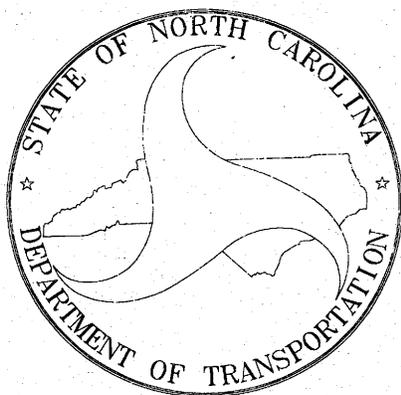


SPECIFICATIONS FOR:

I-40 REST AREA & VENDING BUILDINGS MCDOWELL COUNTY, NORTH CAROLINA

Contract ID	C202206
TIP No.	K-4909
Project No. WBS	39977.3.1
Federal-Aid No.	IMS-040-2(137)83



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Architect / Engineer:

**FACILITIES DESIGN
GENERAL SERVICES DIVISION, NCDOT
1 SOUTH WILMINGTON STREET
RALEIGH, NORTH CAROLINA 27601**

27 October 09

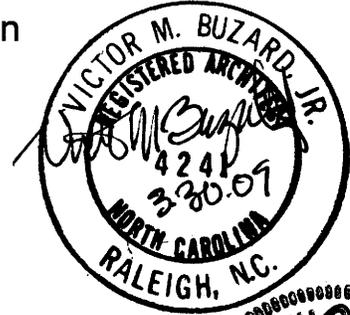
SET NO. ____

PROJECT: I-40 REST AREA & VENDING
NC Department of Transportation
McDOWELL County, NC

PROJECT NO.: 39977.3.1

OWNER: NC Department of Transportation

ARCHITECT: Facilities Design, NCDOT
Raleigh, NC (919) 715-0400
Victor M. Buzard, Jr., Architect



ENGINEERS:

STRUCTURAL: Facilities Design, NCDOT
Raleigh, NC (919) 715-0400
W. E. Ratterree, PE



MECHANICAL Triangle Engineering Associates, PLLC
1320 SE Maynard Rd. Suite 201
Cary, NC (919) 678-6107
Rick Keil, PE

PLUMBING & ELECTRICAL: Triangle Engineering Associates, PLLC
1320 SE Maynard Rd. Suite 201
Cary, NC (919) 678-6107
Joel M. Hobby, PE



TABLE OF CONTENTS

TOC-2

<u>SECTION</u>	<u>TITLE</u>	<u>PAGES</u>
<u>DIVISION 1 - GENERAL REQUIREMENTS</u>		
01010	Summary of the Work	-2
01026	Payment and Completion Procedures	-3
01151	Construction and Demolition Materials Recycling Requirements	-3
	Form 01151A	-1
	Form 01151B	-1
01200	Progress Documentation and Procedures	-2
01300	Submittals	-3
<u>DIVISION 2 - SITE WORK</u>		
02072	Minor Demolition for Remodeling	-2
02200	Earthwork	-3
02280	Soil Treatment	-2
02712	Subdrainage Systems for Structures	-1
<u>DIVISION 3 - CONCRETE</u>		
03310	Structural Concrete	-4
<u>DIVISION 4 - MASONRY</u>		
04220	Brick & Stone Veneer & Concrete Unit Masonry	-3
04270	Glass Unit Masonry	-2
<u>DIVISION 5 - METALS</u>		
05120	Structural Steel	-3
<u>DIVISION 6 - WOOD AND PLASTICS</u>		
06100	Rough Carpentry	-2
06200	Finish Carpentry	-2
<u>DIVISION 7 - THERMAL & MOISTURE PROTECTION</u>		
07160	Bituminous Dampproofing	-2
07210	Building Insulation	-2
07411	Manufactured Metal Roof Panels	-3
07460	Siding	-2
07625	Sheet Metal Gutters and Downspouts	-2
07900	Joint Sealers	-2
<u>DIVISION 8 - DOORS AND WINDOWS</u>		
08110	Steel Doors and Frames	-2
08211	Solid Core Flush Wood Doors	-2
08410	Metal-Framed Storefronts	-3
08460	Automatic Entrance Doors	-2
08550	Wood Windows	-3
08620	Unit Skylights	-2
08710	Door Hardware	-3
08800	Glazing	-2

	<u>DIVISION 9 - FINISHES</u>	
09260	Gypsum Board System	-2
09300	Tile	-3
09660	Resilient Sheet Flooring	-2
09900	Painting	-4

	<u>DIVISION 10 - SPECIALTIES</u>	
10100	Visual Display Boards	-1
10170	Plastic Toilet Compartments	-2
10425	Signs	-3
10522	Fire Extinguishers, Cabinets, and Accessories	-2
10810	Toilet Accessories	-2

DIVISION 11 - EQUIPMENT
Not Used

	<u>DIVISION 12 - FURNISHINGS</u>	
12484	Floor Grid and Mat Systems	-3

	<u>DIVISION 13 - COMPENSATION FOR GENERAL CONTRUCTION</u>	
13100	Compensation for General Construction	-1

DIVISION 14 - CONVEYING SYSTEMS
Not Used

	<u>DIVISION 15 - PLUMBING AND MECHANICAL</u>	
15A	Plumbing Work	
1540	Compensation for Plumbing	-1
15B	Mechanical Work (HVAC)	
1590	Compensation for Mechanical	-1

	<u>DIVISION 16 - ELECTRICAL</u>	
16	Electrical Work	
1620	Compensation for Electrical	-1

ROADSIDE ENVIRONMENTAL UNIT
Site Improvements

DIVISION 1 - GENERAL REQUIREMENTS 40

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. The owner is: North Carolina Department of Transportation, 1 S. Wilmington St., Raleigh, NC.
- B. Section Includes:
 - 1. Project description.
 - 2. Access to the site.
 - 3. Contractor's use of the premises.
 - 4. Coordination requirements.
 - 5. Pre-construction meeting.

1.02 PROJECT DESCRIPTION

- A. The project consists of the construction of a new Rest Area Building as **Phase 1** and **Phase-2** as converting the existing Rest Area buildings for Vending usage (approximately 2,720 and 1,557 sq. ft. respectively) for the Eastbound lane (EBL). The Westbound lane (WBL) buildings are to be completely replaced with new Rest Area and Vending buildings as indicated.
 - 1. At I-40 south of Marion, NC, in McDowell County, NC.
 - 2. As shown in contract documents for the East and Westbound I-40 Rest Area & Vending buildings prepared by Facilities Design, NCDOT.
 - a. Dated 27 October 09.
- B. The Work consists of:
 - 1. Two (2) new one story, wood framed w/ brick and stone veneer, metal roofing panels, unprotected construction, slab-on-grade building with matching exterior materials to the existing Rest Area buildings, and remodeling of the EBL existing Rest Area building into Vending buildings w/ new metal roofing panels. The WBL buildings are to be replaced with new Rest Area and Vending buildings.
 - a. No asbestos containing building material was located in the existing buildings by asbestos inspection dated 10-29-97.
 - b. Demolished materials shall be recycled, see Section 01151.
 - 2. Concrete entrance sidewalks (see Landscape Spec's).
 - 3. Building and immediate site rough and finish grading of all disturbed areas (see Landscape Spec's).
 - 4. The General Contractor is responsible for all **layout and surveying** of sidewalks, utilities, and buildings.

1.03 ACCESS TO THE SITE AND USE OF THE PREMISES

- A. The space available to the contractor for the performance of the work, either exclusively or in conjunction with others performing other construction as part of the project, is an outdoor space sufficient for storage trailers and access to the construction area from the exit ramps on the lanes of I-40 away from the Public's use of the temporary restroom facilities.
- B. Exit ramps, drives and parking spaces shall remain open for the public's use for the Eastbound lane buildings.
- C. The existing rest area building will remain in use for the public during the Phase 1 construction. Phase 2 can not start until Phase 1 is complete and is opened for the public's use for the Eastbound lane buildings only. The Westbound lane facility will be closed to the public for the Contractors use, since both buildings will be completely demolished and replaced with new buildings.
- D. The construction limits and storage areas will be separated from the public by 5' high chain link safety fencing provided by the Contractor and adjusted for each of the project Phases.
- E. Signs: Do not install, or allow to be installed, signs other than specified sign(s) and signs identifying the principal entities involved in the project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PRECONSTRUCTION MEETING

- A. A pre-construction meeting will be held at a time and place designated by the Architect / Engineer, for the purpose of identifying responsibilities of the Owner's and the Architect's personnel and explanation of administrative procedures.

3.02 SECURITY PROCEDURES

- A. Limit access to the site to persons involved in the work, see item 1.03 D. above.
- B. Provide secure storage for materials for which the owner has made payment and which are stored on site.
- C. Secure completed work as required to prevent loss.

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 Owner when coordination of his work is required.
- B. See other requirements in other portions of the contract documents.
- C. Conduct meetings for the specific purpose of coordination, at least once a month.
 - 1. Attendees shall include:
 - a. Contractor.
 - b. Subcontractors currently working at the site.

END OF SECTION 01010

SECTION 01026 - PAYMENT AND COMPLETION PROCEDURES

42

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Schedule of values.
 - 2. Payment procedures.
 - 3. Completion procedures.
- B. Related Requirements Specified Elsewhere in the Project Manual: Overhead and profit distribution.

1.02 CONTRACT CONDITIONS

- A. See the conditions of the contract for additional requirements.
- B. Progress payments will be made on or about the 25th of each month.
- C. The Architect/Engineer will act upon the Contractor's application for payment within 5 days after receipt.
- D. The Owner will act upon the application for payment within 15 days after receipt.
- E. No payment will be made for materials or equipment stored off site unless specifically approved in advance, in writing by the owner. Submit copy of the owner's agreement to pay for such materials and equipment with the application for payment covering such materials and equipment.
- F. Payments may be withheld if the contractor fails to make dated submittals within the time periods specified.

1.03 DEFINITIONS

- A. Final Completion: The stage at which all incomplete and incorrect work has been completed or corrected in accordance with the contract documents.
- B. List of Incomplete Work: A comprehensive list of items to be completed or corrected, prepared by the contractor for the purpose of obtaining certification of substantial completion. This list is also referred to as a "Punchlist."
- C. Schedule of Values: A detailed breakdown of the contract sum into individual cost items, which will serve as the basis for evaluation of applications for progress payments during construction.
- D. Substantial Completion: The time at which the work, or a portion of the work which the owner agrees to accept separately, is sufficiently complete in accordance with the contract documents so that the owner can occupy or use the work for its intended purpose.
- E. Time and Material Work: Work which will be paid for on the basis of the actual cost of the work, including materials, labor, equipment, and other costs as defined elsewhere, as documented by detailed records. This basis is also referred to using the terms "cost-plus," "cost of the work," "force account," and similar terms.

1.04 SUBMITTALS

- A. Schedule of Values: First application for payment will not be reviewed without schedule of values.
 - 1. Submit in size not larger than 8-1/2 by 11 inches.
 - 2. Submit 5 copies.
 - 3. Identify with:
 - a. Project name, Project number, Architect's name, Owner's name, Contractor's name and address, and Submittal date.
- B. Applications for Progress Payments: Submit sufficiently in advance of date established for the progress payment to allow for the processing indicated.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 SCHEDULE OF VALUES

- A. Prepare a schedule of values prior to the first application for payment.
- B. Schedule of Values: Break costs down into line items which will be comparable with line items in applications for payment.
 - 1. Coordinate line items in the schedule of values with portions of the contract documents which identify units or subdivisions of work; provide cross-referencing if necessary to clarify.
 - a. Specifically, correlate with the project manual table of contents.
 - 2. Divide major subcontracts into individual cost items.
 - 3. Where applications for payment are likely to include products purchased or fabricated but not yet installed, provide individual line items for material cost, installation cost, and other applicable phases of completion.
 - 4. Include the following information for each line item, using AIA G703, Continuation Sheet.
 - a. Item name.
 - b. Applicable specification section.
 - c. Dollar value, rounded off to the nearest whole dollar (with the total equal to the contract sum).
 - d. Proportion of the contract sum represented by this item, to the nearest one-hundredth percent (with the total adjusted to 100 percent).
 - 5. Provide the following supporting data for each line item:
 - a. Subcontractor's name.
 - b. Manufacturer or fabricator's name.
 - c. Supplier's name.
- C. Submit schedule of values not later than 10 days prior to submittal of first application for payment.
- D. The Architect/Engineer will notify the contractor if schedule is not satisfactory; revise and resubmit acceptable schedule.
- E. Submit a revised schedule of values when modifications change the contract sum or change individual line items.
 - 1. Make each modification a new line item.
 - 2. Show the following information for each line item:
 - a. All information required for original submittal.
 - b. Identification of modifications which have affected its value.
 - 3. Submit prior to next application for payment.

3.02 APPLICATIONS FOR PAYMENT

- A. Application for Payment Forms: Use AIA original current editions of G702, Application and Certificate for Payment, and AIA G703, Continuation Sheet.
- B. Preparation of Applications for Payment: Complete form entirely.
 - 1. Make current application consistent with previous applications, certificates for payment, and payments made.
 - 2. Base application on current schedule of values and contractor's construction schedule.
 - 3. Include amounts of modifications issued before the end of the construction period covered by the application.
 - 4. Include signature by person authorized by the contractor to sign legal documents.
 - 5. Notarize each copy.
 - 6. Submit in 5 copies.
 - 7. Attach revised schedule of values, if changes have occurred, unless application forms already show entire schedule of values.
 - 8. Attach copy of the owner's agreement to pay for materials and equipment stored off site, and any other supporting documentation required by the owner or the contract documents.
- C. Provide the following information with every application for payment which involves work completed on a time and material basis:
 - 1. Detailed records of work done, including:
 - a. Dates and times work was performed, and by whom.
 - b. Time records and wage rates paid.

- c. Invoices and receipts for products.
- 2. Provide similar detailed records for subcontracts.
- D. Transmit application for payment with a transmittal form itemizing supporting documents attached.
 - 1. Transmit to the Architect/Engineer.

3.03 FIRST PAYMENT PROCEDURE

- A. The first application for payment will not be reviewed until the following submittals have been received:
 - 1. Certificates of insurance.
 - 2. Performance and payment bonds.
 - 3. Schedule of values.
 - 4. List of subcontractors, principal suppliers, and fabricators.
 - 5. Contractor's construction schedule. Monthly Progress Schedules are required, see Section 01200.
 - 6. Names of the contractor's principal staff assigned to the project.
 - 7. All submittals specified to occur prior to first application for payment or prior to first payment.

3.04 SUBSTANTIAL COMPLETION PROCEDURES

- A. The architect will perform a Pre-Final Inspection with the contractor two weeks before substantial completion inspection, upon request of the contractor. Plumbing, Mechanical, & Electrical subcontractors shall be present for all Final Inspections.
- B. The architect will perform a Final Inspection with the contractor for substantial completion and verification that the Pre-Final Inspection Punchlist is complete, upon request of the contractor.
 - 1. Only one certificate of substantial completion will be issued, for the entire project.
- C. Submit the following with application for payment following substantial completion:
 - 1. Certificate of Substantial Completion; use AIA original current editions of G704.
 - 4. Final Inspection list of incomplete work.
 - 5. Other data required by the contract documents.

3.05 FINAL COMPLETION PROCEDURES

- A. Request for Final Inspection and final application for payment may coincide.
- B. The architect will perform inspection for final completion, upon request of the contractor.
 - 1. Submit the following with request for inspection:
 - a. Previous inspection lists indicating completion of all items.
 - b. If any items cannot be completed, obtain prior approval of such delay.
- C. Do not submit request for final inspection until the following activities have been completed:
 - 1. Completion of all work, except those items agreed upon by the owner.
 - 2. Final cleaning.
 - 3. All activities specified to occur between substantial completion and final completion.
- D. Do not submit request for final inspection until the following submittals have been completed:
 - 1. Startup reports.
 - 2. Operation and maintenance data.
 - 3. Demonstration reports.
 - 4. Instruction reports.
 - 5. Project record documents.
 - 6. All other outstanding specified submittals.
- E. Submit the following with the final application for payment:
 - 1. Certified copy of the previous list of items to be completed or corrected, stating that each has been completed or otherwise resolved for acceptance.
 - 2. Contractor's Affidavit of Payment of Debts and Claims; use AIA original current editions of G706
 - 3. Contractor's Affidavit of Release of Liens; use AIA original current editions of G706A.
 - 4. Consent of surety to final payment; use AIA original current editions of G707.
 - 5. Final liquidated damages statement.
 - 6. Certification that financial obligations to governing authorities and public utilities have been fulfilled.
 - 7. Description of unsettled claims.
 - 8. Other data required by the contract documents.

END OF SECTION 01026

SECTION 01151 - CONSTRUCTION AND DEMOLITION MATERIALS RECYCLING REQUIREMENTS 45

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Requirements and procedures for ensuring optimal diversion of demolition and construction waste materials generated by the Work from landfill disposal within the limits of the Construction Schedule and Contract Sum.
 - 1. State of North Carolina Executive Order 156, Section 1.b, states that "...all state agencies are to maximize their efforts to...reduce and recycle material recoverable from solid waste originating...from the construction and renovation of new facilities..."
 - 2. The Waste Reduction Goal of this Contract is that a minimum of 50% by weight of the construction and demolition materials generated in the Work be diverted from landfill disposal through a combination of re-use and recycling activities.
 - 3. Requirements for submittal of Contractor's Construction Waste and Recycling Plan prior to the commencement of the Work.
 - 4. Contractor's quantitative reports for construction waste materials as a condition of approval of progress payments submitted to the Architect

1.02 DEFINITIONS

- A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial, and industrial waste, resulting from construction, remodeling, repair, and demolition operations.
- B. Construction and Demolition Debris: Building materials and solid waste resulting from construction, remodeling, repair, cleanup, or demolition operations that are not hazardous. This term includes, but is not limited to, asphalt concrete, Portland cement concrete, brick, lumber, gypsum wallboard, cardboard and other associated packaging, roofing material, ceramic tile, carpeting, carpet pad, ceiling tile, plastic pipe, other plastic material, vinyl flooring, copper pipe, and steel. This will also include other jobsite materials such as cardboard packaging, sheet vinyls, plastic bottles, white paper, and aluminum cans.
- C. C&D Recycling Center. A facility that receives C&D material that has been separated for reuse. Recycling facilities are often part of the overall County waste management facilities.
- D. Disposal. Final deposition of construction and demolition material
- E. Mixed Debris Recycling Facility: A processing facility that accepts loads of commingled construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing the non-recyclable residual materials.
- F. Recycling: The process of sorting, cleansing, treating and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.
- G. Reuse. The use, in the same or similar form as it was produced, of a material which might otherwise be discarded.
- H. Source-Separated: Materials, including commingled recyclables, that have been separated or kept separate from the solid waste stream at the point of generation, for the purpose of additional sorting or processing of those materials for reuse or recycling in order to return them to the economic mainstream in the form of raw materials for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.
- I. Waste Hauler: A company that possesses a valid permit from the [local waste management authority to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal in [the locality].

1.03 SUBMITTALS

- A. Contractor's Construction Waste and Recycling Plan
 - 1. Review Contract Documents and estimate the types and quantities of materials under the Work that are anticipated to be feasible for on-site processing, source separation for re-use or recycling. Indicate the procedures that will be implemented in this program to effect jobsite source separation, such as, identifying a convenient location where dumpsters would be located, putting signage to identify materials to be placed in dumpsters, etc.

2. Prior to commencing the Work, submit Contractor's Construction Waste and Recycling Plan. Submit in format provided (**Section 01151A**). The Plan must include, but is not limited to the following:
 - a. Contractor's name and project identification information;
 - b. Procedures to be used;
 - c. Materials to be re-used and recycled;
 - d. Estimated quantities of materials;
 - e. Names and locations of re-use and recycling facilities/sites;
 - f. Tonnage calculations that demonstrate that Contractor will re-use and recycle a minimum 50% by weight of the construction waste materials generated in the Work.
 - g. Cost of local tip fees for non-recycled material/ton
 - h. Cost or revenue generated from recycled material, per category, per ton (note: cost and revenue are to be managed by the General Contractor as part of the Work; tonnage, cost, and savings information are to be provided to the Architect for tracking purposes only)
 2. Contractor's Construction Waste and Recycling Plan must be approved by the Architect prior to the start of Work.
 3. Contractor's Construction Waste and Recycling Plan will not otherwise relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures.
- B. Contractor's Reuse, Recycling, and Disposal Report**
1. Submit Contractor's Reuse, Recycling, and Disposal Report on the form provided (**Section 01151B**) with each application for progress payment. Failure to submit the form and its supporting documentation will render the application for progress payment incomplete and delay progress payments. If applicable, include manifests, weight tickets, receipts, and invoices specifically identifying the Project for re-used and recycled materials:
 - a. Reuse of building materials or salvage items on site
 - b. Salvaging building materials for reuse
 - c. Recycling source separated materials on site, with approval
 - d. Recycling source separated material at an off site recycling center
 - e. Delivery of soils or mixed inerts to an inerta landfill for disposal (inert fill).
 - f. Disposal at a landfill or transfer station (where no recycling takes place).
 - g. Other (describe).

Contractor's Reuse, Recycling, and Disposal Report must quantify all materials generated in the Work, disposed in landfills, or diverted from disposal through recycling. Indicate zero (0) if there is no quantity to report for a type of material. As indicated on the form:

1. Report disposal or recycling either in tons or in cubic yards: if scales are available at disposal or recycling facility, report in tons; otherwise, report in cubic yards. Report in units for salvage items when no tonnage or cubic yard measurement is feasible.
2. Indicate locations to which materials are delivered for reuse, salvage, recycling, accepted as daily cover, inert backfill, or disposal in landfills or transfer stations.
3. Provide legible copies of weigh tickets, receipts, or invoices that specifically identify the project generating the material. Said documents must be from recyclers and/or disposal site operators that can legally accept the materials for the purpose of re-use, recycling, or disposal.
 - a. Indicate project title, project number, progress payment number, name of the company completing the Contractor's Report and compiling backup documentation, the printed name, signature, and daytime phone number of the person completing the form, the beginning and ending dates of the period covered on the Contractor's Report, and the date that the Contractor's Report is completed.
4. NCDOT General Services Division will provide a list of waste recycling sites, sorted by County and by Highway Division. It is the responsibility of the General Contractor to confirm the locations and manage the waste material.

PART 2 PRODUCTS (not used)

PART 3 EXECUTION

3.011 SALVAGE, RE-USE, RECYCLING AND PROCEDURES

- A. Identify re-use, salvage, and recycling facilities.
- B. Develop and implement procedures to re-use, salvage, and recycle new construction and excavation materials, based on the Contract Documents, the Contractor's Construction Waste and Recycling Plan, estimated quantities of available materials, and availability of recycling facilities. Procedures may include on-site recycling, source separated recycling, and/or mixed debris recycling efforts.
 - 1. Identify materials that are feasible for salvage, determine requirements for site storage, and transportation of materials to a salvage facility.
 - 2. Source separate new construction, excavation and demolition materials including, but not limited to the following types:
 - a. Asphalt.
 - b. Concrete, concrete block, slump stone (decorative concrete block), and rocks.
 - c. Gypsum wallboard
 - d. Green materials (i.e. tree trimmings and land clearing debris).
 - e. Metal (ferrous and non-ferrous).
 - f. Miscellaneous Construction Debris.
 - g. Paper or cardboard.
 - h. Red Clay Brick.
 - Reuse or Salvage Materials
 - i. Soils.
 - Wire and Cable.
 - j. Wood studs
 - k. Plastic pipe
 - l. Ceiling tile
 - m. Ceramic tile
 - n. Carpet
 - o. Vinyl flooring
 - p. Other
 - 3. Miscellaneous Construction Debris: Develop and implement a program to transport loads of mixed (commingled) new construction materials that cannot be feasibly source separated to a mixed materials recycling facility.

