropriate certificates.

3.04 PROTECTION

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

3.05 SCHEDULES

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 & Jarbeau, P.C. 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. Marble, granite, slate, and other natural stones.
   8. Floors, unless specifically so indicated.
   9. Ceramic and other tiles.
   10. Exterior insulation and finish system (EIFS).
   11. Glass.
   12. Acoustical materials, unless specifically so indicated.
   13. 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 & Jarbeau, P.C.'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 & Jarbeau, P.C. 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. Basis of design: PPG Architectural Coatings (PPG): www.ppgpro.com.
   2. Benjamin Moore & Co (BM): www.benjaminmoore.com.

3. 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 & Jarbeau, P.C.'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 & Jarbeau, P.C..

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: 4-603XI 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: 17-921XI 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: 17-921XI 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. 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: 17-921XI 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.

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 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. Wood Trim - Staining Woods:
1. Stain Coat:
a. PPG: FLD565, Flood Pro Series, Flood CWF-UV5 Penetrating Wood Finish.
b. BM: Arbocoat, Exterior Transparent Stain.
c. SW: Super Deck, Exterior Transparent Stain.
2. Finish - (2 coats):

a. PPG: FLD565, Flood Pro Series, Flood CWF-UV5 Penetrating Wood Finish.
b. BM: Arbocoat, Exterior Transparent Stain.
c. SW: Super Deck, Exterior Transparent Stain.

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 Filler B25W25.
2. Primer (Previously Painted) - 1 coat applied at DFT of no less than 1.6 mils or as recommended by manufacturer:
a. PPG: 17-921XI 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: 919-10 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. Wood and Cement Board Siding (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: 4-603XI Perma-Crete, 100% Acrylic Latex, Interior/Exterior Alkali Resistant 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: 649-10 Series, Acri-Shield Max, Exterior 100% Acrylic Latex Semi-Gloss.
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: 919-10 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: 919-10 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. Wood Trim - Staining Woods:
1. Stain Coat:
a. PPG: Deft Oil Based Wood Stain DFT400 Series.
b. BM: Benwood Interior Oil Wood Stain 241.
c. SW: Wood Classics Interior Oil Stain A48-200 series.
2. Sealer Coat:
a. PPG: Deft Sanding Sealer Interior Water Based DFT61.
b. BM: Benwood Quick Drying Sanding Sealer 413.
c. SW: Wood Classics FD Sanding Sealer B26 series.
3. Finish - (2 coats):
a. PPG: Deft Polyurethane Interior Oil Based 350 g/L - (Satin) DFT129 (Gloss) DFT127.
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 & Jarbeau, P.C. 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. Refer to Division 15 and Division 16 for schedule of color coding of equipment, duct work, piping, and conduit.

B. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

C. Finish equipment, piping, conduit, and exposed duct work in utility areas in colors according to the color coding scheme indicated.

D. 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 & Jarbeau, P.C..

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 & Jarbeau, P.C..

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

SECTION 31 3116
TERMITE CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Chemical soil treatment.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Vapor barrier placement under concrete slab-on-grade.

1.03 REFERENCE STANDARDS

A. Title 7, United States Code, 136 through 136y - Federal Insecticide, Fungicide and Rodenticide Act 1947 (Revised 2001).

B. Agriculture Department of the State of Georgia: "Rules of the Georgia Structural Pest Control Commission", current edition.

1.04 SUBMITTALS

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

B. Product Data: Indicate toxicants to be used, composition by percentage, dilution schedule, intended application rate.

C. Container Label: Submit copy of container label.

D. Test Reports: Indicate regulatory agency approval reports when required.

E. Manufacturer's Certificate: Certify that toxicants meet or exceed specified requirements.

F. Record and document moisture content of soil before application.

G. Warranty: Submit warranty and ensure that forms have been completed in Heard County Board of Commissioners's name.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing this type of work and:
   1. Having minimum of three (3) years documented experience.
   2. Approved by manufacturer of treatment materials.
   3. Certified by the State of Georgia in accordance with the requirements of the Department of Agriculture.
   4. Licensed in the State of Georgia.

1.06 REGULATORY REQUIREMENTS

A. Conform to applicable code for requirements for application, and comply with EPA regulations.

B. Use only termiticides which bear a Federal registration number of the United States Environmental Protection Agency.

1.07 SEQUENCING

A. Give Gardner Spencer Smith Tench & Jarbeau, P.C. and Heard County Board of Commissioners 48 hours notice prior to time that application of soil treatment is to commence.