3.2 DISPOSAL OPERATIONS AND WASTE HAULING

- A. Legally transport and dispose of materials that cannot be delivered to a source separated or mixed recycling facility to a transfer station or disposal facility that can legally accept the materials for the purpose of disposal.
- B. Use a permitted waste hauler or Contractor's trucking services and personnel. To confirm valid permitted status of waste haulers, contact the local solid waste authority.
- C. Become familiar with the conditions for acceptance of new construction, excavation and demolition materials at recycling facilities, prior to delivering materials. NCDOT General Services Division will work with the General Contractor on identifying sites that will accept recycled materials.
- D. Deliver to facilities that can legally accept new construction, excavation and demolition materials for purpose of re-use, recycling, composting, or disposal.
- E. Do not burn, bury or otherwise dispose of solid waste on the project job-site.

3.043 REVENUE

- A. Revenues or other savings obtained from recycled, re-used, or salvaged materials shall accrue to the General Contractor. Accounting of revenues or savings is for the Owner's tracking purposes only.

END OF SECTION

SECTION 01200 - PROGRESS DOCUMENTATION AND PROCEDURES

PART 1 - GENERAL

48

1.01 SUMMARY

- A. Section Includes:
 - 1. Progress documentation requirements:
 - a. Contractor's construction schedule.
 - 2. Progress procedures:
 - a. Progress meetings.
- B. Contract time is indicated elsewhere.

1.02 SUBMITTALS

- A. Contractor's Construction Schedule.
 - 1. Submit within 14 days after execution of contract.
 - 2. Submit revised schedule with application for payment to Highway Division 9 Resident Engineer.

1.03 FORM OF SUBMITTALS

- A. Schedules - General:
 - 1. Provide legend of symbols and abbreviations for each schedule.
 - 2. Use the same terminology as that used in the contract documents.
 - 3. When transparencies are submitted, use only media which will not fade or lose contrast over time.
- B. Bar Charts:
 - 1. Provide individual horizontal bars representing the duration of each major activity.
 - 2. Coordinate each element on the schedule with other construction activities.
 - 3. Show activities in proper sequence.
 - 4. Show percentage of completion of each activity.
 - 5. Include cost bar at top of chart, showing estimated and actual costs of work performed at the date of each application for payment.
 - 6. Use vertical lines to mark the time scale at not more than one week intervals.
 - 7. Prepare on reproducible transparency.
 - 8. Use sheets of sufficient number and width to show the full schedule clearly.

1.04 COORDINATION

- A. In preparation of schedules, take into account the time allowed or required for the Engineer's administrative procedures.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Prepare and submit a construction schedule.
- B. Provide construction schedule in the form of bar charts:
 - 1. Where related activities must be performed in sequence, show relationship graphically.
 - 2. Indicate activities separately for:
 - a. Each separate building.
 - 3. Incorporate the submittal schedule specified elsewhere.
 - 4. Show dates of:
 - a. Each activity that influences the construction time.
 - b. Ordering dates for products requiring long lead time.
 - c. All submittals required.
 - d. Completion of structure.
 - e. Completion of permanent enclosure.
 - f. Instruction of the owner's personnel in operation and maintenance of equipment and systems.
 - g. Substantial and final completion, with time frames for the Engineer's completion procedures.

5. In developing the schedule take into account:
 - a. Work by owner.
 - b. Need for temporary heating, ventilating, or air-conditioning.
- C. The Engineer will notify the contractor if schedule is not satisfactory; revise and resubmit.
 1. Resubmit within 7 days.
- D. Make and distribute copies of schedule to the Engineer, to subcontractors, and to other entities whose work will be influenced by schedule dates.
 1. Hang a copy of the schedule up in each field office or meeting room.
- E. Update the schedule whenever changes occur or are made, or when new information is received, but not less often than at the same intervals at which applications for payment are made.
 1. Indicate changes made since last issue; show actual dates for activities completed.
 2. Submit updated schedule with application for payment.
 3. Issue updated schedule with report of meeting at which revisions are made.
 4. Issue updated schedule in same manner as original schedule.

3.02 PROGRESS MEETINGS

- A. Schedule and conduct periodic progress meetings during construction period.
 1. Have meetings once a month.
 2. Notify the Engineer at least one week in advance of date of meeting; the Engineer.
- B. The following are required to attend:
 1. Project superintendent.
 2. Major subcontractors and suppliers.
 3. Others who have an interest in the agenda.
 4. State inspectors.
- C. Prepare and distribute agenda prior to meetings; cover the following topics when applicable:
 1. Review minutes of previous meeting.
 2. Status of submittals and impending submittals.
 3. Actual progress of activities in relation to the schedule.
 4. Actual and anticipated delays, their impact on the schedule, and corrective actions taken or proposed.
 5. Actual and potential problems.
 6. Status of change order work.
 7. Status of corrective work ordered by the Engineer.
 8. Progress expected to be made during the next period.

END OF SECTION 01200

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Preparing and processing of submittals for review and action.
 - 2. Preparing and processing of informational submittals.
- B. Submit the following for the Architect/Engineer's review and action:
 - 1. Shop drawings.
 - 2. Product data.
 - 3. Samples.
- C. Submit the following as informational submittals:
 - 1. Reports.
- D. Specific submittals are described in individual sections.
- E. Do not commence work which requires review of any submittals until receipt of returned submittals with an acceptable action.
- F. Submit all submittals to the Engineer.
- G. Related Sections: The following are specified elsewhere in Division 1:
 - 1. Progress of work submittals:
 - a. Contractor's construction schedules.
 - 2. Quality control submittals:
 - a. Test reports.

1.02 DEFINITIONS

- A. "Shop drawings" are drawings and other data prepared, by the entity who is to do the work, specifically to show a portion of the work.
 - 1. Shop drawings also include:
 - a. Product data specifically prepared 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 submittals" are standard printed data which show or otherwise describe a product or system, or some other portion of the work.
- C. "Samples" are actual examples of the products or work to be installed.
- D. Informational Submittals: Submittals identified in the contract documents as to be submitted for information only.

1.03 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 6 copies] of blue- or black-line print(s).
 - 2. Reproducible 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 14 inches.
 - 3. Number of copies:
 - a. Transparencies: Same as for larger sheets.
 - b. Opaque copies:
 - 1. For review: 6 copies.
 - a. 4 copies will be retained.
- 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.

1.04 COORDINATION OF SUBMITTALS

- A. Coordinate submittals and activities that must be performed in sequence, so that the Engineer has enough information to properly review the submittals.
- B. Coordinate submittals of different types for the same product or system so that the Engineer has enough information to properly review each submittal.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 TIMING OF SUBMITTALS

- A. 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 14 days after commencement of the work.
 - 5. Revise and resubmit the schedule for approval when requested.
- B. Deliver each submittal requiring approval in time to allow for adequate review and processing time, including resubmittals if necessary; failure of the contractor in this respect will not be considered as grounds for an extension of the contract time.
- C. 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.
- D. If a submittal must be processed within a certain time in order to maintain the progress of the work, state so clearly on the submittal.

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 the Engineer, in writing and at time of submittal, of all points upon which the submittal does not conform to the requirements of the contract documents, if any.
- C. 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. Engineer's name and address.
 - e. Subcontractor's name and address.
 - f. Other necessary identifying information.
 - 2. Pack submittals suitably for shipment.
 - 3. Submittals to receive Engineer's action marking:
Provide blank space on the label or on the submittal itself for action marking; minimum 4 inches wide by 5 inches high.
- D. Transmittal of Submittals:
 - 1. Submittals will be accepted from the contractor only. Submittals received from other entities will be returned without review or action.
 - 2. Submittals received without a transmittal form will be returned without review or action.
 - 3. Transmittal form: Similar to AIA G810.
 - 4. 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. Coordination requirements; show relationship to adjacent or critical work.
 - 5. Name of preparing firm.
- B. Preparation:
 - 1. Identify as indicated for all submittals.
 - 2. Space for Engineer's action marking shall be adjacent to the title block.

3.04 PRODUCT DATA

- A. 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.
- B. Content:
 - 1. Submit manufacturer's standard printed data sheets.
 - 2. Show compliance with properties specified.
 - 3. Show compliance with the specific standards referenced.
 - 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.
- C. Keep final sample set(s) at the project site, available for use during progress of the work.

3.06 REVIEW OF SUBMITTALS

- A. Submittals for approval will be reviewed, marked with appropriate action, and returned.
- B. Informational submittals: Submittals will be reviewed.
 - 1. "X" action: No action taken.
 - 2. "Not Approved" action: Revise the submittal or prepare a new submittal complying with the comments made.
 - 3. A copy will be returned if submittal is unsatisfactory.

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 the Engineer.
- C. Distribution:
 - 1. Make extra copies for operation and maintenance data submittals, as required.

END OF SECTION 01300

DIVISION 2 - SITE WORK

SECTION 02072 - MINOR DEMOLITION FOR REMODELING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Demolition and removal of portions of the existing Rest Area building or structure at the Eastbound lane and **complete demolition of the Westbound lane existing Rest Area building and Vending building**; including the tile / masonry entrance walls, floor tile, brick & block walls, roof truss sections at solar panels, plumbing, mechanical heating and cooling equipment, electrical systems, louver, and doors, and footings and foundations at the westbound lane buildings.
 - a. Site Clearing including sidewalks, tree and stump removal are by the Contractor; (see Landscape Spec's).
 - b. See Section 01151 for the Construction and Demolition Materials Recycling Requirements.
2. Owner shall have the right to salvage the Contractor removed toilet fixtures, and toilet partitions.
 - a. Removal of existing small shrubbery (may be by NCDOT, Division 13).
 - b. New landscaping (grass and shrubbery) by Owner.

1.02 SUBMITTALS

A. Project Record Documents:

1. Identify location of capped utilities.
2. Submit form Sections 01151A and 01151B per Section 01151 for the Construction and Demolition Materials Recycling Requirements.

1.03 PROJECT CONDITIONS

A. Existing Conditions:

1. After the project is begun, the contractor is responsible for the condition of structures to be demolished. The owner does not warrant that the condition of structures to be demolished will not have changed since the time of inspection for bidding purposes.

PART 2 - PRODUCTS (NOT USED)

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; see Mechanical and Electrical drawings. Salvage costs shall be reflected in the Contractor's bid.
- C. Insofar as is practicable, arrange operations to reveal unknown or concealed structural conditions for examination and verification before removal or demolition.

3.02 PREPARATION

- A. Traffic: Do not obstruct walks or public ways without the written permission of governing authorities and of the owner. Where routes are permitted to be closed, provide alternate routes if required.
- B. Protection:
 1. Provide for the protection of persons passing around or through the area of demolition.
 2. Perform demolition so as to prevent damage to adjacent improvements and facilities to remain.
- C. Construct and maintain shoring, bracing, and supports as necessary to ensure the stability of structures.
- D. Damages: Without cost to the owner and without delay, repair any damages caused to facilities to remain.

3.03 UTILITY SERVICES

- A. Arrange with utility companies and shut off indicated utilities serving structures; maintain utilities at existing site lighting, storage building, vending building (existing Rest Area building), and new Rest Area building.
- B. Disconnect and cap indicated utilities before starting demolition operations.
- C. Identify location of capped utilities on project record documents.

3.04 POLLUTION CONTROLS

- A. Control as much as practicable the 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.

3.05 DEMOLITION - GENERAL

- A. Remove: Unless items are otherwise indicated to be reinstalled or salvaged, remove and scrap.
- B. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare for service; reinstall in the same location (or in the location indicated).
- C. Remove and Install New: Remove and dispose of items indicated and install new items in the same location (or in the location indicated).
- D. Remove and Salvage: Items indicated to be salvaged will remain the Owner's property. Carefully remove and clean items indicated to be salvaged; protect against damage; Owner may salvage some of the toilet fixtures, and toilet partitions.
- E. Remove and Scrap: Remove and dispose of items indicated in Section 01151 for the Construction and Demolition Materials Recycling Requirements.
 - 1. Items of value to the contractor: Do not store removed items on site.
- F. Existing to Remain: Construction or items indicated to remain shall be protected against damage during demolition operations. Where practicable, and with the architect's permission, the contractor may elect to remove items to a suitable storage location during demolition and then properly clean and reinstall the items.
- G. Perform work in a systematic manner.
- H. Perform selective demolition using methods which are least likely to damage work to remain and which will provide proper surfaces for patching.

3.06 DEMOLITION ON OR BELOW GRADE

- A. Where portions of concrete slabs-on-grade are to be removed, first outline the portion with a concrete saw to a depth of at least 1 inch.

3.07 FILLING BELOW-GRADE AREAS AND VOIDS

- A. Below-grade areas and voids resulting from demolition of structures shall be filled or excavated further, as appropriate, according to requirements specified elsewhere in Division 2.

3.08 DISPOSAL OF DEMOLISHED MATERIALS

- A. Promptly dispose of materials resulting from demolition operations. Do not allow materials to accumulate on site. See Section 01151 for the Construction and Demolition Materials Recycling Requirements.
- B. Transport concrete or masonry debris resulting from demolition operations and dispose off the Owner's property.
- C. Transport all other materials resulting from demolition operations and legally dispose of off-site.
- D. Do not burn removed materials on project site.
- F. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

3.09 CLEANING

- A. Clean soil, smudges, and dust from surfaces to remain.
- B. Return structures and surfaces to remain to condition existing prior to commencement of demolition.

END OF SECTION 02072

SECTION 02200 - EARTHWORK 55

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Earth moving and excavation.
 2. Grading.
 3. Backfilling.
 4. Filling.
 5. Compacting.

1.02 SUBMITTALS

- A. Test Reports: NCDOT testing laboratory will submit the following reports directly to the Engineer and shall copy the contractor:
1. Analysis of soil materials, whether procured on or off site, and including fill, backfill, and borrow materials.
 2. Verification of each footing subgrade.
 3. Moisture-density relationship test reports.
 4. Compressive strength or bearing test reports.

1.03 QUALITY ASSURANCE

- A. Testing Laboratory Services:
1. The Owner, NCDOT, Division 9, will provide services to classify new structural fill soil materials, to recommend and to classify proposed borrow materials when necessary, to verify compliance of materials with specified requirements, and to perform required field and laboratory testing.

1.04 SITE CONDITIONS

- A. Traffic: The construction site will be open to the contractor for use at all times.
- B. Site Utilities:
1. Advise utility companies of excavation activities before starting excavations. Locate and identify underground utilities passing through work area before starting work.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Topsoil: Friable clay loam surface soil.
- B. Satisfactory Topsoil: Fertile agricultural soil, typical for locality, capable of sustaining vigorous plant growth; free of subsoil, rocks larger than 2 inches in diameter, clay, toxic matter, plants, weeds, and roots.
- C. Any structural fill or backfill placed at the site shall utilize a low plasticity soil (liquid limit less than 50, plasticity index less than 25) free of organic material or debris. All fill shall be placed in 8 to 10 inch loose lifts and shall be compacted to at least 95 percent of the standard Proctor maximum dry density (ASTM D 698). The soils shall be aerated or moistened as necessary to maintain the moisture content within 3 percentage points of optimum moisture content.
- D. Capillary Water Barrier: Clean, crushed rock or gravel or uncrushed gravel; 100 percent passing a 1-1/2-inch sieve; not more than 2 percent passing a No. 4 sieve.
- E. Subbase Material: Well-graded, clean, sound, durable particles of crushed stone, crushed blast furnace slag, or crushed gravel, and screenings. Obtain the Engineer's approval of source, quality, and gradation.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Protection: Provide markers indicating limits of work and clear identification of items and areas requiring protection.
- B. Provide barricades, warning signs, and warning lights around open excavations as necessary to prevent injury to persons.

3.02 PROTECTION OF TREES

- A. Provide temporary guards to protect trees and vegetation to remain. Place guards so as to prevent all forms of vehicular traffic or parking within drip lines.
- B. Promptly repair any damaged trees to prevent death or loss of vigor.

3.03 CLEARING AND GRUBBING

- A. Remove dredge material from site and replace with approved structural fill per Roadway's requirement before excavating for the building footings.

3.04 DEWATERING

- A. Do not allow surface or ground water to flow into or accumulate in excavations.

3.05 EXCAVATION

- A. General: Excavation includes the removal of any materials necessary to achieve the required subgrade elevations and includes reuse or disposal of such materials.
- B. Excavation for Structures:
 - 1. Excavate beyond footings and foundations so as to allow proper construction and inspection of concrete formwork and other materials. Excavate to the required elevation.
- C. Excavation for Footings and Foundations:
 - 1. Delay excavation to final grade and final compaction until just before concrete will be placed.

3.06 STORAGE

- A. Stockpile materials to be used for filling and backfilling, including excavated materials classified as satisfactory soil materials, at locations indicated or as directed. Stockpile in a manner to freely drain surface water; cover if necessary to prevent wind-blown dust.

3.07 BACKFILLING

- A. Installation: Place approved soil materials in layers to required elevations.
- B. Installation: Place satisfactory soil materials in layers to required subgrade elevations.

3.08 FILLING

- A. Preparation: Verify that area has been stripped of vegetation including roots below grade. Remove and dispose of any unsatisfactory soils.
 - 1. When filling slopes steeper than 1 in 4 rise, plow, step, or break up surfaces to promote bond of new to existing material.
- B. Installation: Place fill materials to required elevations in lifts of required depth. Provide fill materials beneath each area as indicated.
 - 2. Building slabs: Capillary water barrier material.

3.09 BUILDING SLAB AREAS

- A. Place fill or backfill lifts such that compaction true to grade and level is accomplished with a minimum of surface disturbance and segregation or degradation of materials. Maintain grade control and cross section by means of line and grade stakes. Maintain moisture content within prescribed limits during placing and compacting.

1. Capillary water barrier: Under slabs on grade, place capillary water barrier material directly on subgrade, shape surface to within the required tolerances and compact.

3.10 COMPACTION

- A. Place material simultaneously on opposite sides of walls, small structures, utility lines, etc. to avoid displacement or overstressing.
- B. In-Place Density Requirements: Compact soil to not less than the values given below, expressed as a percentage of maximum density at optimum moisture content.
 1. Exterior steps and ramps: Top 8 inches of subgrade and subsequent lifts: 95 percent.
 2. Building slabs and structures: Top 12 inches of subgrade and subsequent lifts: 95 percent.

3.11 GRADING

- A. General: Smooth grade to a uniform surface that complies with compaction requirements and required lines, grades, and cross sections and is free from irregular surface changes.

3.12 FIELD QUALITY CONTROL

- A. Testing Laboratory Services: Provide timely notice to testing laboratory. Do not proceed with construction until testing of each subgrade and lift of fill or backfill has been performed and required inspections and approvals have been obtained.
- B. Maximum Density at Optimum Moisture Content: Determine in accordance with ASTM D 698.
 1. For each subgrade, fill, and backfill material, perform one moisture-density relationship test for each 1500 cubic yards, or fraction thereof, of material used.
- C. If testing service reports indicate that subgrade or fills are below specified density, scarify or remove and replace to the required depth, recompact, and retest at no cost to the owner.

3.13 MAINTENANCE

- A. Completed Areas: Protect from damage by pedestrian or vehicular traffic, freezing, erosion, and contamination with foreign materials.

3.14 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Stockpile any excess satisfactory topsoil in locations on site as directed by the Engineer.
- B. Stockpile or spread any excess satisfactory soil in location on site as directed by the Engineer.
- C. Remove any unsatisfactory soil, trash, debris, and other materials not required for use on the project and legally dispose of it off the owner's property.
- D. On-site burning is not permitted.

END OF SECTION 02200

SECTION 02280 - SOIL TREATMENT 58

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Subterranean termite prevention treatment of soil areas scheduled to receive new construction.
 - 2. Subterranean termite prevention treatment of new construction in progress.

1.02 SUBMITTALS

- A. Product Data: Submit product label or accompanying labeling in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act.
- B. Quality Control Submittals:
 - 1. Certificates: Evidence of installer's authorization to apply products under applicable state and local law.
 - 2. Manufacturer's instructions: Submit manufacturer's directions for use.
- C. Contract Closeout Submittals:
 - 1. Project record documents:
 - a. Submit a certificate signed by installer and contractor stating that treatment has been applied in accordance with applicable governing regulations and in accordance with this specification.
 - b. Incorporate into the certificate or attach thereto a plan drawing indicating actual application locations and, for each location, noting methods and rates of application and including typical sections or details where necessary for clarity.
 - 2. Warranty.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Licensed to install specified products in the state in which the project is located and in the local jurisdiction.
 - 2. A company installing products of this section and whose installations have performed in a satisfactory manner under comparable conditions for a period of 5 years.
- B. Regulatory Requirements:
 - 1. Comply with applicable pesticide regulations of the state in which the project is located.
 - 2. Comply with applicable local pesticide regulations.

1.04 WARRANTY

- A. Special Warranty:
 - 1. Submit manufacturer's warranty against infestation of treated areas.
 - 2. Warranty shall not reduce or otherwise limit any other rights to correction which the owner may have under the contract documents.
 - 3. Warranty period: **5 years**.
- B. Correction during the warranty period shall include not less that the following:
 - 1. Retreatment of areas in which evidence of infestation is discovered.

PART 2 PRODUCTS

2.01 TERMITICIDE

- A. Registered with the United States Environmental Protection Agency (EPA) for use as a termiticide under conditions of use prevailing at the project site.

- B. Registered with the applicable authorities in the state in which the project is located and with local governing authorities, as applicable for use as a termiticide under conditions of use prevailing at the project site.

PART 3 EXECUTION

3.01 APPLICATION

- A. Apply termiticide in strict accordance with manufacturer's instructions; treat entire slab area and perimeter foundations.
- B. Apply termiticide at the maximum recommended application rates for the respective areas to be treated and methods of treatment used.
- C. Treat the entire structure. Do not leave any portion untreated.
- D. Schedule treatment of new construction to occur when treatment may be applied directly to the soils and surfaces to be treated, and prior to their concealment with subsequent construction.

3.02 CLEANING

- A. Do not allow contamination of surfaces not intended to be treated. Follow manufacturer's instructions to completely remove chemical from surfaces should contamination occur.
- B. Remove from beneath the structure any cellulosic material, wood that is not pressure-preservative treated, and debris. Do not allow non-pressure-preservative treated wood to contact with or remain proximate to soil.

END OF SECTION 02280

SECTION 02712 - SUBDRAINAGE SYSTEMS FOR STRUCTURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Subdrainage systems of the following types: Downspout drains.
- B. Related Sections: Earthwork: Elsewhere in Division 2 and Landscape Section at the end of the specification.

1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's technical literature and installation instructions for the following:
 - 1. Drainage piping.

PART 2 - PRODUCTS

2.01 DRAINAGE PIPE

- A. Piping System 1:
 - 1. Standard (solid) pipe: Polyethylene pipe; ASTM F 405 or ASTM F 667, as applicable for pipe size.
 - 2. Application: Gutter and downspout drainage.
- B. Provide fittings and accessories of same material as pipe or compatible material for intersections, bends, transitions, and the like; provide black plastic downspout boots or downspout adapters; equal to Plastic Trends, Royal Pipe Systems, USPlastic, or Flex-Drain or approved equal.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Engineering Layout: Establish lines, grades, and locations of piping and accessories.
 - 1. Maintain grade stakes, batter boards, and the like, to permit rapid checking of grades and lines as work progresses.

3.02 INSTALLATION - GENERAL

- A. Earthwork and Trenching: Perform required excavation, backfilling, and compacting in accordance with requirements of other Division 2 sections as applicable.
- B. Piping Installation:
 - 1. General: Install piping in accordance with governing authorities, except where more stringent requirements are indicated.
 - 2. Inspect piping before installation to detect apparent defects. Mark defective materials and promptly remove from site.
 - 3. Lay piping, beginning at low point of system, true to line and grade indicated and with unbroken continuity of invert.
 - 4. Polyethylene pipe: Install in accordance with ASTM F 449.
 - 5. Joint adapters: Make joints between different types of pipe or different diameters of the same type of pipe with standard manufactured adapters intended for that purpose.
- C. Filling and Backfilling:
 - 1. Place and compact fill or backfill in uniform layers, and achieve required compaction.
 - 2. Take care when backfilling to avoid damaging or dislodging drainage system components.

3.04 FIELD QUALITY CONTROL

- A. Piping: After installation of piping and placement of initial backfill, test piping for crushing and obstructions.
 - 1. Pull a mandrel with diameter of 90 percent of the pipe diameter through the pipe.
 - 2. Locate and replace damaged pipe or remove obstructions and retest until mandrel passes entire length of pipe.

END OF SECTION 02712

DIVISION 3 - CONCRETE

SECTION 03310 - STRUCTURAL CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Cast-in-place concrete and concrete curing.
 - 1. Sidewalks, see Roadside Environmental concrete section.
 - 2. Foundations, footings and slabs.

1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's product data / Mix Design to the Resident Engineer:
 - 1. Concrete mix, reinforcing, admixtures and curing compound; see Special Provision SP10 R16, page 22.

1.03 QUALITY ASSURANCE

- A. Codes and Standards: Comply with the following documents, except where requirements of the contract documents or of governing codes and governing authorities are more stringent:
 - 1. Sidewalks, curb ramps, steps, curb & gutters, and parking lot paving shall comply with **NCDOT Standard Specifications** dated July 2006, Divisions 7 and 8; Sections 710, 844, 846 and 848; Class "A" concrete for Portland Cement Production and Delivery.
 - 2. ACI 301 & ACI 318.
- B. Testing Agency Services:
 - 1. NCDOT's testing agency will conduct tests and perform other services specified for quality control during construction.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, and as follows:
 - 1. Type I, except where other type is specifically permitted or required.
 - a. Type I may be replaced by Type III (high early strength) for concrete placed during cold weather.
- B. Water: Potable.
- C. Aggregates: Normal weight concrete: ASTM C 33.
- D. Admixtures - General: Admixtures which result in more than 0.1 percent of soluble chloride ions by weight of cement are prohibited.
- E. Air-Entraining Admixture: ASTM C 260 and certified by manufacturer for compatibility with other mix components.
- F. Water-Reducing Admixture: ASTM C 494, Type A.

2.02 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Formwork:
 - 1. Facing Materials: Unexposed finish concrete: Any standard form materials that produce structurally sound concrete.
 - 2. Formwork Accessories:
 - a. Form coating: Form release agent that will not adversely affect concrete surfaces or prevent subsequent application of concrete coatings.
 - b. Metal ties: Commercially manufactured types; cone snap ties, taper removable bolt, or other type which will leave no metal closer than 1-1/2 inches from surface of concrete when forms are removed, leaving not more than a 1-inch-diameter hole in concrete surface.
- B. Reinforcing Materials:
 - 1. Reinforcing Bars: Provide deformed bars complying with the following, except where otherwise indicated: ASTM A 615, Grade 60.
 - 2. Welded Wire Fabric: ASTM A 185, cold-drawn steel, plain.
 - 3. Tie wire: Black annealed type, 16-1/2 gage or heavier.

4. Supports: Bar supports conforming to specifications of CRSI "Manual of Standard Practice."
- C. Vapor Retarder: Membrane for installation beneath slabs on grade, resistant to decay when tested in accordance with ASTM E 1745, and as follows:
 1. 10 mils thick, multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single ply polyethylene sheet is prohibited.
- D. Moisture-Retaining Cover: ASTM C 171, and as follows:
 1. Polyethylene film.
- E. Liquid Curing Compounds: Comply with ASTM C 309, Type 1 and compatible with flooring.

2.03 CONCRETE MIX DESIGN

- A. Proportioning of Normal Weight Concrete: Comply with recommendations of ACI 211.1.
- B. Specified Compressive Strength f'_c at 28 Days for Locations as Indicated on Drawings:
 1. Footings, slab and walks: 3000 psi.
- C. Admixtures:
 1. Air-entraining admixture: Use in mixes for exterior exposed concrete unless otherwise specifically indicated. Add at rate to achieve total air content in accordance with Table 1.4.3 of ACI 201.2. For concrete not exposed to exterior, add at rate to achieve total air content between 2 percent and 4 percent.
 - a. Do not use in slabs-on-grade scheduled to receive topping, unless manufacturer of topping recommends use over air-entrained concrete.
 2. Water-reducing admixture: Add as required for placement and workability.
 3. Do not use admixtures not specified or approved.

PART 3 - EXECUTION

3.01 VAPOR RETARDER INSTALLATION

- A. General: Place vapor retarder sheet over prepared base material, aligning longer dimension parallel to direction of pour and lapped 6 inches. Seal joints with appropriate tape. Cover with sand to depth shown on drawings.

3.02 JOINT CONSTRUCTION

- A. Construction Joints: Locate and install construction joints as indicated on drawings. If construction joints are not indicated, locate in manner which will not impair strength and will have least impact on appearance, as acceptable to the Engineer.
 1. Keyways: Provide keyways not less than 1-1/2 inches deep.
 2. Reinforcement: Continue reinforcement across and perpendicular to construction joints, unless details specifically indicate otherwise.
- B. Control Joints: Construct contraction joints in slabs poured on grade to form panels of sizes indicated on drawings, but not more than 15 feet apart in either direction.
 1. Saw cuts: Form control joints by means of saw cuts one-fourth slab depth.

3.03 CONCRETE PLACEMENT

- A. Inspection: Before beginning concrete placement, inspect formwork, reinforcing steel, and items to be embedded, verifying that all such work has been completed.
 1. Wood forms: Moisten immediately before placing concrete in locations where form coatings are not used.
- B. Placement - General: Comply with requirements of ACI 304 and as follows:
 1. Schedule continuous placement of concrete to prevent the formation of cold joints.
 2. Provide construction joints if concrete for a particular element or component cannot be placed in a continuous operation.
 3. Deposit concrete as close as possible to its final location, to avoid segregation.
- C. Placement in Forms: Limit horizontal layers to depths which can be properly consolidated, but in no event greater than 24 inches.
 1. Vibrate concrete sufficiently to achieve consistent consolidation without segregation of coarse aggregates.
 2. Do not use vibrators to move concrete laterally.

- D. Slab Placement: Schedule continuous placement and consolidation of concrete within planned construction joints.
 - 1. Thoroughly consolidate concrete without displacing reinforcement or embedded items, using internal vibrators, vibrating screeds, roller pipe screeds, or other means acceptable to Engineer.
 - 2. Strike off and level concrete slab surfaces, using highway straightedges, darbies, or bull floats before bleed water can collect on surface. Do not work concrete further until finishing operations are commenced.

3.04 FINISHING FORMED SURFACES

- A. Repairs, General: Repair surface defects, including tie holes, immediately after removing formwork.
 - 1. Smooth rubbed finish: Apply to surfaces indicated no later than 24 hours after form removal.
 - a. Wet concrete surfaces to be finished and rub with Carborundum brick or other abrasive until uniform color and texture are achieved.
 - b. Do not apply separate grout mixture.

3.05 FINISHING SLABS

- A. Finishing Operations - General:
 - 1. Do not directly apply water to slab surface or dust with cement.
 - 2. Use hand or powered equipment only as recommended in ACI 302.1R.
 - 3. Screeding: Strikeoff to required grade and within surface tolerances indicated. Verify conformance to surface tolerances. Correct deficiencies while concrete is still plastic.
 - 4. Bull Floating: Immediately following screeding, bull float or darby before bleed water appears to eliminate ridges, fill in voids, and embed coarse aggregate. Recheck and correct surface tolerances.
 - 5. Final floating: Float to embed coarse aggregate, to eliminate ridges, to compact concrete, to consolidate mortar at surface, and to achieve uniform, sandy texture. Recheck and correct surface tolerances.
 - 6. Troweling: Trowel immediately following final floating. Apply first troweling with power trowel except in confined areas, and apply subsequent trowelings with hand trowels. Wait between trowelings to allow concrete to harden. Do not overrowel. Begin final troweling when surface produces a ringing sound as trowel is moved over it. Consolidate concrete surface by final troweling operation. Completed surface shall be free of trowel marks, uniform in texture and appearance, and within surface tolerance specified.
 - a. Grind smooth surface defects which would telegraph through final floor covering system.
- B. Coordinate appearance and texture of required final finishes with the Engineer before application.
- C. Broomed Float Finish: After floating and when water sheen has practically disappeared, apply uniform transverse corrugations approximately 1/16 inch deep, without tearing surface.
- D. Trowel Finish: As specified above.
- E. Trowel and Fine Broom Finish: Follow trowel finishing operation immediately with fine brooming to achieve slightly scarified surface.
- F. Slab Surface Tolerances:
 - 1. Achieve flat, level planes except where grades are indicated. Slope uniformly to drains.
 - 2. Floated finishes: Depressions between high spots shall not exceed 5/16 inch under a 10-foot straightedge.
 - 3. Troweled finishes: Achieve level surface plane so that depressions between high spots do not exceed the following dimension, using a 10-foot straightedge:
 - a. 1/8 inch.
- G. Slab Finish Schedule: Apply finishes in the following typical locations and as otherwise shown on the drawings:
 - 1. Trowel finish:
 - a. Exposed interior floors not otherwise scheduled.
 - b. Surfaces to receive resilient tile.
 - 2. Trowel and fine broom: Surfaces to receive thinset tile.

3.06 CONCRETE CURING AND PROTECTION

- A. General:
 - 1. Prevent premature drying of freshly placed concrete, and protect from excessively cold or hot temperatures until concrete has cured.

2. Provide curing of concrete by one of the methods listed and as appropriate to service conditions and type of applied finish in each case.
- B. Curing Period:
 1. Not less than 7 days for standard cements and mixes.
 2. Not less than 4 days for high early strength concrete using Type III cement.
- C. Formed Surfaces: Cure formed concrete surfaces by moist curing with forms in place for full curing period or until forms are removed.
- D. Surfaces Not in Contact with Forms:
 1. Start initial curing as soon as free water has disappeared, but before surface is dry.
 2. Keep continuously moist for not less than 3 days by uninterrupted use of any of the following:
 - a. Water ponding.
 - b. Water-saturated sand.
 - c. Water-fog spray.
 - d. Saturated burlap: Provide 4-inch minimum overlap at joints.
 3. Begin final curing procedures immediately following initial curing and before concrete has dried.
 4. Continue final curing to end of curing period.
- E. Avoid rapid drying at end of curing period.

3.07 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. Composite Sampling, and Making and Curing of Specimens: ASTM C 172 and ASTM C 31.
- B. Slump: ASTM C 143. One test per batch.
 1. Modify sampling to comply with ASTM C 94.
- C. Air Content of Normal Weight Concrete: ASTM C 173 or ASTM C 231. One test per strength test performed on air-entrained concrete.
- D. Compressive Strength Tests: ASTM C 39.
 1. Testing for acceptance of potential strength of as-delivered concrete:
 - a. Obtain samples on a statistically sound, random basis.
 - b. Minimum frequency:
 1. One set per 100 cubic yards or fraction thereof for each day's pour of each concrete class.
 2. One set per 3500 square feet of slab or wall area or fraction thereof for each day's pour of each concrete class.

END OF SECTION 03310

DIVISION 4 - MASONRY

SECTION 04220 – BRICK & STONE VENEER & CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Stone veneer, brick, and concrete masonry units.
 2. Mortar and grout, reinforcement, anchorage, and accessories.

PART 2 - PRODUCTS

2.01 BRICK MASONRY UNITS

- A. Facing Brick: ASTM C 216, and shall match existing brick veneer; **Statesville Brick Company "Cherry Antique"**.
1. Submit samples and provide a sample wall, 3'x4', for approval by the Engineer, before proceeding.

2.02 STONE MASONRY UNITS

- A. Stone: Artificial stone, randomly stacked 1-1.2" thick artificial stone veneer equal to **Eldorado Stone**, veneer **Mountain Ledge** or approved equal (Cultured Stone by Owens Corning, 1-800-255-1727, cltrdstn@owenscorning.com; Stone craft Industries, 888-372-7238, stonecraft.com; Dal-Tile Manufactured Stone, Mesa Ledge Stack, www.daltilemanufacturedstone.com, 919-946-7519). Submit samples and provide a sample wall, 3'x4', for approval by the Architect/Engineer, before proceeding with the veneer work at the front of the Rest Area building.
1. Eldorado Stone, LLC, 1370 Grand Ave., Bldg. B, San Marcos, CA 92069, Tel: (800) 925-1491, E-Mail: customerservice@eldoradostone.com.
 2. Product: **Mountain Ledge**, submit 12 color samples for selection.
 3. Veneer Units: Precast veneer units consisting of portland cement, sand, lightweight aggregates, and mineral oxide pigments.
 - a. Compressive Strength: ASTM C 39, 5 sample average, 1,800psi (12.4 MPa)
 - b. Shear Test: ASTM C 482, 50 psi (345 kPa)
 - c. Water Absorption: UBC Standard 15-5, 22 percent
 - d. Freeze-Thaw Test: ASTM C 67, Less than 3%
 - e. Thermal Resistance: ASTM C 177 R0.60 (0.11)
 - f. Density: ASTM C 567 (Dry density) 75 pcf (1200 kg per m3)
 4. Moisture Barrier: ASTM D 226 No. 15 non-perforated asphalt-saturated organic felt.
 5. Reinforcing: [ASTM C 847 galvanized expanded metal lath, 1 inch galvanized steel, 18 gauge woven wire mesh.
 6. Pre-Packaged Latex-Portland Cement Mortar: ANSI A118.4.
 7. Bonding Agent: Daraweld®C as manufactured by Grace Construction, or equal Products
 8. Sealer: Water based silane or siloxane masonry sealer, clear.
 9. Jointless/Dry-Stacked Installation: Mix mortar in accordance with Eldorado Stone Corp. Add color pigment in accordance with pigment manufacturer's instructions.
- B. Installation: Install and clean stone in accordance with manufacturer's installation instructions for Jointless/Dry-Stacked installation. Apply sealer in accordance with sealer manufacturer's installation instructions.

2.03 CONCRETE MASONRY UNITS

- A. Concrete Block: Comply with referenced standards for types required, and as follows:
1. Size: Standard units with nominal dimensions of 16" long, 8" high, and 4" & 8" thick.
 2. Special shapes: Provide special block types where required for corners, control joints, headers, lintels, and other special conditions, whether or not specifically indicated on the drawings as special.
 - a. Outside corners: Square-edged units except where otherwise indicated.
 3. Hollow load-bearing units: ASTM C 90, and as follows:
 - a. Type I: Moisture-controlled units.

- b. Medium weight.
- c. Exposed faces: Manufacturer's standard color and texture.

2.04 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Aggregate for Mortar: ASTM C 144.
- D. Water: Potable.

2.05 REINFORCEMENT AND ANCHORAGE

- A. Joint Reinforcement and Anchorage Materials: Comply with the following general requirements for materials required in joint reinforcement and anchorage devices:
 - 1. Steel wire: ASTM A 82.
 - a. Hot-dip galvanizing (after fabrication): ASTM A 153, Class B-2.
 - 1. Use: Exterior locations or in contact with earth.
 - 2. Hot-dip galvanized steel sheet: ASTM A 635 or ASTM A 366; galvanizing in compliance with ASTM A 153, Class B.
 - a. Use: Anchors and miscellaneous sheet metal in masonry accessories at exterior exposures.
- B. Joint Reinforcement: Welded-wire units prefabricated into straight lengths of not less than 10 feet, with deformed continuous side rods and plain cross rods.
 - 1. Width: Approximately two inches less than nominal wall width, providing not less than 5/8 inch mortar coverage on exterior exposures and 1/2 inch elsewhere.
 - 2. Wire sizes:
 - a. Side rod diameter: 0.1483 inch.
 - b. Cross rod diameter: 0.1483 inch.
 - 3. Configuration:
 - a. Applications of single unit width: Ladder design, cross rods at not more than 16 inches on center.
 - b. Corners: Prefabricated L- and T-shaped units.

2.06 MISCELLANEOUS MASONRY ACCESSORIES

- A. Bond Breaker Strips: ASTM D 226, Type I; No. 15 asphalt felt.
- B. Sealant and Backer Rod: As specified in Division 7.
- C. Masonry Veneer Anchors at Wood Studs: Adjustable, 2-piece assemblies, for attachment over sheathing to wood studs, allowing vertical and horizontal movement and capable of withstanding a 100-lbf load in tension or compression without deforming.
- D. Flexible Sheet Flashing: Perm-A-Barrier Wall Flashing by W. R. Grace & Company or Keystone Flashing Co. or Polyguard Products Inc. or approved equal, 40 mil thick x 18" wide rolls.

2.07 MORTAR AND GROUT MIXES

- A. Mortar for Unit Masonry: ASTM C 270, Proportion Specification.
 - 1. Limit cementitious materials to lime and portland cement.
 - 2. Masonry below grade and in contact with earth: Type M.
 - 3. Locations indicated on the drawings: Type S.
 - 4. Applications as follows: Type N.
 - a. Exterior, above-grade walls.
 - b. Locations for which another mortar type has not been specifically indicated.

PART 3 - EXECUTION

3.01 INSTALLATION PROCEDURES

- A. Comply with manufacturer's installation instructions for the stone veneer selected with a stacked appearance.
- B. Concrete Masonry Units: Do not wet concrete masonry units prior to laying.
- C. Cutting: Where cutting is required, use power saws to provide clean, sharp, unchipped edges.
 - 1. Do not use wet cutting techniques with concrete unit masonry.

3.02 MASONRY CONSTRUCTION - GENERAL

- A. Pattern Bond: Lay exposed masonry in running bond except where other bonds are indicated at special features.
 - 1. Lay concealed masonry in running bond, or lap units at least 2 inches.
- B. Expansion and Control Joints: Build in movement joints where indicated, installing accessory items as masonry is constructed.

3.03 LAYING MASONRY UNITS

- A. Hollow Masonry Units: Install so that face shells are solidly mortared, horizontally and vertically. Bed webs solidly in mortar at starting course.
- B. Joints: Make mortar joints visually and dimensionally consistent.
 - 1. Except as otherwise indicated, maintain mortar joint widths of 3/8 inch.
- C. Exposed Joints: Using concave jointer slightly larger than joint width, tool exposed joints before mortar has assumed final set.

3.04 JOINT REINFORCEMENT, SINGLE-WYTHE WALLS

- A. General: Provide continuous horizontal joint reinforcement for specific single-wythe masonry walls indicated. Lap reinforcing a minimum of 6 inches.
- B. Vertical Spacing: Not more than 16 inches on center.

3.05 CLEANING AND PROTECTION

- A. Clean masonry after mortar is thoroughly set and cured.
 - 1. Scrape off adhered mortar particles by hand, using non-metallic tools.
 - 2. Comply with directions of concrete unit masonry manufacturer and NCMA Tek Bulletin No. 45 for cleaning CMU.
- B. Protection: Institute protective measures as required to ensure that unit masonry work will be clean and undamaged at substantial completion.

END OF SECTION 04220

SECTION 04270 - GLASS UNIT MASONRY 68

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Exterior glass block panels.
 - 2. Mortar.
 - 3. Reinforcement, anchorage, and accessories.

1.02 SUBMITTALS

- A. Product Data: Submit published data from manufacturers of products and accessories specified, indicating compliance with requirements.

PART 2 - PRODUCTS

2.01 GLASS BLOCK

- A. Hollow Glass Block: Non-load-bearing blocks comprising two half-blocks of pressed glass fused to produce a partial vacuum, with manufacturer's standard factory-applied edge coating, and complying with the following additional requirements:
 - 1. Design is based on the following product:
 - a. **Pittsburg Corning Corp., "Decora Pattern with LX Filter and without filter"**, max. privacy, 8 inches square. See the drawings for the pattern.
 - b. Comparable products of other manufacturers (Saint-Gobain or A.J. Weck GmbH u. Co. or approved equal) will be considered for acceptance.

2.02 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I; white color.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Aggregate for Mortar: ASTM C 144.
- D. Water: Potable.
- E. Moisture-Resistant Admixture: Water repellent compound designed especially for addition to mortar mixture and intended to reduce capillarity.

2.03 REINFORCEMENT AND ANCHORAGE

- A. Joint Reinforcement and Anchorage Materials: Comply with the following general requirements for materials required in joint reinforcement and anchorage devices:
 - 1. Steel wire: ASTM A 82.
 - a. Hot-dip galvanizing (after fabrication): ASTM A 153, Class B-2.
 - 1. Use: Exterior locations.
- B. Joint Reinforcement: Welded-wire units prefabricated into straight lengths of not less than 10 feet, with deformed continuous side rods and plain cross rods.
 - 1. Width: Approximately two inches less than nominal wall width, providing not less than 5/8 inch mortar coverage on exterior exposures and 1/2 inch elsewhere.
 - 2. Wire sizes:
 - a. Side rod diameter: 0.1483 inch.
 - b. Cross rod diameter: 0.1483 inch.
 - 3. Configuration:
 - a. Ladder design, cross rods at not more than 16 inches on center.
- C. Glass Unit Masonry Panel Anchors: Standard 20 gage perforated steel strips galvanized after fabrication per ASTM A 153, Class B, and as recommended by manufacturer of masonry units.

2.04 MISCELLANEOUS MASONRY ACCESSORIES

- A. Asphalt Emulsion: Water-based type, as recommended by manufacturer of glass masonry units.
- B. Sealant and Backer Rod: As specified in Division 7.

2.05 MORTAR MIX

- A. Mortar for Glass Unit Masonry: ASTM C 270, Type S.
 - 1. Include waterproofing admixture in pointing mortar for exterior panels.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Exterior Openings: Apply coating of asphalt emulsion to sills and allow to dry thoroughly before beginning installation of glass unit masonry. Prepare jambs and head of openings with expansion strips sized to fit block and held in place by adhesive or asphalt emulsion, as acceptable to manufacturer.

3.02 INSTALLATION

- A. General: Lay glass unit masonry on full bed joints and with head joints completely filled; lay units plumb and level, with mortar joints of uniform thickness.
- B. Reinforcing: Install to run full width of glass unit masonry panels, and as follows:
 - 1. Vertical spacing: Not more than 16 inches on center.
 - 2. Expansion joints: Interrupt reinforcing.
- C. Panel Anchors: Fabricate anchors to provide at least 12 inches of anchor in mortar bed joint of glass unit masonry; install at ends of joints with horizontal reinforcing.
- D. Pointing: Rake out mortar on exterior sides of joints in exterior panels to same depth as joint width for pointing material.
 - 1. Use pointing mortar to fill raked joints and voids, applying in layers and compacting each layer.
- E. Tooling Joints: Using concave jointer slightly larger than joint width, tool exposed mortar joints before mortar has assumed final set.
- F. Joints: Make mortar joints visually and dimensionally consistent.
 - 1. Except as otherwise indicated, maintain mortar joint widths of 3/8 inch.

3.03 CLEANING AND PROTECTION

- A. Final Cleaning: Use stiff-bristled brush and damp sponge or cloth to remove mortar from face of glass unit masonry before it has time to dry thoroughly. Do not use abrasive cleaners, metal tools, steel wool, or wire brushes to clean glass faces.
- B. Protection: Institute protective measures as required to ensure that unit masonry work will be clean and undamaged at substantial completion.

END OF SECTION 04270

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Fabrication and erection of structural steel framing members, as defined in AISC Code and as indicated on the drawings.
2. Shop painting.

1.02 SUBMITTALS

- A. Product Data: Producer's or manufacturer's information for products as follows, including sufficient data to show compliance with specified requirements:
1. Mill test reports for each type of structural steel furnished.
 2. Specifications for primer paint, including manufacturer's data on chemical composition, adhesion of spray fireproofing, and dry film thickness per applied coat.
 3. Specifications for nonshrink grout.
- B. Shop Drawings: Complete drawings for structural steel, including information on location, type, and size of all connections, distinguishing between those made in the shop and those made in the field.

1.03 QUALITY ASSURANCE

- A. Welding Procedures: Establish that joint welding procedures are prequalified or test in accordance with American Welding Society (AWS) qualification procedures.
- B. Regulatory Requirements: Unless other requirements of governing authorities or particular requirements of this specification are more stringent, comply with provisions of the following:
1. AISC "Code of Standard Practice for Steel Buildings and Bridges."
 2. AISC "Specification for Structural Steel Buildings—Allowable Stress Design and Plastic Design," with Commentary and Supplements.
 3. AWS D1.1, "Structural Welding Code - Steel."
- C. Testing and Inspection Agency: The owner will engage an independent testing and inspection agency to perform testing, inspect and evaluate connections, and prepare test reports.
1. Correct deficiencies in the structural steel work identified by the testing and inspection agency at no additional expense to the owner. Subsequent tests to confirm the adequacy of corrected work will be at the contractor's expense.

PART 2 - PRODUCTS

2.01 STEEL MATERIALS

- A. Structural Steel Members: ASTM A 36.
- B. Steel Pipe: ASTM A 53, Type and grade: Type E, Grade B.
- C. Cold-Formed Structural Tubing: ASTM A 500, Grade B.
- D. Hot-Formed Structural Tubing: ASTM A 501, seamless or welded.
- E. Anchor Bolts: ASTM A 307, Carbon steel, Grade C; ASTM A 36 steel plate washers.
- F. Carbon Steel Bolts and Nuts: ASTM A 307, Grade A.
- H. High-Strength Bolts, Nuts, and Washers: ASTM A 325.
1. Type 1, plain (medium carbon steel).
- F. Direct Tension Indicators: Load indicator washers or snap-off high-strength bolts certified to provide the minimum fastener tension in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts" may be used at connections requiring high-strength bolts, at the contractor's option.

2.02 MISCELLANEOUS MATERIALS

- A. Welding Electrodes and Fluxes: AWS D1.1; types as required by materials being welded.
- B. Nonshrink Grout: Prepackaged material requiring only the addition of water and complying with ASTM C 1107, and as follows:
 - 1. Natural aggregate (nonmetallic) type.
- C. Shop Primer: Rust-inhibitive, lead and chromate free, low VOC primer, complying with FS TT-P-664, or equivalent.

2.03 FABRICATION

- A. Shop Assembly - General: Comply with requirements of AISC Specifications. Shop fabricate and assemble to maximum degree possible.
- B. Connections:
 - 1. Shop connections: Welded or bolted, as required.
 - 2. Field connections: Welded or bolted, as required.
 - 3. Bolts: High-strength steel bolts, except as otherwise indicated.
 - a. Bolting: Comply with requirements of AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts."
 - 4. Welds: Comply with requirements of AWS Code for welding procedures and quality of welds, including appearance.
- C. Finishing: Accurately mill ends of columns and other members which must transmit loads in bearing.

2.04 SHOP COATING - PAINT

- A. Shop prime all steel members.
- B. Preparation: Thoroughly clean steel surfaces to be shop primed, removing loose rust, loose mill scale, dirt, oil, and grease. Clean steel in accordance with SSPC procedures as follows:
 - 1. Power tool or blast cleaning: SSPC SP-3, -5, -6, or 10.
- C. Painting: As soon as possible after cleaning, apply rust-inhibiting gray primer paint in accordance with instructions of paint manufacturer, at a rate sufficient to provide a finished thickness of not less than 1.5 mils and an average thickness of 2.0 mils.

2.05 SHOP QUALITY CONTROL

- A. Testing and Inspection:
 - 1. General: Provide access to testing and inspection agency so that specified testing and inspection can be safely accomplished.
 - 2. Shop bolted connections: Comply with testing and verification procedures in AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts."
 - 3. Shop welded connections: Inspect and test shop-fabricated welds as follows:
 - a. Visually inspect all welds.

PART 3 - EXECUTION

3.01 ERECTION

- A. General: Erect structural steel in compliance with AISC Code and Specifications.
- B. Assembly:
 - 1. Set structural members accurately to locations and elevations indicated, within tolerances established in AISC Code, before making final connections.
 - 2. Do not use thermal cutting to correct fabrication errors on any major structural member.
- C. Columns and Bearing Surfaces:
 - 1. Clean bearing and contact surfaces before assembly. Slightly roughen concrete and masonry surfaces to improve bond.
 - 2. Set base and bearing plates accurately, using metal wedges, shims, or setting nuts as required.
 - 3. After tightening anchor bolts and ensuring that structure is plumb, grout solidly between plates and bearing surfaces.

- D. Bolting:
 - 1. Carbon steel bolts: Use only for temporary bracing during erection, unless otherwise specifically permitted by contract documents.
 - 2. High-strength bolts: Comply with requirements of AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts."
- E. Welding:
 - 1. Perform field welding in accordance with AWS "Structural Welding Code - Steel."
 - 2. Tighten and leave in place erection bolts used in field-welded construction.

3.02 FIELD QUALITY CONTROL

- A. Testing and Inspection:
 - 1. General: Provide access to testing and inspection agency so that specified testing and inspection can be safely accomplished.
 - 2. Field-bolted connections: Comply with testing and verification procedures in AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts."
 - 3. Field-welded connections: Inspect and test field-fabricated welds as follows:
 - a. Visually inspect all field welds.

END OF SECTION 05120

DIVISION 6 - WOOD AND PLASTICS

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Rough carpentry for:
 - a. Wood framing.
 - b. Miscellaneous lumber for attachment and support of other work.
 - c. Sheathing.
 - 2. Preservative treatment.

1.02 SUBMITTALS

- A. Product Data: Submit for: Air infiltration barrier.
- B. Framing Connectors and Supports: Submit manufacturer's standard data demonstrating compliance with building code requirements.
- C. Treated Wood: Treating plant's instructions for use, including storage, cutting, and finishing.
 - 1. Pressure preservative treatment: Treating plant's certification of compliance with specified standards and stating process employed and preservative retention values.
 - a. Treatment for above-ground use: Certification of kiln drying after treatment.

1.03 QUALITY ASSURANCE

- A. Inspection Agencies:
 - 1. SPIB: Southern Pine Inspection Bureau; for all structural framing of roof joists and headers.

PART 2 – PRODUCTS

2.01 DIMENSION LUMBER

- A. Size: Provide nominal sizes indicated, complying with NIST PS 20 except where actual sizes are specifically required. Provide continuous members; splicing is not acceptable.
 - 1. Surfacing: Dressed lumber (S4S).
 - 2. Moisture content: Kiln-dry or MC15 (15 percent maximum moisture content).
- B. Stud Framing -- 2 x 4 through 2 x 6: Grade: No. 2 (Structural Light Framing).
- C. Joist and Small Beam Framing -- 2 x 6 through 4 x 16:
 - 1. Species: Southern Yellow Pine (SP), Grade: No. 2.
- D. Engineer Lumber:
 - 1. 14" GPI 20 wood I beams roof joists, 24" o.c., OSB web, solid lumber or GP Lam LVL flanges and GP Lam LVL ridge beams equal Georgia-Pacific Wood Products or approved equal. Provide overhang extensions, stiffeners, blocking, adjustable slope hangers, and ridge supports as recommended by the manufacturer.
 - 2. GP Lam LVL (or equal) beams and headers qualified to ASTM D 5456 by APA- The Engineered Wood Association. 1.9E min., 1 3/4" thick, Fb = min. 2,600 psi. For depth other than 12", Fb shall be multiplied by (12/d)^{1/9}.
- E. Miscellaneous Lumber: Provide dimension lumber and boards necessary for the support of work specified in other sections, whether or not specifically indicated, and including but not limited to blocking, nailers, etc.
 - 1. Lumber: S4S, No. 2 or better, 15 percent maximum (kiln-dry).

2.02 CONSTRUCTION PANELS

- A. Roof Sheathing: Oriented Strand Board sheathing: APA Rated, OSB Structural Panels, Exposure 1 (exterior glue), PS-2 or APA PRP-108 performance standards, 24/16 spacing, and 5/8" thick.
 - a. Tongue and groove edges.
- B. Wall Sheathing: Oriented Strand Board (OSB), square edged, APA Rated (exterior glue) sheathing panels with nailing pattern recommended by the manufacturer for shear walls, and nominal 1/2" thick.

2.03 MISCELLANEOUS MATERIALS

- A. Fasteners: Provide as required by applicable codes and as otherwise indicated.

1. Provide fasteners with a hot-dip zinc coating (ASTM A 153) for treated lumber and where wood is in ground contact, subjected to high relative humidity, or exposed to weather.
- B. Framing Connectors and Supports: Prefabricated, formed steel units; hot-dip galvanized finish unless otherwise indicated; type and size as required; approved by applicable codes.
- C. Air Infiltration Barrier: Spunbonded olefin or woven polyolefin sheet, UV-stabilized, for building wrap.
 1. The following products or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - a. "Styrofoam Weathermate Plus, Brand Housewrap"; The Dow Chemical Co.
 - b. "Tyvek"; E. I. du Pont de Nemours and Company, Inc.
 - c. "Amowrap"; Amoco Foam Products Co.
- D. Sill Sealer Gaskets: Glass fiber insulation strips; uncompressed thickness, 1 inch (1/32 inch compressed); width to match sill members.

2.04 WOOD TREATMENT BY PRESSURE PROCESS

- A. Aboveground Lumber: AWPB LP-2 (waterborne preservatives).
 1. Kiln dried after treatment to 19 percent maximum moisture content.
 2. Treat the following:
 - a. Wood in contact with masonry or concrete.
 - b. Sill plate.
 - c. Other members indicated.
- B. Fasteners for Preservative Treated Wood: Hot-dip galvanized steel (ASTM A153).

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

- A. Arrange work to use full length pieces except where lengths would exceed commercially available lengths. Discard pieces with defects that would lower the required strength or appearance of the work.
- B. Cut and fit members accurately. Install plumb and true to line and level.
- C. Fasten carpentry in accordance with applicable codes and recognized standards.
- D. Where exposed, countersink nails and fill flush with suitable wood filler.

3.02 MISCELLANEOUS CARPENTRY

- A. Provide miscellaneous blocking, nailers, grounds, and framing as shown and as required for support of facing materials, fixtures, specialty items, and trim. Cut and shape to the required size. Provide in locations required by other work.
- B. Use countersunk fasteners appropriate to applied loading.

3.03 WOOD FRAMING - GENERAL

- A. Comply with sizes, spacing, and configurations indicated. Where not specifically indicated, comply with applicable codes and NFPA "Manual for Wood Frame Construction." Splice members only where specifically indicated or approved.
- B. Space fasteners as indicated. Where not specifically indicated, comply with applicable codes and the "Recommended Nailing Schedule" of NFPA "Manual for Wood Frame Construction" and "National Design Specification for Wood Construction."

3.04 INSTALLATION OF CONSTRUCTION PANELS

- A. Employ the following fastening methods:
 1. Nail roof and wall sheathing to framing. Staples not permitted.
 - a. Provide solid blocking under panel edges other than intact tongue and groove edges.

3.05 AIR INFILTRATION BARRIER

- A. Install air infiltration barrier in accordance with manufacturer's instructions.

END OF SECTION 06100

SECTION 06200 - FINISH CARPENTRY

I 75

PART 1 - GENERAL

1.01 SUMMARY

- A. Wood trim (window & display case), corner boards and melamine shelving units.
- B. Exterior trim; fiber-cement entry transoms/trim, and gable siding panels see Section 07460.
- C. Fiberglass Reinforced Plastic, FRP, Panels for the service sink walls.

1.02 SUBMITTALS

- A. Plastic Laminate:
 - 1. Product data.
 - 2. Samples for verification: 8- by 10-inch piece of each type, pattern, and color.
- B. Coordinate installation of woodwork with other work to avoid damage.

PART 2 - PRODUCTS

2.01 WOODWORK

- A. All Woodwork Finishes: As indicated on drawings.

2.02 WOOD MATERIALS

- A. Lumber: Species and grade as indicated; lumber ready for installation shall comply with WM 4, "General Requirements For Wood Molding," Wood Molding and Millwork Producers (WMMP).
 - 1. Specie(s):
 - a. Plain sawn red oak at display cases and window picture frame trim.
 - b. "Pine": Plain sawn Spruce or Idaho white pine at window extensions, and storage shelving.
 - b. Western Red Cedar for interior siding boards for walls and ceilings at the new rest area building.
 - 1) 1x6 T&G with v-groove Select Knotty Grade siding, smooth face, blind nail.
 - 2) Interior Bands / Window Trim: Clear Red Cedar wood trim band, 3/4"x11-1/4" size, shown at interior Lobby upper wall bands, / window trim, 1x2 Red Cedar, and stain.
 - 2. Softwood: Comply with NIST PS 20 and grade in accordance with the grading rules of the grading and inspection agency applicable to the species.
 - 3. For transparent finish, use only solid pieces of lumber; WM 4 N-grade.
 - 4. For opaque finish, pieces which are glued up may be used; WM 4 N- or P-grade.
 - 5. Moisture content: Not greater than that required by applicable grading rules; provide kiln-dried lumber.
 - 6. Provide lumber dressed on all exposed faces, unless otherwise indicated.
 - 7. Do not use twisted, warped, bowed, or otherwise defective lumber.
 - 8. Sizes indicated are nominal, unless otherwise indicated.
 - 9. Do not mark or color lumber, except where such marking will be concealed in finish work.
- B. Plywood: Types, grades, and cores as indicated.
 - 1. Medium density overlaid plywood: NBS PS 1, Special Exterior MDO.
 - 2. Plywood in concealed locations: Comply with NBS PS 1, Grade C minimum.
- C. Thermoset Decorative Overlay for Storage Shelving Units: Melamine-impregnated web bonded to particleboard substrate, white color.

2.03 FIBERGLASS REINFORCED PLASTIC (FRP) PANELS:

- A. FRP Panels: Equal to Kemply, Glasbord-P, Class R fire rating, 4'x8'x0.09" thick, embossed surface, color #48, Pearl Grey, with fasteners, adhesive, and vinyl edge molding. To be used at two walls at the service sink. Other equal manufacturers maybe Crane Composites, Inc. or Glasteel FRP.

2.04 FABRICATION

- A. Fabricate in sizes and shapes indicated and using details indicated.
- B. Complete fabrication and assembly in shop.
 - 1. Ease edges of solid lumber members where indicated, using:
 - a. 1/16-inch radius for members 1 inch or less nominal thickness.
 - b. 1/8-inch radius for members more than 1 inch nominal thickness.
- C. Where woodwork is indicated to be field finished, sand smooth, fill nail holes, clean thoroughly, and otherwise prepare for finishing.

- D. Standing and Running Trim: Miter exposed ends of members to match profile.
 - 1. Rout out backs of flat members over 2 inches wide, unless ends are exposed.
 - 2. Kerf backs of flat members over 4 inches wide, except where ends are exposed.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Verify that blocking and backings have been installed at appropriate locations for anchorage.

3.02 INSTALLATION - GENERAL

- A. Do not begin installation of interior woodwork until potentially damaging construction operations are complete in the installation area.
- B. Make joints neatly, with uniform appearance.
- C. Install woodwork in correct location, plumb and level, without rack or warp.
 - 1. Where adjoining surfaces are flush, install with maximum 1/16-inch offset.
 - 2. Where adjoining surfaces are separated by a reveal, install with maximum 1/8-inch offset.
- D. Cut woodwork precisely to fit.
- E. Secure woodwork to blocking or use anchors indicated.
 - 1. Where anchorage method is not indicated, conceal all fasteners where possible.
 - 2. Where exposed nailing is required or indicated, use finishing nails, countersink, and fill.
- F. Repair damaged and defective woodwork to eliminate visual and functional defects; where repair is not possible, replace woodwork.
- G. Standing and Running Trim: Use longest pieces available and as few joints as possible.
 - 1. Stagger joints in built-up trim members. Miter all vertical joints tight at 45 degrees at interior T&G Cedar wall siding and fascia corners. Miter external and miter internal corners.
 - 2. Use diagonal (scarfed) joints in lengths of trim.
 - 3. Cope or miter at inside corners and miter at outside corners; fit tightly.
 - 4. Allowed variation in plumb and level: Not more than 1/8 inch in 8 feet.
 - 5. Install by blind-nailing where possible. Use face-nailing with fine finishing nails countersunk and filled at starter course only.
- H. Panel Type Paneling:
 - 1. Arrange panels for best appearance.
 - 2. Install with tight joints, unless otherwise indicated.
 - 3. Install by face-nailing with fine finishing nails countersunk and filled.

3.03 PROTECTION

- A. Protect woodwork and column cover from damage and maintain design environmental conditions.

END OF SECTION 06200

DIVISION 7 - THERMAL AND MOISTURE PROTECTION 77

SECTION 07160 - BITUMINOUS DAMPPROOFING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Substrate preparation.
 2. Bituminous dampproofing.
 3. Edge and penetration detailing material.

1.02 SUBMITTALS

- A. Product Data: Technical product information and installation instructions which demonstrate that products comply with project requirements.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver dampproofing materials to project site in factory-sealed containers.
B. Store materials in dry, well-ventilated space.

1.04 SITE CONDITIONS

- A. Install dampproofing only when site weather conditions are acceptable per manufacturer's recommendations.
B. Ventilation: Provide sufficient ventilation during application and curing of dampproofing to prevent buildup of toxic or flammable fumes.

PART 2 - PRODUCTS

2.01 BITUMINOUS DAMPPROOFING MATERIALS

- A. Cold-Applied Cut-Back Semimastic Asphalt: Solvent-based asphaltic dampproofing mastic of brushing (medium) consistency, fibrated, meeting the requirements of ASTM D 4479, Type I; asbestos free.

2.02 INSTALLATION ACCESSORIES

- A. Reinforcing Fabric: Woven or nonwoven glass fiber, treated with organic binders and coated for compatibility with dampproofing bitumen.
B. Detailing Mastic: Asphalt-based plastic roof cement, trowel consistency, meeting the requirements of ASTM D 4586.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are smooth, sound, clean, and dry, and that elements which will penetrate dampproofing have been completed and are rigidly installed.

3.02 PREPARATION

- A. Remove honeycomb, aggregate pockets, fins, ridges, and projecting rough areas.
B. Fill cracks, holes, depressions, and irregularities with latex patching mortar or detailing mastic as recommended by membrane manufacturer.
C. Form fillets (cants) at inside corners and around projecting elements using latex patching mortar or detailing mastic.

3.03 INSTALLATION - GENERAL

- A. Comply with dampproofing manufacturer's instructions for handling, preparation, application, and protection of dampproofing materials.

3.04 BELOW-GRADE DAMPPROOFING

- A. Form flashings at outside corners, changes in plane, and penetrations. Apply coating of dampproofing or detailing mastic, embed layer of fiberglass reinforcing extending at least 12 inches onto dampproofing surface, and topcoat with another layer of dampproofing or detailing mastic.
- B. Apply a uniform coat of semimastic dampproofing using spray applicator, brush, or mop. Coverage, 4-1/2 to 5-1/2 gallons per 100 square feet to provide minimum 30-mil dry film thickness.
- C. Apply a "touch-up" coating over areas where coating is thin or has not formed a smooth lustrous surface.

3.05 INSPECTION

- A. Before covering or backfilling dampproofing, notify the Engineer that the dampproofing is ready for inspection.

3.06 PROTECTION AND CLEANING

- A. Take measures required to protect completed dampproofing after installation.
- B. Clean spillage and soiling from adjacent surfaces using cleaning agents and procedures recommended by the manufacturer of the surface.

END OF SECTION 07160

SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Extruded polystyrene board.
 - 2. Glass fiber blanket/batt.

1.02 DEFINITIONS

- A. Thermal Resistance (R-value): The temperature difference in degrees F between the two surfaces of a material of given thickness, required to make 1 Btu of energy flow through 1 square foot of the material in 1 hour.

1.03 SUBMITTALS

- A. Product Data: Submit for each product specified in this section.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Foamed Plastic Insulation: Minimize period between product delivery and actual installation. Protect against exposure to flame, sparks, or excessive heat. Minimize exposure to sunlight.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Provide manufacturer's standard preformed insulation units, sized for proper fit in indicated applications.
- B. Blanket/Batt Insulation: Where installation of blanket/batt insulation is indicated, glass fiber blanket/batt complying with requirements below.
- C. Extruded Polystyrene Board Insulation: Manufactured by extrusion process with integral high density skin:
 - 1. Type VII (ASTM C 578): 60.0 psi compressive strength.
 - 2. Total R-value: 7.5.]
 - 3. Manufacturers: Products of the following manufacturers or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - a. Amoco Foam Products Company.
 - b. Dow U.S.A.
 - c. DiversiFoam Products Company.
 - d. UC Industries, Inc.
- D. Glass Fiber Insulation-Blanket/Batt:
 - 1. Unfaced blanket/batt: Type I (ASTM C 665), passing ASTM E 136 combustion test requirements.
 - 2. Total R-value: 19 at exterior walls; 38 at ceilings.]
 - 3. Products of the following manufacturers or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - a. CertainTeed Corporation.
 - b. Manville Roofing Systems, a Division of Schuller International, Inc.
 - c. Owens-Corning Fiberglas Corporation.
- E. Vapor Retarder: Polyethylene film.
 - 1. Laboratory-tested vapor transmission rating: 0.2 perm.
 - 2. Thickness: 6 mils.
 - 3. Color: Natural.

2.02 ACCESSORIES

- A. Provide accessories as necessary to properly install specified products.
 - Adhesive: Insulation manufacturer's recommended adhesive, complying with fire performance requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with insulation manufacturer's recommendations and installation sequence. Provide permanent placement and support of insulation.
- B. Install materials in a manner which will maximize continuity of thermal envelope. Use a single layer of insulation wherever possible to achieve indicated requirements, unless otherwise indicated.
- C. Insulation Boards:
 - 1. Extruded polystyrene insulation:
 - a. Foundation installation: Provide installation capable of sustaining subsequent construction work without damage or displacement.
 - 1. Adhesive: Use insulation manufacturer's recommended adhesive to attach insulation boards to foundation. Maximize contact between board surface and substrate.
 - b. Under-slab installation: Do not install insulation before compaction of subgrade is verified. Provide installation capable of sustaining subsequent construction work without damage or displacement.
- D. Insulation Blankets/Batts:
 - 1. Application: Wood-framed construction:
 - a. Unfaced insulation: Friction-fit insulation between framing members.
- E. Vapor Retarder:
 - 1. Comply with membrane manufacturer's recommendations for installation of membrane as vapor retarder in application indicated.
 - 2. Install vapor retarder in a manner which will maximize continuity of protection against vapor transmission. Extend membrane tightly and uniformly to building framing and to other objects (pipes, electrical boxes, etc.) impinging on the plane of the membrane.
 - 3. Install vapor retarder on warm side of insulation unless otherwise indicated.

END OF SECTION 07210

SECTION 07411-PREFORMED METAL ROOF PANELS 81

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Architectural roofing system of preformed aluminum panels.
- B. Fastening system.
- C. Factory finishing.
- D. Accessories and miscellaneous components.

1.02 RELATED REQUIREMENTS

- A. Section 06150 - Wood Decking: Roof sheathing.
- B. Section 07900 - Joint Sealers: Field-installed sealants.

1.03 REFERENCE STANDARDS

- A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2005.
- B. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2007.
- C. ASTM B 209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2007.
- D. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2006.
- E. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; 2006.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Storage and handling requirements and recommendations.
 - 2. Installation methods.
 - 3. Specimen warranty.
- C. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
 - 1. Show work to be field-fabricated or field-assembled.
- D. Selection Samples: For each roofing system specified, submit color chips representing manufacturer's full range of available colors and patterns.
- E. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in NCDOT's name and are registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in the manufacture of roofing systems similar to those required for this project, with not less than 5 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

1.07 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of 20 year period from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable manufacturers or approved equal are:
 - 1. Architectural Building Components: www.archmetalroof.com.
 - 2. ATAS International, Inc: www.atas.com.
 - 3. **Petersen Aluminum Corporation***: www.pac-clad.com.

2.02 ARCHITECTURAL ROOF PANELS

- A. Performance Requirements: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.
- B. Metal Roofing: Factory-formed panels with factory-applied finish.
 - 1. Aluminum Panels:
 - a. Alloy: Aluminum conforming to ASTM B 209/B 209M; temper as required for forming.
 - b. Thickness: Minimum 0.032 inch (0.8 mm).
 - 2. Profile: Standing seam, with minimum 1.75 inch seam height; concealed fastener system lapped seam in standing seam profile.
 - 3. Texture: Smooth.
 - 4. Length: Full length of roof slope, without lapped horizontal joints.
 - 5. Width: Maximum panel coverage of 18 inches.

2.03 ATTACHMENT SYSTEM

- A. Concealed System: Provide manufacturer's standard stainless steel or nylon-coated aluminum concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.

2.04 PANEL FINISH

- A. Fluoropolymer Coating System: Manufacturer's standard multi-coat thermocured coating system, including minimum 70 percent fluoropolymer color topcoat with minimum total dry film thickness of 0.9 mil (0.023 mm); color and gloss **Hunter Green** (Pac-Clad, Petersen Aluminum) for all metal items except the soffit metal shall be **Stone White**; cool paint system.

2.05 ACCESSORIES AND MISCELLANEOUS ITEMS

- A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, and equipment curbs of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.
- B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of closed-cell synthetic rubber, neoprene, or PVC.
- C. Soffit: Pac-Clad, Pac-750 half vent.
- D. Sealants: As specified in Section 07900.
 - 1. Exposed sealant must cure to rubber-like consistency.
 - 2. Concealed sealant must be non-hardening type.
 - 3. Seam sealant must be factory-applied, non-skinning, non-drying type.
- E. Underlayment for Wood Substrate: ASTM D 226 roofing felt, perforated type; covered by water-resistant rosin-sized building paper.
- F. Snow Guards: Approved equal to Sno Gem polycarbonate snow guards with adhesive fastening to the standing seam panel and manufacturer's instructions.

2.06 FABRICATION

- A. Panels: Fabricate and finish panels and accessory items at factory, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.
- B. Joints: Factory-install captive gaskets, sealants, or separator strips at panel joints to provide weathertight seals, eliminate metal-to-metal contact, and minimize noise from panel movements.

PART 3 EXECUTION

3.01 PREPARATION

- A. Broom clean wood sheathing prior to installation of roofing system.
- B. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.
- C. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.
- D. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.02 INSTALLATION

- A. Overall: Install roofing system in accordance with panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.
 - 1. Install roofing system with concealed clips and fasteners.
 - 2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.
- B. Accessories: Install all components required for a complete roofing assembly, including flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, equipment curbs, rib closures, ridge closures, and similar roof accessory items.
- C. Underlayment: Install roofing felt and building paper slip sheet on roof deck before installing preformed metal roof panels. Secure by methods acceptable to roof panel manufacturer, minimizing use of metal fasteners. Apply from eaves to ridge in shingle fashion, overlapping horizontal joints a minimum of 2 inches (50 mm) and side and end laps a minimum of 3 inches (75 mm). Offset seams in building paper and seams in roofing felt.
- D. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.

3.03 CLEANING

- A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.04 PROTECTION

- A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.
- B. Touch-up, repair, or replace damaged roof panels or accessories before date of Substantial Completion.

END OF SECTION

SECTION 07460 – SIDING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Fiber-Cement panels and lap-siding at gables.
 - 2. PVC vented soffits and trim.

1.02 REFERENCES

- A. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 1997a.
- B. WWPA G-5 - Western Lumber Grading Rules; Western Wood Products Association; 1998.

1.03 SUBMITTALS

- A. Product Data: Submit product data and manufacturer's recommended installation instructions.
- B. Samples: Submit two 12-inch samples for each siding material and finish.
- C. Contract Closeout Submittals: Warranty.

1.04 WARRANTY

- A. General: Warranties shall be in addition to, and not a limitation of, other rights the owner may have against the contractor.
- B. Fiber-Cement Fascia Trim, Soffit Panels: Furnish manufacturer's standard warranty.
 - 1. Warranted against defects in siding substrate for 50 years.

PART 2 - PRODUCTS

2.01 FIBER-CEMENT & HARDWOOD PRODUCTS

- A. Manufacturer: Provide products complying with requirements of the contract documents and made by the following: **James Hardie Building Products** or equal to CertainTeed, or GAF-Weaterside or approved equal.
- B. Surface Burning Characteristics:
 - 1. Maximum flame spread: 25.
 - 2. Maximum smoke developed: 450.
 - 3. Hardboard shall be manufactured such that surface burning characteristics will not diminish with age or normal exposure, and panels will not exhibit leaching.
 - 4. Each piece shall bear the label of Underwriters Laboratories Inc. or other agency approved by the authorities having jurisdiction.
- C. PVC Exterior Soffit Panels: Equal to Amcraft Building Products; www.amcraft.com; Williamsburg Beaded Soffit or approved equal, .042" thick x 9-1/8" wide x 12' long, vinyl, Wicker color.
- D. Fasteners:
 - 1. Unprimed or factory primed siding: Hot-dip galvanized box nails.
 - 4. Length and spacing as indicated.

2.03 UNDERLAYMENT AND ACCESSORIES

- A. House wrap over exterior OSB sheathing, see Rough Carpentry.
- B. Nails: Hot dipped galvanized type; non-staining, of size and strength to securely and rigidly retain the work.

PART 3 - EXECUTION

3.01 FIBER-CEMENT FASCIA & TRIM INSTALLATION

- A. General:
 - 1. Install siding in accordance with manufacturer's instructions.
 - 2. Position cut ends over bearing surfaces. Sand cut edges smooth and clean.

- B. Installation:
 - 1. Drive nails 90 degrees to surface. Drive nail heads to siding surface without breaking siding surface. Do not overdrive. Do not countersink.
 - 2. Blind nail lap siding, nail at each framing line, positioning nails as per manufacturer's installation instructions.
- C. Install panel siding sheets horizontally with edges and ends over firm bearing, blind nail where possible.
- D. Maximum Variation From Plumb and Level: 1/4 inch per 10 feet.
- F. Prepare for site finishing specified in Section 09900.

3.02 SEALANTS

- A. Lap Siding:
 - 1. Use concealed beads where practicable. Do not use exposed beads of sealant except where concealed application is not possible.

END OF SECTION 07460

SECTION 07900 - JOINT SEALERS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. The sealing of joints indicated on schedule at the end of this section.
 - 2. The sealing of other joints indicated on drawings.
- B. Joints of a nature similar to that of joints indicated on the schedule shall be sealed with same sealer, whether indicated on drawings to be sealed or not.

1.02 DEFINITIONS

- A. Substrates:
 - 1. M-type substrates: Concrete, concrete masonry units, brick, mortar, natural stone. The term "masonry" means 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; substrates not included under other categories.

1.03 SUBMITTALS

- A. Product data.
- B. Samples for Color Selection. (Products exposed to view only.)

1.04 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install sealers if any of the following conditions exist:
 - 1. Air or substrate temperature exceeds the range recommended by sealer manufacturers.
 - 2. Substrate is wet, damp, or covered with snow, ice, or frost.
- B. Dimensional Limitations: Do not install sealers if joint dimensions are less than or greater than that recommended by sealer manufacturer; notify the Engineer and get sealer manufacturer's recommendations for alternative procedures.

1.05 WARRANTY

- A. Submit Manufacturer's written warranty for failures in sealer work that occur within 5 years after substantial completion, without reducing or otherwise limiting any other rights to correction which the owner may have under the contract documents. Failure is defined as failure to remain weather-tight due to faulty materials. Correction is limited to replacement of sealers.

PART 2 - PRODUCTS

2.01 MATERIALS - GENERAL

- A. General: Provide only products which are recommended and approved by their manufacturer for the specific use to which they are put and which comply with all requirements of the contract documents.
 - 1. Provide only materials which are compatible with each other and with joint substrates.
 - 2. Colors of exposed sealers: As selected by the Engineer from manufacturer's standard colors.
- B. Manufacturers: Products of the manufacturers listed or approved equal, provided they comply with requirements of the contract documents will be among those considered acceptable.
 - 1. Silicone sealants:
 - a. Dow Corning Corporation.
 - b. Pecora Corporation.
 - c. GE Silicones.

2.02 ELASTOMERIC SEALANTS

- A. Elastomeric Sealants - General: Chemically curing elastomeric sealants of types indicated, complying with ASTM C 920, including specific Type, Grade, Class, and Uses indicated, as well as all other requirements specified.
 - 1. Where movement capability exceeding that measured by ASTM C 920 is specified, sealant shall withstand the total movement indicated while remaining in compliance with the other requirements specified, when tested in accord with ASTM C 719, with base joint width measured at the time of application.
 - 2. For M-type substrates: Comply with requirements for Use M.
 - 3. For G-type substrates: Comply with requirements for Use G.
 - 4. For A-type substrates: Comply with requirements for Use A.
 - 5. For O-type substrates: Comply with requirements for Use M (minimum) and Use O for the particular substrate.
- B. Medium Movement Silicone Sealant: One- or two-part non-acid-curing, Grade NS, Class 25, Use NT, plus movement capability of more than 25 percent but less than 50 percent in both extension and compression.
- C. Mildew-Resistant Silicone Sealant: One-part, Type S, Grade NS, Class 25, Use NT, formulated with fungicide, for interior use on nonporous substrates, color to match glazed wall tile.

2.03 SILICONE-LATEX SEALANTS

- A. Silicone-Latex Emulsion Sealant: One-part, nonsag, mildew-resistant, paintable at H.M. frames and gray to match wall tile; complying with ASTM C 834 use at fiber-cement siding and panel joints.

2.04 SEALANT BACKERS

- A. Backers - General: Nonstaining; recommended or approved by sealant manufacturer for specific use.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Do not begin joint sealer work until unsatisfactory conditions have been corrected.
- B. Masking Tape: Use masking tape to keep primers and sealers off of adjacent surfaces which would be damaged by contact or by cleanup. Remove tape as soon as practical.

3.02 INSTALLATION

- A. Comply with sealer manufacturers' installation instructions and recommendations, except where more restrictive requirements are specified.

3.03 SCHEDULE OF JOINT SEALERS

- A. Exterior Joints at fiber-cement siding and panel joints.
 - 1. Use Silicone-Latex sealants, paintable type.
 - 2. Joint shape: Concave joint configuration.
- B. Interior inside corners of all glazed tile walls; Mildew-Resistant Silicone Sealant color to match tile.
- C. Interior Joints for Which No Other Sealer Is Indicated:
 - 1. Use one of the following sealants:
 - a. Use Silicone-Latex sealants, paintable type.
 - b. Mildew-resistant silicone sealant at all ceramic tile corners (color to match gray wall tile) and at fixtures.
 - 2. Use bond-breaker tape.
 - 3. Joint shape: Concave joint configuration.

END OF SECTION 07900

DIVISION 8 - DOORS AND WINDOWS

SECTION 08110 - STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Standard steel doors and frames.

1.02 REFERENCES

- A. SDI 100-1991 -- Recommended Specifications: Standard Steel Doors and Frames; Steel Door Institute; 1991.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's printed product information indicating compliance with specified requirements.
- B. Shop Drawings: Submit drawings for fabrication and installation of specified items, coordinated with opening schedule included in contract documents.

1.04 QUALITY ASSURANCE

- A. Quality Standard: Comply with SDI 100.
- B. Fire-Rated Door Assemblies: In compliance with NFPA 80 and labeled per ASTM E 152 by agency acceptable to governing authorities.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in crates or cartons suitable for storage at the site.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Products of the following manufacturers or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - 1. Benchmark Commercial Door Products.
 - 2. Curries Company/Essex Industries, Inc.
 - 3. Steelcraft Manufacturing Company/Masco Industries.

2.02 MATERIALS

- A. Steel Sheets, Hot-Rolled: ASTM A 569 and ASTM A 568, commercial quality, pickled and oiled.
- B. Steel Sheets, Cold-Rolled: ASTM A 366 and ASTM A 568, commercial quality, matte finish exposed, oiled.
- C. Steel Sheets, Galvanized: ASTM A 591, electrolytic zinc-coated, Class A, mill phosphatized.
- D. Anchorages: Galvanized steel, minimum 18 gage.
- E. Fasteners and Inserts: Units standard with manufacturer.
 - 1. Exterior walls: ASTM A 153, hot-dip galvanized, Class C or D.
- F. Primer Paint: Manufacturer's standard rust-inhibitive coating, suitable to receive finish coatings specified.

2.03 FABRICATION

- A. Exposed Door Faces: Fabricate from cold-rolled steel.
- B. Frames: Fabricate from cold-rolled or hot-rolled steel.

- C. Seal top and bottom edges integrally with door construction, or use minimum 16 gage steel channels to form flush closure.
- D. Exposed Screws and Bolts: Where required, provide only countersunk, flat Phillips-head fasteners.
- E. Hardware Preparation: Comply with DHI A115 series specifications.
 - 1. Locations: Comply with final shop drawings.
- F. Shop Painting:
 - 1. Primer: Apply primer evenly to achieve full protection of all exposed surfaces.

2.04 STEEL DOORS

- A. General: Fabricate steel doors in accordance with requirements of SDI 100.
- B. Interior Doors:
 - 1. Grade II - Heavy-Duty, Model 1 - Full Flush.
 - 2. Minimum thickness: 18 gage interior, and 16 gage exterior with insulated cores at exterior.

2.05 STEEL FRAMES

- A. General: Fabricate steel frames for scheduled openings, in styles and profiles as shown, using concealed fasteners.
 - 1. Minimum thickness: 16 gage interior, and 14 gage exterior.
 - 2. Construction: Mitered and welded corners.
- B. Guards: Weld protective covers to back of hardware openings at locations where grout, plaster, or other materials might interfere with hardware operation.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Install steel doors, frames, and accessories to comply with manufacturer's recommendations.
 - 1. Comply with detailed installation requirements of final shop drawings.
- B. Frame Installation: General: Adhere to provisions of SDI 105.
 - 1. Seal all exterior door frames with polyurethane foam sealant.
 - 2. Anchors: Provide 3 wall anchors per jamb at hinge and strike levels and minimum 18 gage base anchors.
 - 3. Fire-rated openings: Comply with requirements of NFPA 80.
- C. Door Installation:
 - 1. General: Comply with requirements and clearances specified in SDI 100.
 - 2. Fire-rated doors: Comply with NFPA 80 requirements and clearances.

3.02 ADJUST AND CLEAN

- A. Touch-Up: At locations where primer has been abraded or minor rusting has occurred, sand smooth and spray-apply compatible primer.
- B. Final Operating Adjustments: Check hardware at all openings for proper operation of doors, making final corrections as required to assure that work of this section is complete and undamaged.

END OF SECTION 08110

SECTION 08211 - SOLID CORE FLUSH WOOD DOORS

PART 1 - GENERAL

1.01 SUBMITTALS

- A. Product data.

1.02 QUALITY ASSURANCE

- A. Flush Doors: Comply with the following, hereinafter referred to as referenced standard(s):
 1. " Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program," including Section 1300, " Architectural Flush Doors," Architectural Woodwork Institute (AWI).

1.03 WARRANTIES

- A. Warranty:
 1. Solid core wood-faced interior doors: Lifetime warranty.

PART 2 - PRODUCTS

2.01 SOLID CORE WOOD-FACED DOORS

- A. Description:
 1. Interior door, non-rated.
 2. Faces: Veneers for transparent finish.
 - a. Species: Red Oak.
 - b. Cut: Rotary cut.
 3. Finish: Transparent finish specified elsewhere.
 4. Grade: Custom.
 5. Construction: 7 ply.
 6. Core: Particleboard, bonded to stiles and rails, sanded.
- B. Manufacturers:
 1. Products of the following manufacturers, or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - a. GlenMar Door Manufacturing Company.
 - b. Graham Manufacturing Corporation.
 - c. Mohawk Flush Doors, Inc.
 - d. Weyerhaeuser Company.

2.02 FABRICATION

- A. Doors: Fabricate to provide consistent clearances as indicated.
 1. Hinge and lock edges: Provide standard (1/8-inch in 2 inches) bevel at edges, unless standard bevel would not precisely match hardware bevel; provide proper bevel for hardware.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install doors in accordance with manufacturer's recommended procedures and requirements of referenced standard.
- B. Fitting of Doors:
 1. Accurately align and fit doors for trouble free operation throughout range of door swing.
- C. Clearances:
 1. Clearance between door edge and head: 1/8 inch.
 2. Clearance between door edge and jamb: 1/8 inch.
 3. Clearance between door bottom edge and top surface of threshold: 1/4 inch.

C202206 (K-4909) 39977.3.1 / McDowell County I-40 Rest Area & Vending
91

4. Clearance between door bottom edge and floor covering surface or finish (where threshold is not indicated): 1/8 inch.
5. Clearance between meeting edges at pairs of doors: 1/8 inch.

END OF SECTION 08211

SECTION 08410-METAL-FRAMED STOREFRONTS 92

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aluminum-framed storefront door, sidelight, and door hardware.
- B. Perimeter sealant.

1.02 REFERENCES

- A. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; American Architectural Manufacturers Association; 1997.
- B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 1998.
- C. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers; 2002.
- D. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 1996.
- E. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 1996.
- F. ASTM E 283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 1991.
- G. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference; 1997.
- H. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference; 1996.

1.03 PERFORMANCE REQUIREMENTS

- A. Design and size components to withstand the following load requirements without damage or permanent set, when tested in accordance with ASTM E 330, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
 - 1. Design Wind Loads: Comply with requirements of ASCE 7.
 - 2. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.
- B. Movement: Accommodate movement between storefront and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.
- C. Air Infiltration: Limit air infiltration through assembly to 0.06 cu ft/min/sq ft of wall area, measured at a reference differential pressure across assembly of 1.57 psf as measured in accordance with ASTM E 283.
- D. Water Leakage: None, when measured in accordance with ASTM E 331 with a test pressure difference of 2.86 lbf/sq ft.
- E. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
- F. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, internal drainage details.
- C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required.
- D. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.

1.05 DELIVERY, STORAGE, AND PROTECTION

- A. Handle products of this section in accordance with AAMA CW-10.
Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond to aluminum when exposed to sunlight or weather.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Kawneer Company; Product Tri-Fab 450 and 451; www.kawneer.com.
- B. Other Acceptable Manufacturers:
 1. United States Aluminum Corp.
 2. Vistawall Architectural Products: www.vistawall.com.

2.02 COMPONENTS

- A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
 1. Finish: High performance organic coating.
 2. Color: Bronze.
- B. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior at exterior doors only, drainage holes and internal weep drainage system.
 1. Framing members for interior applications need not be thermally broken.
 2. Glazing stops: Flush.
 3. Cross-Section: 1-3/4 x 4-1/2 inch nominal dimension.
- C. Doors: Glazed aluminum.
 1. Thickness: 1-3/4 inches.
 2. Top Rail: 4 inches wide.
 3. Vertical Stiles: 4-1/2 inches wide.
 4. Bottom Rail: 12 inches wide.
 5. Glazing Stops: Beveled.
 6. Finish: Same as storefront.

2.03 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Fasteners: Stainless steel.
- C. Perimeter Sealant: Type 1 specified in Section 07900.
- D. Glass: As specified in Section 08800.
 1. Glass in Exterior Framing and Doors: Type 2, 1" insulated glass.
- E. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

2.04 FINISHES

- A. High Performance Organic Finish: AAMA 2604; multiple coats, thermally cured fluoropolymer system; **Brown** painted fluorocarbon, 20-year finish or **Dark Bronze** anodized aluminum finish.

2.05 HARDWARE

- A. Weatherstripping: Wool pile, continuous and replaceable; provide on all doors.
- B. Sill Sweep Strips: Resilient seal type, retracting, of neoprene; provide on all doors.
- C. Pivots: Center type; top and bottom; provide on all doors.
- D. Push/Pull Set: 1" bar, Hager No.160; provide on all doors.
- E. Threshold: Aluminum, 1/4" high maximum; provide on all doors.
- F. Closers: Surface mounted on interior.
 1. Provide on all doors.
- G. Locks: Dead latch with turn handle inside; keyed cylinder outside.
 1. Provide on all doors.

2.06 FABRICATION

- A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.

- C. Prepare components to receive anchor devices. Fabricate anchors.
- D. Arrange fasteners and attachments to conceal from view.
- E. Reinforce components internally for door hardware.
- F. Reinforce framing members for imposed loads.
- G. Finishing: Apply factory finish to all surfaces that will be exposed in completed assemblies.
 - 1. Touch-up surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify dimensions, tolerances, and method of attachment with other work.
- B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

3.02 INSTALLATION

- A. Install wall system in accordance with manufacturer's instructions.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.
- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.
- G. Coordinate attachment and seal of perimeter air and vapor barrier materials.
- H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- I. Set thresholds in bed of mastic and secure.
- J. Install hardware using templates provided.
- K. Install glass in accordance with Section 08800, using glazing method required to achieve performance criteria.
- L. Install perimeter sealant in accordance with Section 07900.

3.03 ERECTION TOLERANCES

- A. Maximum Variation from Plumb: 0.06 inches every 3 ft non-cumulative or 1/16 inches per 10 ft, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.04 ADJUSTING

- A. Adjust operating hardware for smooth operation.

3.05 CLEANING AND PROTECTION

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- C. Remove excess sealant by method acceptable to sealant manufacturer.
- D. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

END OF SECTION

SECTION 08460 - AUTOMATIC ENTRANCE DOORS 95

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Automatic sliding doors, with frames (2-sets at each Vestibule); a total of 4-units for the project.
- B. Actuators and safety devices.

1.02 REFERENCES

- A. BHMA A156.10 - American National Standard for Power Operated Pedestrian Doors; Builders Hardware Manufacturers Association; 1999 (ANSI/BHMA A156.10).
- B. BHMA A156.19 - American National Standard for Power Assist and Low Energy Power Operated Doors; Builders Hardware Manufacturers Association; 1997 (ANSI/BHMA A156.19).
- C. NEMA MG 1 - Motors and Generators; National Electrical Manufacturers Association; 1998.
- D. NFPA 70 - National Electrical Code; National Fire Protection Association; 1999.
- E. UL (ECMD) - Electrical Construction Materials Directory; Underwriters Laboratories Inc.; current edition.
- F. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Underwriters Laboratories Inc.; 1995.

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
- C. Product Data: Provide data on system components, sizes, features, and finishes.
- D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and manufacturer's hardware and component templates.
- E. Maintenance Data: Include manufacturer's parts list and maintenance instructions for each type of hardware and operating component.
- F. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

- A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc., as suitable for the purpose specified and indicated.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

1.05 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a 1 year period after Date of Substantial Completion.
- C. Provide five year manufacturer warranty for motor and compressor.

1.06 MAINTENANCE SERVICE

- A. Provide service and maintenance of operating equipment for one year from Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Automatic Entrance Doors: Dormatic, **Horton* Series 2310** or Stanely or NABCO Entrances or Dorma or approved equal.

2.02 AUTOMATIC ENTRANCE DOORS

- A. Automatic Sliding Door Type 1A: Single leaf track-mounted, electric operation, extruded aluminum glazed door, with frame, and operator concealed overhead.
- B. Finish: **Brown** painted fluorocarbon, 20-year finish or **Dark Bronze** anodized aluminum finish.

2.03 LAMINATED GLASS

- A. Laminated Glass: 1/4" thick laminated safety glass, see Section 08800.

2.04 DOOR OPERATORS

- A. Door Operators - General Requirements: Comply with BHMA A156.10, BHMA A156.19 and UL 325, as applicable.
- B. Door Locking: Provide electronic locking from interior for securing door at maintenance times with Adams Rite 8600 panic device.
- C. Egress Function: Provide emergency egress function in compliance with the 2006 NCSBC, Section 1008.1.3.3.

2.05 ACTUATORS

- A. Proximity Detector Actuator: Microwave; distance of control sensitivity adjustable.

2.06 ELECTRICAL CHARACTERISTICS AND COMPONENTS

- A. Electrical Characteristics:
- B. Motors: NEMA MG 1.
- C. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70.
- D. Disconnect Switch: Factory mount disconnect switch in control panel.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work and dimensions are as indicated on shop drawings.
- B. Verify that electric power is available and of the correct characteristics.

3.02 INSTALLATION

- A. Install equipment in accordance with manufacturer's instructions.
- B. Coordinate installation of components with related and adjacent work; level and plumb.

3.03 ADJUSTING

- A. Adjust door equipment for correct function and smooth operation.

3.04 CLEANING

- A. Remove temporary protection, clean exposed surfaces.

3.05 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation, operating components, adjustment features, and lubrication requirements.

END OF SECTION

SECTION 08550 - WOOD WINDOWS

97

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Factory fabricated metal clad wood windows with operating sash.
- B. Operating hardware.
- C. Insect screens.

1.02 RELATED SECTIONS

- A. Section 07900 - Joint Sealers: Perimeter sealant and back-up materials.
- B. Section 09900 - Paints and Coatings: Site finishing wood surfaces.

1.03 REFERENCES

- A. AAMA/NWWDA 101/I.S.2 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors; American Architectural Manufacturers Association; 1997.
- B. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers; 1995.
- C. ASTM E 283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 1991.
- D. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference; 1997.
- E. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference; 1996.
- F. FS L-S-125 - Screening, Insect, Nonmetallic; Federal Specifications and Standards; Revision B, 1972.
- G. NWWDA I.S.4 - Water-Repellent Preservative Non-Pressure Treatment for Millwork; National Wood Window and Door Association; 1994.

1.04 PERFORMANCE REQUIREMENTS

- A. Performance Requirements: As specified in PART 2, with the following additional requirements:
- B. Design and size windows to withstand dead loads and positive and negative wind loads acting normal to plane of wall calculated in accordance with ASCE 7, and the NC Building Code, when tested in accordance with ASTM E 330, using test loads equal to 1.5 times the design wind loads and 10 second duration of maximum load.
- C. Deflection: Limit member deflection to flexure limit of glass with full recovery of glazing materials.
- D. Design windows to accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing and deflection of lintel.
- E. Air Infiltration: Limit air leakage through assembly to 0.3 cu ft/min/sq ft (5.0 cu m/h/sq m) of wall area, measured at a reference differential pressure across assembly of 1.57 psf (75 Pa) as measured in accordance with ASTM E 283.
- F. Water Leakage: None, when measured in accordance with ASTM E 331.

1.05 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Show component dimensions.
- C. Shop Drawings: Indicate opening dimensions.

1.06 QUALITY ASSURANCE

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

1.07 DELIVERY, STORAGE, AND PROTECTION

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

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Do not install sealants when ambient temperature is less than 40 degrees F (5 degrees C).

1.09 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same.
- C. Warranty: Include coverage for:
 - 1. Degradation of color finish.
 - 2. Delamination or separation of finish cladding from window member.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. **Pella Corp.***
- B. Other Acceptable Manufacturers:
 - 1. Pozzi.
 - 2. Marvin.
 - 3. Or approved equal.

2.02 WINDOW COMPONENTS

- A. Windows: Wood frame and sash, factory fabricated and assembled.
 - 1. Performance Requirements: AAMA/NWWDA 101/I.S.2 C30
 - 2. Exterior Surfaces: Metal clad, **Brown**.
 - 3. Interior Surfaces: Unfinished, for transparent finish specified in Section 09900.
 - 4. Configuration: As indicated on drawings and awning type.
 - 5. Factory glazed; dry glazing method.
- B. Insect Screen Frame: Rolled aluminum frame of rectangular sections; fit with adjustable hardware; nominal size similar to operable glazed unit.
- C. Insect Screens: Woven nonmetallic mesh; FS L-S-125; 14/18 mesh, PVC strands; black color.
- D. Operable Sash Weatherstripping: Resilient PVC; permanently resilient, profiled to effect weather seal.

2.03 MATERIALS

- A. Wood: Clear pine, clear preservative treated to NWWDA I.S.4 of type suitable for transparent or opaque finish.
- B. Metal Cladding: Formed aluminum, factory finished, factory fit to profile of wood members.
- C. Glass and Glazing Materials: As described below:
 - 1. Glass in Exterior Lights: Type Obscure and/or clear, double glazing, "Smart Glazing II" or 3/4" insulated glass with low "E" coating, Shading coefficient: 0.88, Winter U-value: 0.48, minimum. Provide obscure glass in the exterior pane and clear glass in the interior pane at all restroom windows.
 - a. Solar-Cool Bronze, reflective insulated glass at the Vending building, Storage V104.
- D. Sealant and Backing Materials: As specified in Section 07900 of Types described below.

2.04 HARDWARE

- A. Awning Sash: Metal and nylon spiral friction slide cylinder, each sash, each jamb.
- B. Sash lock: Lever handle with cam lock.
- C. Operator: Rotary type operator.

2.05 FABRICATION

- A. Fabricate frame and sash members with mortise and tenon joints. Glue and steel pin joints to hairline fit, weather tight.
- B. Transparent Finish: Scarf joints permitted if wood matches in color and grain texture.
- C. Provide weather stop flange at entire perimeter of unit.
- D. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet allowing installation and dynamic movement of perimeter seal.

- E. Arrange fasteners to be concealed from view.
- F. Provide internal drainage of glazing spaces to exterior through weep holes.
- G. Assemble insect screen frame, miter and reinforce frame corners. Fit mesh taut into frame and secure. Fit frame with four spring loaded steel pin retainers.
- H. Single weatherstrip operable units.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.
- C. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.
- D. Install sills, and jamb extensions.
- E. Install operating hardware.
- F. Install glass; Factory glazed.

3.03 ADJUSTING

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

3.04 CLEANING

- A. Remove protective material from factory finished surfaces.
- B. Wash surfaces by method recommended and acceptable to sealant and window manufacturer; rinse and wipe surfaces clean.
- C. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

END OF SECTION

SECTION 08620 - UNIT SKYLIGHTS

100

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fixed wood clad skylights.

1.02 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide structural, thermal, and daylighting performance values.

1.03 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
Provide five year manufacturer warranty for including leakage due to defective skylight materials or workmanship.

1.04 QUALITY ASSURANCE

- A. Skylight Units shall comply with the 2006 NCSBC, Section 2405.5 for sloped glazing construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Unit Skylights:
 1. **Velux-America Inc.*** or approved equal.
 2. Andersen Window Co.
 3. Pella Corporation.

2.02 COMPONENTS

- A. Unit Skylight Type Wood: Factory-assembled glazing in wood frame; double glazed insulated glass.
 1. Nominal Size: [22x54] inches, Model No. FS 74-108 2.
 2. Wood: Select kiln-dried solid and clear. No finger joints, preservative impregnated for opaquw interior finish.
 3. Maintenance-Free Exterior Cladding: Roll-formed (0.65 aluminum) or vinyl prefinished product engineered and fabricated to fit exterior exposed surfaces.
 4. Glazing: 5/8-inch **obscure** / clear, low E Argon gas filled-gas, insulated, tempered over laminated glass, "U"-value = 0.44, Glazing Code: No. 9914.
 5. Baked Acrylic Enamel Finish: Thermally cured organic coating meeting the requirements of AAMA 603, "**Dark Brown**" color.
 6. Interior finish: Factory primed to receive field applied coating specified in Section 09900.
 7. Fittings: Surface treatment with electro-galvanized, chromate passivated yellow.
 8. Mounting Brackets: Factory installed stamped steel, surface treatment electro-galvanized, chromate passivated yellow.
 9. Flashing: Type EDL step flashing for use with shingles, 4/12 slope, minimum 4" curb construction.
 10. Fasteners: For attachment of roof accessories to supporting structure; hot dip galvanized zinc plated or cadmium plated steel, or stainless steel.

2.03 ACCESSORIES

- A. Anchorage Devices: Type recommended by manufacturer, concealed.

2.04 FABRICATION

- A. Fabricate free of visual distortion and defects.
- B. Fabricate to achieve leakproof, weathertight assembly.
- C. Fabricate components to allow for expansion and contraction with minimum clearance and shim spacing around perimeter of assembly.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Place skylight units and secure. Install counterflashing according to the manufacturer's installation instructions.
- B. Overlap shingles with flashing to achieve watertight assembly.

3.02 CLEANING

- A. Remove protective material from prefinished aluminum surfaces.
- B. Wash down exposed surfaces; wipe surfaces clean.

END OF SECTION

SECTION 08710 - DOOR HARDWARE **102**

PART 1 - GENERAL

1.01 SUBMITTALS

- A. Product Data.
- B. Final Hardware Schedule.
- C. Keying Schedule: Separate schedule showing how each lock is keyed.

PART 2 - PRODUCTS

- A. Latching and Locking Devices: Mortise locks, unless otherwise indicated, with appropriate locking function; provide on every door.

2.01 MATERIALS - GENERAL

- A. Manufacturers:
 - 1. Where a particular manufacturer's product is specified, products of other manufacturers will be considered for substitution.
- B. Fasteners: Provide hardware prepared by the manufacturer with fastener holes for machine screws, unless otherwise indicated.
 - 1. Provide all fasteners required for secure installation.
 - 2. Select fasteners appropriate to substrate and material being fastened.
 - 3. Use wood screws for installation in wood.
 - 4. Use fasteners impervious to corrosion outdoors and on exterior doors.
 - 5. Exposed screws: Match hardware finish.
- C. Finish on All Exposed Metal Items: Satin chrome plated (626).
 - 1. Exceptions:
 - a. Plates and bars: Satin stainless steel (630).
 - b. Hinges: Where steel hinges are acceptable, use matching plated finish.
 - c. As indicated for specific items.

2.02 LOCKS, LATCHES, AND BOLTS

- A. Mortise Locksets and Latchsets:
 - 1. Comply with requirements of BHMA A156.13, Operational Grade 2.
 - a. Security Grade 1.
 - 2. Trim: Cast lever with escutcheon plate.
- B. Strikes: Provide strike for each latch bolt and lock bolt.
 - 1. Finish to match other hardware on door.
 - 2. Use wrought box strikes with curved lips unless otherwise indicated.
 - 3. Open strike plates may be used on interior wood door frames.

2.03 LOCK CYLINDERS AND KEYING

- A. Keying: Obtain the owner's keying instructions.
 - 1. Match existing master key system.
 - 2. Provide standard cylinders for locks on all doors, unless otherwise indicated.
- B. Cylinders: Minimum 7-pin pin tumbler cylinders.
 - 1. Construction: All parts brass, bronze, nickel silver or stainless steel.
 - 2. Cylinders made by manufacturers other than the lockset manufacturer will not be acceptable.
- C. Keys: Nickel silver.
 - 1. Stamp each key with manufacturer's change symbol.
 - 2. Provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.
 - 3. Provide 3 of each change key. Master key system shall match existing: 5 master keys.

2.04 DOOR CONTROL DEVICES

- A. Closers - General:
 - 1. Use closers of sizes recommended by manufacturer, unless a larger size is specified.
 - 2. Size closer or adjust closer opening force to comply with applicable codes.
- B. Surface-Mounted Closers:
 - 1. Comply with requirements of BHMA A156.4, Grade 2.
 - a. Provide the following features:
 - 1. PT 4D: Adjustable hydraulic back check.
 - 2. PT 4F: Delayed action.
 - 2. Style: CO2021.
 - 3. Parallel arms: Provide for all closers; use larger size than normal.
 - 1. Finish: Metallic paint finish, color similar to metal hardware on same door.
- B. Recessed-Mounted Closers: Replace existing closers at the 2-Welcome Center entry doors.
- C. Wall/Floor-Mounted Stops/holders: Comply with requirements of ANSI A156.16.
 - 1. Floor-mounted stops: Style: L12121.
 - 2. Resilient bumpers: Gray.

2.05 SEALS AND THRESHOLDS

- A. Weatherstripping:
 - 1. At jambs and head: Replaceable bumper in surface-mounted extruded aluminum housing.
 - a. Bumper: Solid neoprene, hollow bulb or loop.
 - 2. At bottom: Replaceable sweep in surface-mounted extruded aluminum housing.
 - a. Sweep: Solid neoprene.
 - 3. Housing finish: Natural anodized.
- B. Thresholds: Ribbed aluminum.
 - 1. Select style to suit changes in elevation and to fit door hardware and frames.
 - 2. Interlocking hook type threshold: Hook strip on bottom of door, interlocking with top lip of threshold.
 - a. At doors that swing in, provide internal drain and drain pan.
- C. Sealant for Setting Thresholds: Butyl-rubber or butyl-polyisobutylene sealant.

2.06 ARCHITECTURAL DOOR TRIM

- A. Manufacturers:
 - 1. Architectural door trim: Products of the following manufacturers, or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - a. Yale Security, Inc.
 - b. Hiawatha, Inc.
 - c. H. B. Ives, a Harrow Company.
 - d. Rockwood Manufacturing Company.
 - e. Triangle Brass Manufacturing Company, Inc.
- B. Push / pulls:
 - 1. Decorative pulls: 1 inch round bars, radius ends, vertical(pull side) and horizontal(push side), 12 & 32 inches long respectively.
 - 2. Pull handles which are not mounted on plates: Fasten with through-bolts concealed under plate on opposite side.
 - 3. Where matching handles or bars are installed on each side of door, mount back-to-back with concealed fasteners.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Factory- or shop-prepare all work for installation of hardware.

3.02 INSTALLATION

- A. Follow hardware manufacturer's recommendations and instructions.
- B. Mount at heights specified in the Door and Hardware Institute's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 1. Exception(s): As required by applicable regulations.
- C. Install hardware in correct location, plumb and level.
- D. Reinforce substrates as required for secure attachment and proper operation.
- E. Thresholds: Apply continuous bead of sealant to all contact surfaces before installing.

3.03 ADJUSTMENT

- A. Adjust each operable unit for correct function and smooth, free operation.
- B. Adjust door closers to overcome air pressure produced by HVAC systems.
- C. If hardware adjustment is completed more than one month before substantial completion, readjust hardware not more than one week before substantial completion.

3.04 CONTRACT CLOSEOUT

- A. Deliver all keys to the owner.

END OF SECTION 08710

SECTION 08800 - GLAZING

105

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Insulated, display, and obscure glass.
 - 2. Glazing accessories.
- B. Types of work in this section include work for:
 - 1. Exterior entry door and sidelights; see Section 08410-Metal-Framed Storefronts.
 - 2. Sliding glass entry door; see Section 08460.

1.02 PERFORMANCE REQUIREMENTS

- A. Exterior Glazing: Provide glazing assemblies which will withstand normal conditions without failure, loss of weathertightness, or deterioration.
- B. Deterioration includes:
 - 1. For insulating glass:
 - a. Moisture or dirt between panes.
 - b. Development of condensation between panes.
 - c. Damage to internal coating, if any.
 - d. Development of other visible indication of seal failure.
 - 2. For laminated glass: Development of visible delamination.

1.03 SUBMITTALS

- A. Product Data.
- B. Insulating Unit Warranty.

1.04 WARRANTY

- A. Warranty on Insulating Glass: Fabricator's standard warranty for 5 years.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers:
 - 1. Laminated glass: Products of the following manufacturers or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - a. Falconer-Lewistown, Inc.
 - b. Globe Amerada Glass Company.
 - c. Guardian Industries Corporation.
 - d. Viracon, Inc.

2.02 GLASS TYPES

- A. Glass Types - General: Provide glass types fabricated of the glass products indicated.
 - 1. Exterior glass thickness: 6 mm (1/4 inch nominal), unless otherwise indicated.
 - 2. Where safety glazing is required by governing authorities, provide certified safety glazing.
 - 3. Cut or drill holes in laminated units.
- B. Glass Type I - 1: Single units at sliding entry doors and sidelights.
 - 1. Total thickness: 1/4 inch, nominal.
 - 2. Exterior and interior pane: **Laminated glass.**
 - a. Two-ply.
 - b. Thickness of plies: 6 mm.
 - c. All plies: **Heat-strengthened float glass.**
 - d. Color: Outer and inner ply: Clear.
 - e. Interlayer thickness: 0.05 inch.

3. Shading coefficient: 0.96.
5. Winter U-value: 1.09, minimum.
6. Acceptable glazing methods:
 - a. Structural adhesive glazed.
- C. Glass Type SG - 2: Polycarbonate sheet, with mar-resistant coating; thickness: ¼ inch.
 1. Provide certified safety glazing and use at display cases.
 2. Color: Clear.
 2. Acceptable glazing methods: Sealant, both sides.
- D. Glass Type SG - 3: Obscure glass at Unisex Restroom door; thickness: ¼ inch safety glass.

2.03 BASIC GLASS PRODUCTS

- A. Sealed Insulating Units: Factory-assembled multiple panes separated by and sealed to spacers forming air-tight, dehydrated air space(s).
 1. ASTM E 774, Class B.
 2. Spacer seals: Manufacturer's standard.
 3. Exception: For structural adhesive glazed units use only a dual seal system, using materials determined by structural adhesive manufacturer to be compatible with structural adhesive.
- B. Float Glass: Quality q3, unless otherwise indicated.
 1. Heat-strengthened: ASTM C 1048, Kind HS, Type I.
- C. Laminated Units: Multiple plies laminated together with interlayer, using heat and pressure, without air pockets or contaminants between plies.
 1. Interlayer for all-glass units: Polyvinyl butyral sheet, specifically designed for lamination and with demonstrated long-term ability to maintain physical and visual properties under installed conditions.
- D. Polycarbonate Sheet: Rigid, flat polycarbonate sheet; thicknesses as indicated.
 1. Flammability: Average extent of burning less than 1 inch, when tested in accordance with ASTM D 635, using the thickness of material to be used on the project.
 3. UV- and mar-resistant coating: Apply on all surfaces exposed to air.
- D. Transom Grilles: Provide white coated aluminum grilles on all transom lights match grilles on sidelights.

2.04 INSTALLATION MATERIALS

- A. Installation Materials - General: Select products which have appropriate performance characteristics as recommended by glass and glazing materials manufacturers and which are compatible with all materials with which they will come into contact.
- B. Heel and Toe Bead Sealant: Noncuring, nonskinning, minimum 75 percent solids, butyl or polyisobutylene rubber, complying with 802.3, Type II ductile back bedding compound, as described in AAMA 800.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

- A. Comply with recommendations for installation contained in the FGMA "Glazing Manual" and "Sealant Manual" except when specifically not recommended or prohibited by the glass or glazing material manufacturer; comply with manufacturer's recommendations.
- B. Protect glazing from edge damage during handling and installation.
- C. Do not install glass that has edge damage or defects that reduce glass strength or performance or diminish appearance.

3.02 GLAZING IN FRAMES

- A. Use continuous heel or toe bead at all exterior glazing.
- B. Do not block weep holes.
- C. Structural Adhesive Glazing: Perform glazing in strict accordance with instructions of structural glazing adhesive manufacturer and additional requirements elsewhere in the contract documents.

3.03 PROTECTION AND CLEANING

- A. Cover exposed polycarbonate surfaces with heavy paper secured with tape, without touching glazing.
 1. Clean polycarbonate surfaces using only methods recommended by manufacturer.

END OF SECTION 08800

DIVISION 9 - FINISHES

107

SECTION 09260 - GYPSUM BOARD SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Gypsum wallboard and ceiling board.
 - 2. Drywall finishing.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements: Where required, provide fire-rated assemblies as listed in the following:
 - 1. Underwriters Laboratories Inc.'s (UL) "Fire Resistance Directory."

PART 2 - PRODUCTS

2.01 GYPSUM BOARD

- A. Gypsum Wallboard and Ceiling Board: ASTM C 36; maximum lengths available to minimize end-to-end butt joints in each area receiving finished gypsum board.
 - 1. Edges: Tapered.
 - 2. Thickness: 5/8 inch, except as otherwise shown (fire-resistant type).
- B. Manufacturers: Products of the following manufacturers or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - 1. Domtar Gypsum.
 - 2. Georgia-Pacific Corporation.
 - 3. Gold Bond Building Products, a National Gypsum Division.
 - 4. USG Corporation.

2.02 TRIM AND ACCESSORIES

- A. General: Except as otherwise specifically indicated, provide trim and accessories by manufacturer of gypsum board materials, made of galvanized steel or zinc alloy and configured for concealment in joint compound.

2.03 JOINT TREATMENT

- A. General: Provide products by manufacturer of gypsum boards. Comply with ASTM C 475 and with manufacturer's recommendations for specific project conditions.
- B. Joint Tape: Manufacturer's standard paper reinforcing tape.
- C. Setting Type Joint Compound: Chemical hardening type, for the following applications:
 - 1. Exterior use: Prefilling and topping.
- D. Drying Type Joint Compound: Vinyl-based type for interior use, and as follows:
 - 1. All-purpose type, for both embedding tape and as topping.

2.04 MISCELLANEOUS MATERIALS

- A. General: Provide miscellaneous materials as produced or recommended by manufacturer of gypsum products.

PART 3 - EXECUTION

3.01 INSTALLATION OF GYPSUM BOARD

- A. General: Comply with ASTM C 840 and GA-216 except where exceeded by other requirements.
 - 1. Wherever possible, install gypsum board to minimize butt end joints.

**C202206 (K-4909) 39977.3.1 / McDowell County I-40 Rest Area & Vending
108**

2. Apply ceiling boards prior to installation of wallboards. Arrange to minimize butt end joints near center of ceiling area.
 3. Install wallboards in a manner which will minimize butt end joints in center of wall area. Stagger vertical joints on opposite sides of walls.
- B. Installation on Wood Framing:
1. Single-layer application: Install gypsum board by the following method:
 - a. Screw attachment.

3.02 FINISHING

- A. General: Comply with ASTM C 840 and GA-216 except where exceeded by other requirements.
- B. Finish gypsum board in accordance with the following level of finish per GA-214, except where indicated otherwise on the drawings:
 1. Level 3: Embed tape in joint compound at all joints and interior angles. Provide two separate coats of compound at all joints, angles, fastener heads, and accessories. Provide smooth surfaces free of tool marks and ridges.

END OF SECTION 09260

SECTION 09300 - TILE

109

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Glazed wall tiles.
 - 2. Floor paver tiles.

1.02 DESIGN REQUIREMENTS

- A. Fire-Rated Construction: At locations indicated, provide fire-rated assemblies tested per ASTM E 119 and acceptable to governing authorities for designated fire ratings.

1.03 SUBMITTALS

- A. Samples for Verification: Submit each tile type selected mounted on a minimum 12 inch square board with joints filled using selected grout.

1.04 MAINTENANCE

- A. Extra Materials: Furnish not less than 1 percent of total product installed maintenance stock for each type, color, pattern, and size of tile product installed.

PART 2 - PRODUCTS

2.01 MATERIALS - GENERAL

- A. Colors, Textures, and Patterns, Tile, Grout, and Other Products: **Colors shall match the colors indicated below and as scheduled on drawings**, as manufactured by the **Dal-Tile Corporation** or approved equals (American Olean Tile or Florida Tile). **Colors manufactured by a tile company other than that specified, as manufactured by the Dal-Tile Corporation, must be approved as equal in color and texture by the Architect and the Roadside Unit.** A manufacture other than Dal-Tile shall submit an actual sample comparison submittal board with their **substitution samples** mounted along side the specified Dal-Tile samples for consideration as an equal tile product by the Architect and the Roadside Unit; the proposed substitution submittal board **shall be submitted 10 days prior to the receipt of bids to Facilities Design, NCDOT, 1 S. Wilmington St., Raleigh, NC 27601, Attn: Vic Buzard, RA.**
 - 1. Tile trim and accessories: Match color and finish of adjoining flat tile.

2.02 TILE PRODUCTS

- A. Floor Tile; Provide Flat Porcelain and terrazzo Tile with abrasive glazed finish (non-slip):
 - 1. The design is based on the following products:
 - a. Type 1: Main floor tile and (sanitary base).
 - 1. Manufacturer: Dal-Tile Corporation.
 - 2. Pattern: Florenza / (Continental).
 - 3. Size: 12" x 12" x 3/8" and (6" x 12" x 5/16" sanitary base).
 - 4. Color: #FZ02, Olivia and (sanitary base #CS53, Asian Black).
 - b. Type 2: Floor rectangle accent tile / (border tiles).
 - 1. Manufacturer: Dal-Tile Corporation.
 - 2. Pattern: Wausau / (River Run) terrazzo.
 - 3. Size: 12" x 12" x 1/2" / (4" x 12" x 1/2" / 6" x 12" x 1/2").
 - 4. Color: #TZ42, Blue Hawaii, Lobby rectangular floor accent / (#TZ04, Deep waters, Lobby & Corridor border).
- B. Wall Tile and Manufactured Stone:
 - 1. The design is based on the following product:
 - a. Type 1: Restroom wall tile.
 - 1. Manufacturer: Dal-Tile Corporation.
 - 2. Pattern: Semi-Gloss. Size: 6" x 6" x 5/16".
 - 3. Color: #K165, Almond, restroom main walls.
 - b. Type 2: Wall tile at Lobby and Corridor wainscot and restroom accent bands / (bullnose trim).
 - 1. Manufacturer: Dal-Tile Corporation.
 - 2. Pattern: Passaggio.

3. Size: 12" x 12" & 6" x 12" x 5/16" / (3" x 12" x 5/16" bullnose trim).
4. Color: #PA32, Sorano Brown.
- c. Type 3: Wainscot vertical accent tile.
 1. Manufacturer: Dal-Tile Corporation.
 2. Pattern: Loose Tile.
 3. Size: 2" x 10" x 5/16".
 4. Color: #FA27, Cornsilk, Lobby and restroom entrance / hallway vertical accent.
- d. Type 4: Wall accent tile Border Strip Piece.
 1. Manufacturer: Dal-Tile Corporation.
 2. Pattern: Island Stone.
 3. Size: 6" x 12" wall mounted sections of pebbles.
 4. Color: "Java Gray Pebbles", at restroom accent band.
- e. Type 5: Hallway wall stone at entry to restrooms or in front of the Pipe Chases.
 1. Manufacturer: Dal-Tile Corporation.
 2. Pattern: Velvet River rock.
 3. Size: Random diameters, 2"-13", wall mounted individually, a pre-installation meeting is required w/ the Architect/Owner.
 4. Color: "Mystic Silver, MS 82" and/mixed w/ "Autum Bronze, MS 70".
2. Trim units: Match color and finish of accent tile (6" high base):
 - a. Shapes and sizes: Manufacturer's standard, as indicated; coordinated with indicated size and coursing of adjoining flat tile, where applicable:
 1. Bullnose, 3" x 12", #PA32, Sorano Brown.
 2. Cove base, 6" x 12", #CS53, Asian Black.

2.03 SETTING MATERIALS

- A. **Latex-Portland Cement Mortar:** Two-component, dry grout mix and liquid latex additive, field-mixed; complying with ANSI A118.4, for floors and walls.
 1. All components premeasured and prepackaged.
 2. Liquid latex additive: Manufacturer's standard water emulsion.
 3. Mix in accordance with manufacturer's recommendations.

2.04 GROUTING MATERIALS

- A. Wall Un-Sanded-Portland Cement Grout: ANSI A108.10.
- B. Latex-Portland Cement Grout: One-component dry grout mix, field-mixed with water; or two-component, dry grout mix and liquid latex additive or Polyblend, field-mixed; complying with ANSI A118.6.
 1. All components premeasured and prepackaged.
 2. Dry latex additive: Polyvinyl acetate or ethylene vinyl acetate or Polyblend.
 3. Liquid latex additive or Polyblend: Manufacturer's standard water emulsion.
 4. Color: #382, Bone, Polyblend(wall grouts: Custom Building Products or Bonsal or Hydroment, or approved equal).
- C. **Urethane-Based Quartz Grout: By Quartz-Lock Grout, Star Quartz* or 100% Solids Epoxy Grout at all floors and sanitary base;** complying with ANSI A118.3.
 1. Mix in accordance with manufacturer's recommendations.
 2. Colors: #380, Charcoal Gray (floor & base), by **Quartz-Lock Grout, Star Quartz***

2.05 SEALANTS

- A. **Compatibility:** Provide elastomeric sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates for project performance conditions; color shall match wall tile grout color.
- B. **Masonry / Silicone Sealant:** Impregnating masonry sealer for interior and exterior manufactured stone surfaces and grout or ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and O (for nonporous substrates) with added fungicide.

2.06 MISCELLANEOUS MATERIALS

- A. **Cementitious Backer Units:** Comply with ANSI A118.9, Durock Brand Cement Board by USG, Den-Shield by Georgia-Pacific; 1-800-327-2344, James Hardie Cement Backer Board, or approved equal.
 1. Thickness shall equal 5/8"; may be furred to match drywall material above.

- B. Tile Cleaner: Product specifically acceptable to tile manufacturer and grout manufacturer for application indicated and as recommended by National Tile Promotion Federation or Ceramic Tile Institute.

2.05 MISCELLANEOUS MATERIALS

- A. Cementitious Backer Units: Comply with ANSI A118.9...
- B. Tile Cleaner: Product specifically acceptable to tile manufacturer and grout manufacturer for application indicated and as recommended by National Tile Promotion Federation or Ceramic Tile Institute.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

- A. Tile Installation Standard: ANSI A108 series, for setting and grouting materials listed.
- B. Installation Methods: Comply with TCA "Handbook for Ceramic Tile Installation" for type of applications indicated.
- C. Cementitious Backer Units: Install in accordance with ANSI A108.11.

3.02 TILE APPLICATIONS

- A. Interior Floor, Thin-Bed:
 - 1. Tile: Glazed paver.
 - 2. Installation method:
 - a. Concrete subfloor: TCA F113.
 - b. Bond coat: Latex-portland cement mortar, ANSI A108.5.
 - c. Joints shall be 1/4" wide.
 - 3. Grout: Sand-portland cement.
- B. Interior Wall, Thin-Bed:
 - 1. Tile: Glazed wall.
 - 2. Installation method:
 - a. Cementitious backer units on studs: TCA W244.
 - b. Bond coat: Latex-portland cement mortar, ANSI A108.5.
 - 4. Grout: Latex-portland cement.
- C. Tolerances: Maximum variation in floor and wall finished surface/sub-structures shall not exceed 1/8" in 10'-0" from the required tile surface plane. All individual tile edges shall align with adjacent tile edges and no greater than a 1/64" offset variation shall be acceptable.
- D. Manufactured Stone Sealer: Apply to all interior and exterior stone surfaces and grout joints as recommended by the manufacturer to completely seal. Apply sealer after grout has cured.

3.03 CLEANING AND PROTECTION

- A. Clean tile surfaces after installation is complete.
- B. Protection: Apply neutral protective cleaner to tile after installation if recommended by tile manufacturer. Overlay completed tile installation with Kraft paper for protection from subsequent construction activities.

3.04 MAINTENANCE

- A. Extra Materials: At time of completing installation, deliver stock of maintenance materials to the owner. Furnish products matching those actually installed, packaged for storage and clearly labeled.
 - 1. Floor tile: 2 percent of each variety installed and/or a minimum of 10 units of each accent color or trim units, which ever is the greatest quantity.
 - 2. Wall Tile: 2 percent of each variety installed and/or a minimum of 10 units of each accent color or trim units, which ever is the greatest quantity.

END OF SECTION 09300

SECTION 09660 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Resilient base.

1.02 SUBMITTALS

- A. Product Data: Submit technical data from each manufacturer of resilient products required.
- B. Verification Samples: Submit samples of each type, color, and pattern of resilient product required, as follows:
1. Actual base.
 2. Cut sections of resilient flooring accessories, not less than six inches in length.
 3. Other materials requested by the Architect/Engineer.

1.03 PROJECT CONDITIONS

- A. Environmental Requirements: At least 48 hours prior to beginning work, move resilient flooring materials to areas of installation and maintain at minimum 70 degrees F until 48 hours after completing installation and at minimum 55 degrees F thereafter.
- B. Sequencing: Do not begin installation of resilient flooring products until painting has been completed for each area.

1.04 MAINTENANCE

- A. Extra Materials: At time of completing installation, deliver stock of maintenance materials to the owner. Furnish products matching those actually installed, packaged for storage and clearly labeled.
1. Resilient base: 5 percent of each variety installed.

PART 2 - PRODUCTS

2.01 RESILIENT BASE MATERIALS

- A. Rubber Wall Base: FS SS-W-40, Type I, and as follows:
1. Manufacturers: Products of the following manufacturers or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - a. Flexco Company.
 - b. Johnsonite, Inc.
 - c. The R. C. Musson Rubber Company.
 - d. **Roppe Corporation* (color# 148, Steel Gray)** or approved equal.
 2. Height: 4 inches.
 3. Style: Standard toe base.
 4. Corners: Preformed or molded units matching base in color and finish.

2.02 MISCELLANEOUS ACCESSORIES

- A. Adhesive: Type recommended by manufacturer of resilient product for specific substrate conditions.

PART 3 - EXECUTION

3.01 INSTALLATION OF RESILIENT BASE

- A. Apply resilient base securely in locations indicated, using maximum lengths available.

END OF SECTION 09660

SECTION 09900 - PAINTING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Painting and finishing of exposed exterior items and surfaces.
 - 2. Painting and finishing of exposed interior items and surfaces.

1.02 DEFINITIONS

- A. DFM (dry film mils): Thickness, measured in mils, of a coat of paint in the cured state.

1.03 SUBMITTALS

- A. Product Data: Manufacturer's technical data sheets for each coating.
- B. Color and Texture Samples:
 - 1. Provide for each coating system, color, and texture and applied to representative substrate samples.
 - a. Prepare samples to show bare, prepared surface and each successive coat.
 - b. Label each sample with coating name and color.
 - 2. Miscellaneous substrates: 12-by-12-inch hardboard.
 - 3. Concrete: 8-inch square samples.
 - 4. Wood: 8-inch square samples for surfaces; 8-inch long samples for trim.
 - 5. Metal: 5-by-7-inch samples.

1.04 QUALITY ASSURANCE

- A. Materials: All coating materials required by this section shall be provided by a single manufacturer, unless otherwise required or approved.
- B. Applicator: Firm with successful experience in painting work similar in scope to work of this project.
 - 1. Maintain throughout duration of the work a crew of painters who are fully qualified to satisfy requirements of the specifications.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials in manufacturer's original containers bearing coating name and color, material composition data, date of manufacture, legal notices if applicable, and mixing, thinning, and application instructions.

1.06 PROJECT CONDITIONS

- A. Apply coatings only under the following environmental conditions:
 - 1. Provide continuous ventilation and heating to prevent accumulation of hazardous fumes and to maintain surface and ambient temperatures above 45 degrees F for 24 hours before, during, and for 48 hours after application of finishes, or longer if required to obtain full cure as indicated by manufacturer's instructions.

1.07 COORDINATION

- A. Coordination: Where special coatings will be applied over shop coatings specified in other sections, coordinate work of such other sections to ensure that only approved, compatible primers are applied.

1.08 MAINTENANCE STOCK

- A. At time of completing application, deliver stock of maintenance material to the owner. Furnish not less than one properly labeled and sealed 1-gallon can of each type of finish coat of each color, taken from lots furnished for the work.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. The brand-name products listed in the schedule at the end of this section and made by the following manufacturer are the basis of the contract documents:
 - 1. **The Glidden Company, ICI* - Lifemaster.**
- B. Products of the following manufacturers or approved equal, provided they comply with requirements of the contract documents, will be among those considered in accordance with standard substitution procedures:
 - 1. Devoe & Reynolds Company - Lifemaster.
 - 2. Benjamin Moore & Company - Pristine EcoSpec.
 - 3. Sherwin Williams Company - Health Spec.

2.02 PRODUCTS

- A. Colors:
 - 1. For multicoat systems, apply each coat using a successively darker tint or shade, unless approved otherwise.
 - 2. Top coat colors: As shown on drawings and schedules.
- B. **Lead Content:**
 - 1. **Not more than 0.06 percent lead by weight** (calculated as lead metal) in the total nonvolatile content of the paint or the equivalent measure of lead in the dried film.
 - 2. Exception: Where permitted by applicable regulations.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify that surfaces and conditions are ready for work in accordance with coating manufacturer's recommendations.

3.02 SURFACE PREPARATION

- A. Apply coatings to surfaces that are clean and properly prepared in accordance with manufacturer's instructions. Remove dirt, dust, grease, oils, and foreign matter. Prepare surface for proper texture necessary to optimum coating adhesion and intended finished appearance. Plan cleaning, preparation, and coating operations to avoid contamination of freshly coated surfaces.
 - 1. Do not apply coatings to labels that identify equipment, fire-resistance ratings, etc.
 - 2. Remove hardware, cover plates, and similar items before applying coatings.
 - 3. Provide protection for non-removable items not scheduled for coating. After application of coatings, install removed items. Use only skilled workmen for removal and replacement of such items.
 - 4. Protect surfaces not scheduled for coating. Clean, repair, or replace to the satisfaction of the Engineer any surfaces inadvertently spattered or coated.
 - 5. Allow substrate to dry thoroughly. Test for moisture in accordance with coating manufacturer's recommendations before applying coatings.
 - 6. Intricate fabricated shapes may be pickled in lieu of hand or power tool cleaning.
 - 7. Before hand or power tool cleaning, remove visible oil, grease, soluble welding residue, and salts by solvent cleaning. After hand or power tool cleaning, re-clean surfaces if necessary.
 - 8. Before touching up coatings damaged by handling or welding, re-prepare damaged surfaces.

3.03 MIXING AND THINNING

- A. Remove and discard any skin formed on surface of coatings in containers. Discard any containers where skin comprises 2 percent or more of the remaining material. Do not add thinner except as specifically recommended (not merely permitted) by the coating manufacturer for proper coating application under the circumstances prevailing at the project site when application equipment recommended by the coating manufacturer is employed. Use only the quantities and the types of thinner recommended.

3.04 APPLICATION

- A. General:
 - 1. Apply coatings in accordance with coating manufacturer's instructions and using application method best suited for obtaining full, uniform coverage of surfaces to be coated.
 - 2. Apply each coat to achieve the dry film thickness per coat recommended by the coating manufacturer. Application rates in excess of those recommended and fewer numbers of coats than specified will not be accepted.
 - 3. Completed coatings shall be free of defects such as runs, sags, variations in color, lap or brush marks, holidays, and skips.
 - 4. Apply coatings according to the schedule at the end of this section and as otherwise indicated. Coat all similar surfaces not specifically mentioned unless specifically exempted.
 - 5. Coat front and back of miscellaneous items such as covers, access panels, and grilles. Apply fully finish coats behind movable items of furniture and equipment before installation. Apply prime coat only behind non-movable items of furniture and equipment before installation.
 - 6. Sand gloss coats before applying subsequent coatings.
- B. Remove coatings not in compliance with this specification, re-clean and re-prepare surfaces as specified, and apply coatings to comply with the contract documents.
- C. Scheduling:
 - 1. Apply first coat of material to properly prepared surfaces without delay.
 - a. Apply successive coats within the time limits recommended by the manufacturer.

3.05 PRIME COATS

- A. General:
 - 1. Field apply bottom coats scheduled except where the contract documents require shop coating of ferrous metals.
 - 2. Ferrous metals that have not been shop primed shall be field primed promptly after arrival at the site or shall be stored away from the effects of weather.
 - 3. Re-prepare and retouch damaged prime coats using approved, compatible primer.
- B. Primers for Wood and Wood Products:
 - 1. Apply first coat to wood upon receipt at the site and before wood is exposed to sun or rain.
 - 2. Back-prime concealed surfaces and cut edges of exterior wood trim prior to installation.

3.06 FINISH COATS

- A. Number of Coats and Minimum Coating Thickness:
 - 1. Apply not less than the number of coats indicated.
 - 2. Apply each coat to achieve not less than the dry film thicknesses indicated per coat.
 - 3. Apply additional coats at no additional cost to the owner when necessary to achieve complete hiding, uniform texture, or uniform sheen and appearance.

3.07 CLEANING AND PROTECTION

- A. Cleaning:
 - 1. Clean work area on a daily basis; dispose of spent materials and empty containers. If requested, turn over the Engineer all empty coatings containers used during the course of each day.
 - 2. Remove all trace of coatings from adjacent surfaces not scheduled to be coated. Remove by appropriate methods that do not damage surfaces.
- B. Protection:
 - 1. Protect work against damage until fully cured. Provide signs identifying wet surfaces until surfaces are adequately cured.
 - 2. Shortly before final completion of the project, examine surfaces for damage to coatings and restore coatings to new, undamaged condition.
 - 3. Touch-up of minor damage will be acceptable where result is not visibly different from surrounding surfaces. Where result is different either in color, sheen, or texture, recoat entire surface.

3.08 SCHEDULE OF COATINGS FOR INTERIOR NONTRAFFIC SURFACES

- A. **Gypsum Wallboard: Walls & ceilings.**
 - 1. Latex acrylic.
 - a. Bottom coat: Ultra-Hide 1260 Airless High-Build Flat Interior Primer / Finish; 1.1DFM.
 - b. Intermediate coat: Same as top coat.
 - c. Top coat: Devflex 4212HP High Performance Waterborne Acrylic Eggshell Enamel (color # 30YY 63/024, "Silver Cloud" at all Restrooms, and upper Lobby and Corridor walls).
- B. **Wood: Doors, windows, cedar window trim & display cabinet.**
 - 1. Varnish, satin (stained wood doors).
 - a. Stain: WoodPride 1700 Interior Oil Wood Finishing Stain, (color "Bryce Veneer").
 - b. Bottom and intermediate coats: WoodPride 1908 Interior Polyurethane Gloss Varnish.
 - c. Top coat: WoodPride 1902 Interior Polyurethane Satin Varnish.
- C. **Wood: Interior Cedar T&G siding at walls and ceilings, and cedar 12" band.**
 - 1. Stain, dull, natural finish.
 - a. Single stain coat: WoodPride Siding Stain, "Bryce Veneer".
- D. **Wood: Interior Birch plywood panels at the Lobby mountain view.**
 - 1. Latex.
 - a. ICI Ultra -Hide PVA Primer-Sealer: INT 9.2A Latex: Latex Primer Sealer MPI #50, one coat.
 - b. ICI Lifemaster 2000 Egg-Shell: INT 9.2M Institutional Low Odor/VOC: Latex Primer Sealer MPI #50, Institutional Low Odor/VOC MPI #144, gloss level 2, two coats (colors: #30YY 63/024, "Silver Cloud"; #90BG 31/124, "Lake Front"; #90BG 32/249, "Arctic Flow"; and #50BB 08/171, "Rich Navy").
- E. **Ferrous Metal: Hollow metal doors & frames.**
 - 1. Lifemaster Pro HB Acrylic Coating, semigloss:
 - a. Bottom coat: Devoe Coatings DevGuard 4160 Multi-Purpose Tank & Structural Primer.
 - b. Intermediate coat: Same as top coat.
 - c. Top coat: Devflex PF 4020PF Interior/Exterior Semi-gloss waterborne acrylic (4 mils dry thickness, 148 s.f. / gal.); (Color: #00NN 13/000, "Obsidian Glass" at Pipe Chase doors & frames, and at metal frames at wood doors).

3.09 SCHEDULE OF COATINGS FOR EXTERIOR NONTRAFFIC SURFACES

- A. **Fiber-Cement: Wall panel siding, soffit panels & fascia trim.**
 - 1. Acrylic / Latex, flat.
 - a. Bottom coat: Same as top coat.
 - b. Top coat: Ultra-Hide Duras 2210 Exterior Acrylic Flat Finish; 1.5 DFM.
(Siding & trim color shall match existing trim color; "Wicker," 1.4 DFM).

END OF SECTION 09900

DIVISION 10 - SPECIALTIES

SECTION 10100 - VISUAL DISPLAY BOARDS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Tack boards, see Detail on Sheet A3 and Section 06200-Finish Carpentry.

1.02 SUBMITTALS

- A. Product Data:
1. Manufacturer's technical data and Manufacturer's installation and breaking-in instructions.
 2. Submit shop drawings of Display Case with Oak frame, tack board, hardware, and glazing.

1.03 PROJECT CONDITIONS

- A. Environmental Requirements:
1. Install boards only when interior air and substrates have reached equilibrium moisture and temperature approximating that of normal occupied conditions.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Natural Cork Tack Boards:
1. Seamless, ¼-inch-thick cork sheet, laminated to ¼-inch-thick hardboard.
- B. Wood Trim: See Section 06200-Finish Carpentry and Section 09900-Painting for stain and varnish.
- C. Adhesives: As recommended by manufacturer for the materials and substrates to be joined.
- E. Felt Seal: ¼" wide continuous felt strip adhered to the sides and bottom face of the Display Case Oak inner frame to seal out dust when in contact with the Display Case door in the closed position.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces to receive units are true and plumb. Correct inadequate surfaces before installation of boards.
- B. Verify that moisture and temperature levels of substrate and environment have stabilized.

3.02 INSTALLATION

- A. General:
1. Install off-site fabricated units as instructed by manufacturer.
 2. Provide any necessary installation accessories, including blocking, backing, anchors, etc.
 3. Join parts forming neatly fitted hairline joints.

3.03 PROTECTION

- A. Cover completed work with building paper or other covering recommended by manufacturer.
- B. Protect boards from damage until substantial completion.

END OF SECTION 10100

SECTION 10170 – PLASTIC TOILET COMPARTMENTS

118

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Water-closet compartments and urinal screens.
 - 2. Restroom counters and bench.

1.02 SUBMITTALS

- A. Product Data.
- B. Shop Drawings.
- C. Panel Color Verification Samples: Submit 6-inch-square samples of each panel finish type and color to be installed.
- D. Manufacturer's Instructions.
- E. Maintenance Data.

1.03 QUALITY ASSURANCE

- A. Regulatory Requirements: Products and finished installations to be used by handicapped persons must comply with requirements of the NC State Building Code, Volume I-C, Accessibility Code, 1999 Edition.

1.04 COORDINATION

- A. Use manufacturer's instructions and data to determine anchorage requirements for panel systems. In a timely manner, distribute to affected installers of related work those system components and anchorage devices provided by panel manufacturer for incorporation into other work.

PART 2 - PRODUCTS

2.01 PANEL SYSTEMS

- A. Compartments: Provide compartments fabricated of partitions and erected using the following panel systems at locations indicated on the drawings:
 - 1. Solid plastic, floor-anchored and overhead-braced.
- B. Screen Systems: Provide screens erected using the following panel systems at locations indicated on the drawings:
 - 1. Solid plastic, wall-hung.

2.02 PANEL MATERIALS

- A. Plastic Solid Plastic:
 - 1. Panel material: High-density polyethylene or polypropylene, of homogeneous composition and color throughout, minimum thickness of material 1 inch. Provide seamless panels with eased edges.
 - 2. Plastic Panel; Continuous mounting brackets in matching colors;
 - a. Santana, color shall match AMPCO, Ash Grey.
 - b. Sanymetal, color shall match AMPCO, Ash Grey.
 - c. **Accurate Partitions Corp.*: #9203, "Blue"** or approved equal.
 - 3. Hardware, head rails, heat-sink, shoes, and accessories. Manufacturer's standard styles. The following materials will be acceptable:
 - a. Chromium-plated nonferrous cast alloy ("Zamac").
 - b. Extruded aluminum, anodized and polished and stainless steel shoes.
 - 4. Manufacturers: Products of the following manufacturers or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable (colors shall match those specified):
 - a. Scranton Products: Santana/Comtec/Capitol.
 - b. The Sanymetal Products Company, Inc.
 - c. **Accurate Partitions Corp.*** Lyons, IL (708) 442-6800, www.accuratepartitions.com or approved equal.

2.03 ACCESSORIES

- A. General: Provide hardware and accessories as necessary to properly install panel systems indicated.
1. Hinge: Self-closing, continuous type hinge, surface-mounted; adjustable to permit door to rest at any angle or closed angle.
 2. Latch for non-handicapped compartments:
Surface-mounted type, with emergency access feature.
Provide stop and keeper with rubber bumper.
 3. Latch for handicapped compartments: Surface-mounted sliding latch (for inner side of compartment doors), with emergency access feature, designed for use by handicapped persons.
 4. Door pull for handicapped compartments (for outer side of compartment doors): Suitable for use by handicapped persons.
 5. Combination coat hook with rubber bumper: Provide unit of sufficient length to prevent compartment door from striking installed toilet accessories.
 6. Leveling-and-anchorage devices: Rust-resistant steel devices as recommended by panel manufacturer for installation of panels in conditions indicated.
 7. Metal shoes: Stainless steel. Minimum shoe height: 3 inches.
 8. Fasteners: Tamper-resistant rust-proof, exposed fasteners as recommended by panel manufacturer for installation of panels and hardware in conditions indicated. Finish to match hardware.
 9. Overhead bracing: Antigrip headrail bracing fabricated from continuous extruded aluminum, clear anodized finish.
 10. Brackets: All panels shall be mounted with continuous panel brackets of matching plastic (or aluminum), and anchored to continuous wall blocking.
 11. Heat-Sink: Provide solid aluminum strips at the bottom of all panels or Class A rated panels.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Perform installation in accordance with manufacturer's instructions, except where more restrictive requirements are shown, specified, or are necessary for project conditions.

END OF SECTION 10170

SECTION 10425 - SIGNS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Plastic plaques, plastic letters, and individual exterior aluminum letters signs.
 - 2. Project sign.
- B. Provide signage as indicated on the signage schedules.

1.02 SUBMITTALS

- A. Product Data: Submit for each type of sign specified, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- B. Shop drawings:
 - 1. Show fabrication and erection of signs. Include plans, elevations, and large-scale sections of typical members and other components. Show anchors, grounds, layout, reinforcement, accessories, and installation details.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Plastic Signs: Products of the following manufacturers or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable (colors shall match those specified):
 - 1. Advance Printing Products, Inc.
 - 2. Best Manufacturing Co.
 - 3. Mohawk Sign Systems, Inc.
 - 4. Accusign, Inc.; **Rowmark Ultra-Mattes***: (919) 872-2008 or approved equal.

2.02 RAISED LETTER SIGNS

- A. Base Material: **Sapphire, #3X2-561** solid color acrylic plastic (Sign Plaques):
 - 1. Total Thickness: 1/8 inch.
 - 2. Height: 2 inches.
 - 3. Edges: Square
- B. Raised Character Size and Style: Acrylic plastic, character adhered to base material:
 - 1. Comply with applicable provisions of NC State Building Code, Volume I-C, Accessibility Code, 2006 Edition, including Braille.
 - 2. Character Color: **White**.
 - 3. Character Thickness: 1/8 inch.
 - 4. Height: 5/8 inch.
 - 5. Edges: Square.
 - 6. Character Font: Helvetica.
 - 7. Character Case: Upper case only.

2.03 INDIVIDUAL PLASTIC LETTERS

- A. Material: **Sapphire** and **White** solid color acrylic plastic:
 - 1. Thickness: 1/8-1/4 inch.
 - 2. Height: 9 inches.
 - 3. Edges: Square.
- B. Character Style:
 - 1. Character Color: **Sapphire** and **White**.
 - 2. Character Font: Helvetica.
 - 3. Character Case: Upper case only.

C202206 (K-4909) 39977.3.1 / McDowell County I-40 Rest Area & Vending 121

2.04 INDIVIDUAL ALUMINUM GRAPHICS

- A. Material: **Dark Bronze** painted color on aluminum cast letters for exterior signage:
 - 1. Size: 1/4 inch thick x 6 and 3" inches high w/ square edges and min. 3/4" projection.
- B. Character Style and Copy:
 - 1. Character Font: Helvetica, upper and lower case only; "I-40 McDOWELL COUNTY REST AREA" (1-set 6" high), "I-40 McDowell County Rest Area" (1-set 3" high) & "VENDING" (2-sets 6" high).

2.05 ACCESSORIES

- A. Mounting Hardware: Chrome plated brass screws and double sided tape, permanent adhesive.
- B. Provide projected mounting for individual exterior letters; 2-set projected on the wood fascia.

2.05 SIGN SCHEDULE:

- A. Sign plaques shall read as follows:

<u>Location/Room No.</u>	<u>Copy</u>	<u>Quantity</u>
108	MECHANICAL	2
107	RESTROOM**	3
104/106	WOMEN *	2
112/114	MEN *	2
110	Fire extinguisher is located inside storage room	1
110	STORAGE	2

* Provide the male or female caricature at signs noted above with white figure and border on **Sapphire** background, 8"x 8" size, mount to glass block (1-extra sign shall be furnished to the Owner).

** Provide both caricatures (male & female) at signs noted above with white figure and border on **Sapphire** background, 8"x 8" size. Provide the following copy beneath "FAMILY ASSISTANCE RESTROOM" and "KNOCK WHEN ENTERING".

- B. Interior Plastic Individual Letters, at 5" & 12" high; all 5" high above doorways (at bulkheads center on 1x12 Cedar bands, **Sapphire**) and 12" high and with arrows at pipe chase doors (**White**), shall read:

<u>Location/Room No.</u>	<u>Copy</u>	<u>Quantity</u>
109	<WOMEN>	4 (2 of each size & color)
103	<MEN>	4 (2 of each size & color)

- C. Project Sign: Provide the project sign as shown on the drawings.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General:
 - 1. Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.
 - 2. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
 - 3. Install project sign in locations indicated and using mounting methods indicated.
- B. Plastic Plaques and Individual Letters:
 - 1. Mount plaques using the standard method recommended by the manufacturer for the type of wall surface indicated.
 - 2. Concealed mounting: Use double-sided foam tape and mount plaques at 60" above the floor adjacent to doors 2" from the latch side of the jamb for plaques and center individual letters as indicated.

3.02 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

I-40 REST AREA & VENDING

NC DEPARTMENT OF TRANSPORTATION

ARCHITECT / ENGINEER:

FACILITIES DESIGN

NCDOT

6" HIGH COPY

2" HIGH COPY

1-1/2" HIGH COPY

5" HIGH COPY

2" HIGH COPY

CONTRACTORS:

GENERAL CONTRACTOR

PLUMBING CONTRACTOR

HVAC CONTRACTOR

ELECTRICAL CONTRACTOR

1-1/2" HIGH COPY

2" HIGH COPY

Helvetica Med. Style

All Copy #90RR 11/257

4' x 6' x 3/4" EXTERIOR PLYWOOD, PAINTED
White, 30GY 88/014 BACKGROUND W/
2 - 4" x 4" TREATED WOOD POSTS (3' BELOW
GRADE), BOTTOM OF SIGN PANEL 3' ABOVE
GRADE.

COLORS: # 90RR 11/257, "Tomahawk Red", (GLIDDEN) - COPY,
30GY 88/014, "White On White" (GLIDDEN)-BACKGROUND

END OF SECTION 10425

SECTION 10522 - FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES
123

PART 1 - GENERAL

1.01 SUMMARY

- A. Fire extinguishers and cabinet located in Storage rooms.

1.02 SUBMITTALS

- A. Product Data.
- B. Operating and Maintenance Data.

1.03 QUALITY ASSURANCE

- A. Labels: Provide only fire extinguishers which are listed and labeled by Underwriters Laboratories Inc., or Factory Mutual System.

PART 2 - PRODUCTS

2.01 FIRE EXTINGUISHERS

- A. Manufacturers: Products of the following manufacturers or approved equal, provided they comply with requirements of contract documents, will be among those considered acceptable:
 - 1. Fire extinguishers:
 - a. Amerex Corporation.
 - b. Buckeye Fire Equipment Co.
 - c. Fire-End & Croker Corporation.
 - d. General Fire Extinguisher Corporation.
 - e. Walter Kidde, The Fire Extinguisher Co.
- B. Fire Extinguishers:
 - 1. Rating: 4A:60B:C.
 - 2. Type: Multipurpose dry chemical (ammonium phosphate).
 - a. Stored pressure type.
 - 3. Cabinet mounted.

2.02 CABINETS AND CABINET ACCESSORIES

- A. Manufacturers: Products of the following manufacturers or approved equal, provided they comply with requirements of contract documents, will be among those considered acceptable:
 - 1. Cabinets and accessories:
 - a. J.L. Industries.
 - b. Larsen's Manufacturing Company.
 - c. Potter-Roemer Division/Smith Industries, Inc.
 - d. Samson Metal Products, Inc.
- B. Cabinets:
 - 1. To house one extinguisher.
 - 2. Size: Inside minimum box dimensions: 24"h. x 9"w. x 6"d.; 4" deep into wall.]
 - 3. Style: Semi-recessed mounted, protruding not more than 1-1/2 inches from face of wall.
 - a. Rolled edge trim.
 - 4. Single flat door.
 - a. Frameless acrylic.
 - 1. Clear.
 - b. Door material: Aluminum, satin anodized.
 - c. Surface mounted door handle, finished to match door.
 - d. Friction or roller catch.
 - 5. Trim (box flange or frame): Aluminum, satin anodized.

6. Manufacturer's standard vertical lettering identifying contents of cabinet.
 - a. Letters silk screen painted.
 - b. Letter color: Red.
7. Box: Aluminum sheet.
- C. Hinges: Provide hinges for each door; concealed or continuous type; allow full 180 degree opening of door.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Prepare openings for recessed cabinets.

3.02 INSTALLATION

- A. Perform installation in accordance with the manufacturer's instructions except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.
- B. Install cabinets at locations indicated.
- C. Install with door handle not more than 48" above finish floor.

END OF SECTION 10522

SECTION 10810 - TOILET ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Waste receptacles.
 - 2. Recessed Multipurpose Units.
 - 3. Mirrors.
 - 4. Grab bars.
 - 5. Toilet Paper Dispenser.
 - 6. Sanitary Napkin Disposal Units.
 - 7. Combination utility shelf / mop and broom holders.
 - 8. Hand Dryers.

1.02 SUBMITTALS

- A. Product Data.
- B. Shop Drawings.
- C. Manufacturer's Instructions.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. For each distinct type of toilet accessory, provide accessories fabricated by a single manufacturer.
- B. All model numbers specified are products of **American Specialties, Inc.* (ASI)**.
- C. Only equivalent products of the following other manufacturers complying with the following **American Specialties, Inc.** provided they comply with requirements of the contract documents or approved equal, will be considered acceptable:
 - 1. Bradley Corporation
 - 2. Bobrick Washroom Equipment, Inc.

2.02 TOILET ACCESSORIES

- A. Recessed Towel Dispenser and Waste Receptacle: 600 C-fold paper towels, 14.8 gallon waste capacity bottom cabinet, locking doors/cabinets, recessed flush with wall, stainless steel; no sharp edges, seamless wall flanges, concealed piano hinges.
 - 1. Product: "Roval" Model 20469 manufactured by ASI.
- B. Automatic Soap Dispenser: Surface mounted, 33.8 oz. of soaps or lotions capacity, microprocessor sensor, provide 4-AA 1.5v batteries, locking stainless cabinet (key & fob), soap level slot, LED display on front face.
 - 1. Product: Model 20364 manufactured by ASI.
- C. Mirrors: Stainless steel framed, ¼" thick float glass mirror.
 - 1. Size: 18' x 36".
 - 2. Frame: Radius edges, with mitered and welded and ground corners, and tamperproof hanging system; burr free satin finish.
 - 3. Product: "Roval" Model 20650 manufactured by ASI.
- D. Grab Bar 1:
 - 1. Basis of design: 3100 - 42".
 - a. Stainless steel, nonslip gripping surface and concealed mounting, Model 3100, by ASI.
- E. Grab Bar 2:
 - 1. Basis of design: 3100 - 36".
 - a. Stainless steel, nonslip gripping surface and concealed mounting, Model 3100, by ASI.
- F. Grab Bar 3:
 - 1. Basis of design: 3100 - 18".
 - a. Stainless steel, nonslip gripping surface and concealed mounting, Model 3100, by ASI.

C202206 (K-4909) 39977.3.1 / McDowell County I-40 Rest Area & Vending 126

- G. Toilet Paper Dispenser:
 - 1. Basis of design: Model 20030 ASI.
 - a. "Roval" surface-mounted twin-roll toilet tissue dispenser, holds 2-rolls up to 5-1/4" diameter, extra roll drops in place.
- H. Partition Mounted Sanitary Napkin Disposal:
 - 1. Basis of design: 20472 ASI.
 - a. Stainless steel.
 - b. Serves 2-compartments.
- I. Semi-Recessed Sanitary Napkin Disposal:
 - 1. Basis of design: 20470 ASI.
 - a. Stainless steel.
 - b. Single end compartments.
- J. Combination Utility Shelf/Mop and Broom Holder:
 - 1. Basis of design: 8215-3 ASI x 26" long.
 - a. Stainless steel with 3 mop holders.
 - b. With 3-spring loaded rubber cam mop/broom holders, Model 8215, by ASI.
- K. Hand Dryers:
 - 1. Basis of design: Surface mounted sensor hand dryer Model 0195 ASI.
 - a. Automatic hand dryer, white porcelain finish, 110/120v, 17.6 amp, 2020w, 60 Hz.
 - b. Mount 48" above finish floor.

2.03 MATERIALS

- A. Stainless steel: Type-304 stainless steel with satin finish, typical for all accessories.
- B. Mounting Devices and Fasteners: Provide toilet accessory manufacturer's recommended items for substrates and conditions indicated.

2.04 FABRICATION

- A. Manufacturer's Trademarks and Model Numbers: Permanently affix manufacturer's name and model number to unexposed surface of accessory.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Perform installation in accordance with manufacturer's instructions, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.
- B. Accessories Installed for Use by Handicapped Persons: Install as indicated on drawings and in accordance with the NC State Building Code, Chapter 11 Accessibility, 2009 Edition.

END OF SECTION 10810

DIVISION 12 - FURNISHINGS

SECTION 12484 - FLOOR GRID AND MAT SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aluminum shallow pit floor grid system.
- B. Recessed roll-up floor mat system.

1.02 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete.

1.03 REFERENCES

- A. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2000.
- B. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2000.

1.04 PERFORMANCE REQUIREMENTS

- A. Maximum Allowable Floor Grid Load: 300 psf uniform load.

1.05 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's specifications and technical data, including Material Safety Data Sheets, installation instructions, and catalog cuts and templates where required to explain construction and to provide for incorporation into the project.
 - 1. Maintenance Data: Manufacturer's instructions for cleaning and care of floor mats..
- C. Shop Drawings: Show layout and types of products to be provided; include full-scale sections of typical installations, anchors, and accessories.
 - 1. Coordinate with concrete work shop drawings showing oversized recess for deferred installation of frame.
- D. Verification Samples: Actual product sample in materials and colors specified, not less than 12 in square.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum of ten years of experience in the fabrication of assemblies of the types required for this project.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to project site in new, clean, unopened crates of sufficient size and strength to protect materials during transit and storage.
- B. Store components in original containers in a clean, dry location.

1.08 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Submit manufacturer's standard warranty that materials furnished will perform as specified for a period of not less than two years when installed in accordance with manufacturer's recommendations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Approved equal to **Pawling Corp., www.pawling.com**.
 - 1. Arden Architectural Specialties, Inc., www.ardenarch.com.
 - 2. Balco, Inc. www.balcousa.com.

3. R.C. Musson Rubber Co.
 4. Construction Specialties, Inc., C/S.
 5. Reese Enterprises, Inc., www.reeseusa.com
- B. Substitutions: See Section 01600 - Product Requirements.

2.02 MATERIALS

- A. Aluminum Frame: clear anodized aluminum frames recommended by manufacturer; ASTM B 221 (ASTM B 221M), alloy 6063-T5 or 6061-T6.
1. Recessed Mat Frames: Extruded aluminum frame members, not less than 3/4 inch deep, with mitered corners and finish to match mat. Provide size and style to fit floor mat with anchorage devices required.
- B. Carpet:
1. A combination of BASF yarn and nylon, or level-cut DuPont Antron III nylon filament tread inserts 1/4 inch thickness, 28-32 oz/sq yd, solution dyed with polypropylene and backing fusion bonded to guard against fraying, delamination or moisture penetration.
- C. Vinyl: Flexible PVC. Extruded aluminum tread-slats with continuous vinyl cushions on bottom surface of slats.
1. Tread Inserts: As selected from manufacturer's standards.
 2. Edge frames and fillers: Black.
 3. Continuous hinge: Black.
 4. Continuous cushions.

2.03 PRODUCTS

- A. Floor Grid System: Recessed pit with a series of tread rails spaced 1-1/2 in o.c. and running perpendicular to traffic flow.
- B. Roll-Up Aluminum Linked-Tread Floor Mats: Aluminum tread rails 2 inches o.c. by 3/8-inch-thick slat modules with fusion-bonded carpet insert, running perpendicular to traffic flow, connected by flexible joints to permit rolling up for access to debris and water.
1. **Pawling Corp:** Continuous vinyl hinge construction.
 - a. Tread rails: Aluminum or vinyl.
 - b. Frame: Aluminum.
 - c. Tread inserts: Carpet, **Pawling color #516, Mushroom.**

2.04 FABRICATION

- A. Fabricate assemblies to sizes indicated, minimizing need for splicing on site. Where joints are necessary, space symmetrically and away from normal traffic patterns.
- B. Provide frames with hairline joints, complete with corner pins and installation anchors.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as shown on shop drawings prior to releasing materials for fabrication by the manufacturer.
- B. Examine conditions under which work is to be performed and notify Contractor in writing of unsatisfactory conditions. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install products in accordance with governing regulations, industry standards applicable to the work and the manufacturer's written installation instructions.
- B. Recessed Frames and Mats: Set mat tops at height recommended by manufacturer for most effective cleaning action. Coordinate top of mat surfaces with bottom of doors that swing across mats to provide clearance between door and mat.
- a. Tile Flooring: Set recessed mat frames to allow for Tile Work. Coordinate with other trades as required.
 - b. Concrete Flooring: Install necessary shims, spacers, and anchors for proper location and secure to prevent displacement when placing concrete. Install Latex / concrete screed leveling material.
- C. Space anchors at maximum 24 in o.c.

D. Align work plumb, level, and flush with adjacent surfaces.

3.03 ADJUSTING AND CLEANING

A. Inspect system components for proper fit. Adjust, repair or replace components not conforming to requirements. Repair or replacement of an individual unit shall be as approved by the Architect.

3.04 PROTECTION

- A. Protect installation from damage by work of other Sections. After installation of frame, install temporary filler of plywood in recesses and cover frames with plywood protective flooring. Maintain protection until construction traffic has ended and project is near time of Substantial Completion.
- B. Install grids and mats near time of Substantial Completion.

3.05 SCHEDULE

A. Vestibules, 2-required.

END OF SECTION 12484

DIVISION 13 - COMPENSATION FOR GENERAL CONSTRUCTION

SECTION 13100 - COMPENSATION FOR GENERAL CONSTRUCTION

1.01 COMPENSATION

- A. The work of furnishing materials and constructing the I-40 Rest Area Buildings Eastbound and Westbound lanes in accordance with the plans and specifications; completed and accepted, will be paid for at the contract unit prices for "General Construction of I-40 Rest Area Building & Vending Building ". Such price and payment will be full compensation for all work of constructing I-40 Rest Area & Vending buildings; including but not limited to furnishing all transportation, materials, labor, tools, equipment, fees and incidentals necessary to complete the work. Payment will be made under:

"General Construction Rest Area Serv Bldg EBL / WBL" (new bldg's)Lump Sum

"General Construction Vend Building EBL" (existing bldg)Lump Sum

"General Construction Vend Building WBL" (new small bldg)Lump Sum