B. Apply toxicant immediately prior to installation of vapor barrier under slabs-on-grade or as recommended by the certified installer.

C. Do not schedule application if rain is forecasted during or after application.

D. Make application at end of work day.

1.08 WARRANTY

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

B. Provide five year installer's warranty against damage to building caused by termites.

C. Warrant effectiveness of treatment for period of Five (5) years, non-prorated from date of Substantial Completion against infestation and/or termite damage. without additional cost to the Owner during warranty period. Warranty shall be in the form of an insurance policy, written in the amount of 10% of the construction cost or One Hundred Thousand and NO/100 Dollars ($100,000.00), whichever is less, for damages to building and contents. Rating for insurance company shall be A-, IV (4). The warranty shall be submitted along with other documents in accordance with Contract Close-Out section.

D. Warranty shall state dates of application and chemicals used, including quantities and concentrations.

E. Warranty shall be renewable on a year-to-year basis at the end of a five year period, at Heard County Board of Commissioners's option, for a fee to be mutually agreed upon at the time of renewal.

F. Contractor shall re-treat soil and repair or replace damage caused by termite infestation at no additional charge to Heard County Board of Commissioners

PART 2 PRODUCTS

2.01 CHEMICAL SOIL TREATMENT

A. Toxicant Chemical: EPA Title 7, United States Code, 136 through 136y approved; synthetically color dyed to permit visual identification of treated soil.

B. Diluent: Recommended by toxicant manufacturer.

C. Manufacturers:
   1. Bayer Environmental Science Corp: www.backedbybayer.com/pest-management.
   2. Control Solutions Inc: www.controlsolutionsinc.com.
   3. FMC Professional Solutions: www.fmcprosolutions.com.
   4. Syngenta Professional Products: www.syngentaprofessionalproducts.com.
   5. Substitutions: See Division 01 - Product Requirements.

D. Mixes: Mix toxicant to manufacturer's instructions.

E. Toxicant Chemical: EPA ({\rs\#1}) approved; synthetically color dyed to permit visual identification of treated soil.

F. Diluent: Recommended by toxicant manufacturer.

2.02 MIXES

A. Mix toxicant to manufacturer's instructions.

B. Mixtures of chemicals are prohibited, except as pre-mixed from manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that soil surfaces are unfrozen, sufficiently dry to absorb toxicant, and ready to receive treatment.

B. Verify final grading is complete.

C. Remove foreign matter which could decrease effectiveness of treatment in areas too be treated.

3.02 APPLICATION - CHEMICAL TREATMENT

A. Comply with requirements of U.S. EPA and applicable state and local codes.

B. Spray apply toxicant in accordance with manufacturer's instructions.

C. Apply toxicant at following locations:
   1. Under Slabs-on-Grade.
   2. At Both Sides of Foundation Surface.
   3. Around plumbing pipes, electrical conduit, interior column footings, and slab penetrations.
   4. Outside edge of building. Treat soil at outside edge of building. Dig a trench 8" wide along the outside of foundation to a depth of 1'-0" minimum. Punch holes to the top of footing at 1'-0" o.c. and apply treatment. Mix soil treatment with soil as it is replaced in trench.

D. Under slabs, apply toxicant 12 hours prior to installation of vapor barrier.

E. At foundation walls, apply toxicant 12 hours prior to finish grading work outside foundations.

F. Apply extra treatment to structure penetration surfaces such as pipe or ducts, and soil penetrations such as grounding rods or posts.

G. Re-treat disturbed treated soil with same toxicant as original treatment.

H. If inspection or testing identifies the presence of termites, re-treat soil and re-test.

I. Perform no treatment when soil is wet or after rains. Avoid flow of toxicant from treated surfaces.

3.03 INSTALLATION - SITE-APPLIED TERMITICIDE

3.04 PROTECTION

A. Do not permit soil grading over treated work.

B. Protect sheet materials from damage after completed installation. Repair damage with manufacturer's recommended products and according to the manufacturer's written instructions.

C. Post signs in areas of applications, warning that poison has been applied; leave signs in place for minimum 2 weeks following application.

END OF SECTION

SECTION 32 3975
SITE CLEANUP AND FINISH

PART 1 GENERAL

1.01 DESCRIPTION

A. Furnish labor, materials, and equipment required to complete cleanup of all paving, building, ground, and all other areas outlined on the drawing.

B. Debris shall not be dumped on any part of the property or any unauthorized place. All debris, construction material, Contractor's buildings or equipment, stumps, roots, boulders or any other extraneous material deposited during construction shall be removed from the site.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION