

1 GENERAL

A. GENERAL REQUIREMENTS

Conform to the provisions of Part I and DIVISION 1.

B. JOB CONDITIONS AND REQUIREMENTS

1. Visit the site and become familiar with existing site conditions that affect the Work of the Section. Keep dust build-up to a minimum. Keep streets and driveways clean and free of debris and open for traffic.
2. Work of this section must not interfere with the Owner's normal business routine and hours. The Construction Schedule may require after business hours or week-end work. Coordinate schedule with Building Manager and Owner's Project Representative.

C. PROTECTION

1. Temporary Partition:
If required for protection of Owner's property and customers, provide temporary partitions around areas of demolition work. Provide protection as required to keep dust and moisture confined to the immediate work area.
2. Coordination:
Coordinate protection procedures with Owner's Project Representative.
3. Utilities:
Protect and mark any utilities encountered; notify proper authorities and make dispositions as directed, at no additional cost to Owner. Keep existing utilities in continuous operation.

D. OBJECTIONABLE NOISES

Work requiring use of air hammers and other noisy equipment shall be coordinated with Owner's Project Representative at all times. The construction schedule may require after business hours or week-end work.

E. SUBMITTAL

At the conclusion of the project, the Contractor shall be responsible for submitting along with the closeout documents the Frontier Communications Calculated Plant Displaced Form and the Equipment Master Work Sheet. Complete the Description, Quantity, and Unit columns for each item removed from the building or site as part of this project. Mechanical and Electrical shall submit their respective portions of the work on separate forms. Refer to attached copies of this form.

2 PRODUCTS

Not applicable.

3 EXECUTION

A. EXISTING ROOFING:

1. Remove and legally dispose of the existing roofing materials as shown on the Architectural Drawings. Refer to Architectural Drawings for locations and details for scheduling.
2. Remove only as much area of the existing roofing systems as can be covered by the new roofing system the same day to provide a watertight condition at the finish of each days work.

B. CUTTING

All cutting of concrete or masonry shall be performed with carbide-tipped power driven tools. All cuts shall be square and true. No cover-cutting allowed, hand chip to square up corners of openings. Repair over-cuts as directed, and at no increase to contract costs. Core drill circular openings. Use carbide tip drills for smaller holes. Jack and rotary type hammers over 3/8" drive not permitted. Refer to Architectural drawings for locations and details for new work.

C. EXISTING ABANDONED MECHANICAL AND ELECTRICAL ITEMS

Remove existing abandoned mechanical and electrical items as noted on the drawings.

D. OTHER TRADES

Coordinate demolition of electrical and mechanical items with electrical and mechanical sub-contractors. Avoid damage to personnel and public from contact with any existing electrical conduit or wiring.

E. SALVAGE

All items removed, unless requested by the Owner or noted to remain the property of the Owner, shall become property of the Contractor and shall be removed from the site at Contractor's expense.

F. PATCHING AND REPAIR

Patch and repair to match adjacent finishes where existing work is removed and where new work occurs. Extent includes floors, walls, and ceilings for all work in this contract including mechanical and electrical. Make neat repairs with terminal edges parallel to the building major axis. Use materials of matching texture and finish. Seal around ducts and pipes which project through floor slabs and walls, refer to Section 07900.

G. CLEAN-UP

Remove all debris from site after each day's work. Do not allow to accumulate on site. Haul away from site and dispose of at Contractor's expense.

END OF SECTION

SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Steel framing and supports for applications where framing and supports are not specified in other Sections.
 - 2. Loose bearing and leveling plates.
 - 3. Steel weld plates and angles for casting into concrete not specified in other Sections.
 - 4. Pipe guards.
 - 5. Metal downspout boots.
- B. Products furnished, but not installed, under this Section include the following:
 - 1. Loose steel lintels.
 - 2. Anchor bolts, steel pipe sleeves, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
- C. Related Sections include the following:
 - 1. Division 3 Section "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, wedge-type inserts and other items indicated to be cast into concrete.
 - 2. Division 4 Section "Unit Masonry Assemblies" for installing loose lintels, anchor bolts, and other items indicated to be built into unit masonry.
 - 3. Division 5 Section "Structural Steel."
 - 4. Division 5 Section "Gratings."

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Paint products.
 - 2. Grout.
- B. Shop Drawings: Show fabrication and installation details for metal fabrications.
 - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

2. Provide templates for anchors and bolts specified for installation under other Sections.
 3. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Mill Certificates: Signed by manufacturers of stainless-steel sheet certifying that products furnished comply with requirements.
- D. Welding certificates.
- E. Qualification Data: For professional engineer.
- 1.4 QUALITY ASSURANCE
- A. Welding: Qualify procedures and personnel according to the following:
1. AWS D1.1, "Structural Welding Code--Steel."
 2. AWS D1.2, "Structural Welding Code--Aluminum."
 3. AWS D1.3, "Structural Welding Code--Sheet Steel."
 4. AWS D1.6, "Structural Welding Code--Stainless Steel."
- 1.5 PROJECT CONDITIONS
- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.
1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond to established dimensions.
 2. Provide allowance for trimming and fitting at site.
- 1.6 COORDINATION
- A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- B. Coordinate installation of steel weld plates and angles for casting into concrete that are specified in this Section but required for work of another Section. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 2. Products: Subject to compliance with requirements, provide one of the products specified.
 3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
 4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. GALVANIZING
All exterior steel work shall be galvanized. Other steel work shall be galvanized where noted on drawings

2.3 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304.
- C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
- D. Steel Tubing: ASTM A 500, cold-formed steel tubing.
- E. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.
- F. Slotted Channel Framing: Cold-formed metal channels with continuous slot complying with MFMA-3.
1. Size of Channels: 1-5/8 by 1-5/8 inches

2. Material: Galvanized steel complying with ASTM A 653/A 653M, commercial steel, Type B or structural steel, Grade 33, with G90 coating; 0.108-inch nominal thickness.

2.4 NONFERROUS METALS

- A. Aluminum Plate and Sheet: ASTM B 209, Alloy 6061-T6.
- B. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6.
- C. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.
- D. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.
- E. Bronze Plate, Sheet, Strip, and Bars: ASTM B 36/B 36M, Alloy UNS No. C28000 (muntz metal, 60 percent copper).
- F. Bronze Extrusions: ASTM B 455, Alloy UNS No. C38500 (extruded architectural bronze).
- G. Bronze Castings: ASTM B 584, Alloy UNS No. C83600 (leaded red brass) or No. C84400 (leaded semired brass).
- H. Nickel Silver Extrusions: ASTM B 151/B 151M, Alloy UNS No. C74500.
- I. Nickel Silver Castings: ASTM B 584, Alloy UNS No. C97600 (20 percent leaded nickel bronze).

2.5 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts and, where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group [1] [2].
- D. Anchor Bolts: ASTM F 1554, Grade 36.
 1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts where item being fastened is indicated to be galvanized.

- E. Eyebolts: ASTM A 489.
- F. Machine Screws: ASME B18.6.3
- G. Lag Bolts: ASME B18.2.1.
- H. Wood Screws: Flat head, ASME B18.6.1.
- I. Plain Washers: Round, ASME B18.22.1.
- J. Lock Washers: Helical, spring type, ASME B18.21.
- K. Cast-in-Place Anchors in Concrete: Anchors capable of sustaining, without failure, a load equal to four times the load imposed, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.
- L. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material for Anchors in Exterior Locations: Alloy Group 1 stainless-steel bolts complying with ASTM F 593 and nuts complying with ASTM F 594.

2.6 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Shop Primers: Provide primers that comply with Division 9 painting Sections.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
- D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- E. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi, unless otherwise indicated.

2.7 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
 - 1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.8 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
 - 1. Fabricate units from slotted channel framing where indicated.
 - 2. Furnish inserts if units are installed after concrete is placed.
- C. Galvanize miscellaneous framing and supports where indicated.
- D. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

2.9 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Weld adjoining members together to form a single unit where indicated.
- B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span but not less than 8 inches, unless otherwise indicated.
- C. Galvanize loose steel lintels located in exterior walls.

2.10 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Galvanize plates after fabrication.

2.11 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with not less than two integrally welded steel strap anchors for embedding in concrete.

2.12 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
 - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Galvanize exterior miscellaneous steel trim, where indicated.

2.13 PIPE GUARDS

- A. Fabricate pipe guards from 3/8-inch- thick by 12-inch- wide steel plate, bent to fit flat against the wall or column at both ends and to fit around pipe with 2-inch clearance between pipe and pipe guard. Drill each end for two 3/4-inch anchor bolts.
- B. Galvanize pipe guards after fabrication.

2.14 METAL DOWNSPOUT BOOTS

- A. Provide downspout boots made from **cast aluminum** in heights indicated with inlets of size and shape to suit downspouts.
 - 1. Refer to Civil Drawings.

2.15 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.

2.16 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:
 - 1. ASTM A 123/A 123M, for galvanizing steel and iron products.
 - 2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.

- B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Exteriors: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Interiors: SSPC-SP 3, "Power Tool Cleaning."
- C. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.17 STAINLESS-STEEL FINISHES

- A. Remove tool and die marks and stretch lines or blend into finish.
- B. Dull Satin Finish: No. 6.
- C. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

2.18 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. As-Fabricated Finish: AA-M10.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.
- C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installing Bearing and Leveling Plates" Article.

3.3 INSTALLING BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.

1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.
2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 INSTALLING PIPE GUARDS

- A. Provide pipe guards at exposed vertical pipes in parking garage where not protected by curbs or other barriers. Install by bolting to wall or column with expansion anchors. Provide four 3/4-inch bolts at each pipe guard. Mount pipe guards with top edge 26 inches above driving surface.

3.5 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 1. Apply by brush or spray to provide a minimum **2.0-mil (0.05-mm)** dry film thickness.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 painting Sections.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05500

SECTION 07311, ASPHALT SHINGLE ROOFING

1 GENERAL

A. GENERAL REQUIREMENTS

Conform to the provisions of Part I and DIVISION 1.

B. WORK IN OTHER SECTIONS

Submittals, covered in Section 01300.

Project closeout, covered in Section 01700.

Flashing and Sheet Metal, covered in Section 07600.

C. DESCRIPTION OF WORK

The extent of work for granule surfaced asphalt shingle roofing is indicated on the Drawings and includes, but is not limited to, furnishing and installing asphalt shingle roofing with moisture shedding underlayment, eave, valley and ridge protection including associated metal flashing, caps, trims, gutter, boots for all conduits for all conduits or pipes penetrating roofing, and with all accessories necessary to make a complete watertight installation. Refer to Drawings for actual roofing installation.

D. QUALITY ASSURANCE

Provide at least one person who shall be present at all times during the execution of this portion of the Work and who has 3 years minimum experience in installation of the specified products and shall direct all work performed under this section. In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations contained in "Architectural Sheet metal Manual", latest edition, of the Sheet Metal and Air Conditioning Contractors National Association, Inc.

E. CHANGE ORDER OVERHEAD AND PROFIT

If change orders result in additional cost to subcontractor, the actual cost plus fifteen percent (15%) overhead and profit shall be added to the Contract Sum. If changes result in decreased cost to subcontractor, the actual savings shall be deducted from the Contract Sum.

F. SUBMITTALS

1. Shop Drawings:

Before any material is delivered to the site, submit a complete list of all materials proposed to be furnished and installed for review in accordance with Section 01340 of these Specifications. Submit sample to Architect for approval.

2. Manufacturer's Warranty:

Furnish shingle manufacturer's warranty for products of this section as follows:

CertainTeed Firehalt 2000 25-year warranty. Provide manufacturer's supplemental ("CertainTeed SureStart") warranty to cover labor and materials in the event of a material defect for the first five years.

3. Applicator's Guarantee:

Furnish written guarantee for two years covering repairs required to keep roof and flashings watertight. Make repairs at no expenses to the Owner.

G. ACCEPTABLE MANUFACTURERS

Provide products manufactured by CertainTeed Corporation, Architectural Support Group, P.O. Box 860, Valley Forge, PA 19482, or approved equal by Architect.

2 PRODUCTS

A. MANUFACTURER

Provide products manufactured by CertainTeed Corporation, Architectural Support Group, P.O. Box 860, Valley Forge, PA 19482, or approved equal by Architect.

SECTION 07311, ASPHALT SHINGLE ROOFING

B. ASPHALT FIBER GLASS SHINGLES

CertainTeed Firescreen Plus 2000: Conforming to ASTM D 3018 Type I - Self-Sealing; UL Certification of ASTM D3462, UL 997

Wind Resistance; and UL Class A Fire Resistance; glass fiber mat base; ceramically colored/UV resistant mineral surface granules across entire face of shingle; square three-tab type.

Weight: 230 pounds per square (100 square feet)

C. SHEET MATERIALS

Provide eave and ridge protection, and underlayment per the manufacturer's written instruction as required to obtain all specified warranties.

D. ACCESSORIES

Provide nails, flashing, etc. per the manufacturer's written instructions as required to obtain all specified warranties

3 EXECUTION

A. EXAMINATION

Verify existing site conditions, verify that roof penetrations and plumbing stacks are in place and flashed to deck surface. Verify roof openings are correctly framed prior to installing work of this section.

Verify deck surfaces are dry and free of ridges, warps, or voids.

B. ROOF DECK PREPARATION

Follow shingle manufacturer's recommendations for acceptable roof deck materials. Broom clean deck surfaces under eave protection and underlayment prior to their application.

C. EAVE PROTECTION

Place eave edge and gable edge metal flashing tight with fascia boards. Weather-lap joints 2 inches. Secure flange with nails spaced 8 inches on center. Apply CertainTeed "WinterGuard" Waterproofing Shingle Underlayment as eave protection in accordance with manufacturer's instructions. Extend eave protection membrane minimum 24 inches up slope beyond interior face of exterior wall.

D. UNDERLAYMENT

For roof slope of 4:12 or greater, install one layer asphalt felt shingle underlayment perpendicular to slope of roof and lap minimum 4 inches over eave protection. Weather-lap and seal watertight with asphalt roofing cement items projecting through or mounted on roof. Avoid contact of solvent-based cements with WinterGuard.

E. VALLEY PROTECTION

For "closed-cut," "woven," and "open" valleys, first place one ply of WinterGuard, minimum 36 inches wide, centered over valleys. Lap joints minimum 6 inches. Follow instructions of shingle and waterproofing membrane manufacturer.

END OF SECTION

SECTION 07412, PREFORMED METAL ROOFING

1 GENERAL

A. GENERAL REQUIREMENTS

Conform to the provisions of Part I and DIVISION 1.

B. WORK IN OTHER SECTIONS

Submittals, covered in Section 01300.

Project closeout, covered in Section 01700.

Flashing and Sheet Metal, covered in Section 07600.

C. DESCRIPTION OF WORK

The extent of work for Preformed Metal Roofing is indicated on the Drawings and includes, but is not limited to, furnishing and installing metal roofing with standing seams, caps, trims, gutter, and with all accessories necessary to make a complete watertight installation. Refer to Drawings for actual roofing installation.

D. QUALITY ASSURANCE

In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations contained in "Architectural Sheet metal Manual", latest edition, of the Sheet Metal and Airconditioning Contractors National Association, Inc.

E. CHANGE ORDER OVERHEAD AND PROFIT

If change orders result in additional cost to subcontractor, the actual cost plus fifteen percent (15%) overhead and profit shall be added to the Contract Sum. If changes result in decreased cost to subcontractor, the actual savings shall be deducted from the Contract Sum.

F. SUBMITTALS

1. Shop Drawings:

Before any material is delivered to the job site, submit complete Shop Drawings of all Preformed Metal Roofing proposed to be furnished and installed to the Architect or his review in accordance with Section 01340 of these Specifications. Submit sample to Architect for pattern approval.

2. Manufacturer's Warranty:

Submit processed signed and countersigned 20-year written warranty in accordance with Section 01700 of these Specifications.

3. Applicator's Guarantee:

Furnish written guarantee for two years covering repairs required to keep roof and flashings watertight. Make repairs at no expenses to the Owner.

G. ACCEPTABLE MANUFACTURERS

Architectural Engineering Products Company (AEP), Foremost Manufacturing Co., or as approved in advance by the Architect.

H. PRODUCT HANDLING

1. Protection:

Use all means necessary to protect Preformed Metal Roofing materials before, during, and after installation and to protect the installed work and materials of all other trades.

2. Replacements:

In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

SECTION 07412, PREFORMED METAL ROOFING

I. REQUIRED APPROVAL

Roofing system shall conform to Factory Mutual or UL wind uplift requirements for 90 MPH exposure C. Review and acceptance by Industrial Risk Insurers shall be obtained prior to start of any roofing work.

2 PRODUCTS

A. QUALITY OF MANUFACTURER

Product specified is AEP Span. Approved equal products of Foremost, or "ColorKlad" as manufactured by Vincent Brass & Aluminum Co. are acceptable or as approved in advance by the Architect.

B. MATERIALS

1. Prefinished Metal Roofing and Gutters:

Metal roof material shall be, **Design Span**, integral self-locking standing seam system, prepainted, galvanized roofing and flashing sheets as manufactured by AEP Span, 2141 Milwaukee Way, Tacoma, Washington 98421. Self-locking standing seam panels shall be 24 gauge, ASTM A-446, Grade A steel with galvanized Zincalume Protective coating. Protective coating components, zinc 45%, aluminum alloy 55% coating thickness 1.9 mils.

2. Color and Texture:

Color and texture as selected by Architect from standard colors.

3. Physical Qualities:

a. Finishes:

Standard Kynar exterior finish consists of a baked on primer (.2 mil nominal) and a topcoat of .8 mil nominal for a total dry film thickness of 1 mil nominal. The interior finish consists of a .15 mil epoxy primer and a .35 mil backer coat.

b. Coating system shall meet the following requirements:

- (1) Weathering: No checking, blistering or adhesion loss when tested for 5,000 hours in accordance with ASTM G23-69.
- (2) Chalking: Will not chalk greater than number 8 rating when tested for 2,000 hours in accordance with ASTM D-659.
- (3) Fading: Color change will not exceed 5 NBS units when tested for 5,000 hours in accordance with ASTM D-2244.
- (4) Humidity: Shall be less than 5% of number 8 blisters when tested for 5,000 hours in 100% humidity at 100 degrees F. in accordance with ASTM D-2247.
- (5) Salt Spray: No more than 3/16" creep or tape off from scribe and less than 5% number 6 blisters when tested for 1,000 hours in 5% salt fog at 95 degrees F. in accordance with ASTM B-117.
- (6) Flexibility: No rupture of coating when subjected to a 180 degree bend around a 1/8" mandrel in accordance with ASTM D-1737.
- (7) Hardness: Will be F-2H pencil hardness when tested in accordance with D-3363.

3 EXECUTION

A. FABRICATION

Fabricate in accordance with reviewed Shop Drawings and above referenced standards using conventional hand or power tools. Keep cut edges sharp, clean, properly dressed, and closely aligned. Standing seams shall be 1 3/4" high and spaced at manufacturer's 17" standard spacing.

B. INSTALLATION OF PREFINISHED ROOFING

Install in accordance with reviewed Shop Drawings and above referenced standards. Exercise care during fabrication and erection to avoid damage. Install roofing panels with manufacturer's standard concealed fastening system. Where necessary to touch-up installed work, used manufacturer's touch-up finish and apply in accordance with the manufacturer's written directions. Install roofing with concealed fastening

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system. Allow for expansion and contraction. Coordinate roof penetrations of other trades and flash to be watertight. After installation of standing seam panels, remove the strippable film per manufacturer's recommendations.

C. INSTALLATION OF PREFINISHED GUTTERS AND DOWNSPOUTS

Gutters shall be constructed to size and shapes detailed on drawings. Install in locations noted on the drawings. Provide round nipples for connection to 4" diameter downspouts; set nipples in plastic cement to gutters for a watertight installation.

D. CLEANING

Remove debris from site.

END OF SECTION

1 GENERAL

A. GENERAL REQUIREMENTS

Conform to the provisions of Part I and DIVISION 1.

B. WORK IN OTHER SECTIONS

Expansion joints in concrete, covered under Section 03100.

C. GUARANTEE

Provide a written guarantee based on model form in Section 01700 warranting caulking to be free of all defects in materials and workmanship for a period of 3 years from date of acceptance of building. Signed by subcontractor and countersigned by General Contractor. Leakage, hardening, staining, separation, crumbling, running, melting will be considered defects; replace all defective caulking at no cost to Owner. Submit as indicated in Section 01700.

D. DELIVERY

Deliver in manufacturer's original sealed containers.

E. SUBMITTALS

1. Product Data:

After award of Contract, and before caulking materials are delivered to the site, submit manufacturers' published literature for specified products and accessories as applicable, including manufacturers' specifications, physical characteristics and performance data. Submit as a supplement, manufacturers' instructions and directions for application if not included in manufacturers' published literature. Submit in accordance with Section 01340.

2. MSDS Submittals:

Within 20 days after award of Contract, and before any materials are delivered to the site, Material Safety Data Sheets (MSDS) shall be submitted on all materials/products that contain or use chemical solution for treatment or as additives and/or display Hazardous/Warning/Caution information in their products literature or on their labels.

2 PRODUCTS

A. ELASTOMER SEALANTS

1. Polysulfide: One or two component polysulfide compound produced by a manufacturer meeting "Tested and Approved" standards of the Thiokol Chemical Corporation.
2. Polyurethane: Two component polyurethane compound, which meet or exceed the cured physical requirements of ANSI 116.1-1960. "Betaseal No. 450 Pourable Joint Sealing Compound" as manufactured by Essex Chemical Corp.: "PRC Rubber Calk 210 Sealant" or "PRC Rubber Calk 220 Sealant" as manufactured by Products Research Corp.: or as approved in advance by the Architect.
3. Silicone: General Electric "Silicone Construction Sealant", or Dow-Corning "780 Building Sealant".
4. Color: As selected by Architect.
5. Concrete Tilt-up Panel Joint Sealant: The following products are approved:
 - DYNATROL II as manufactured by Pecora, a two component, non-sag, low modulus polyurethane rubber sealant which meets Federal Specification TT-S-00227E, Class A, Type II, Grade NS.
 - DYMERIC PLUS as manufactured by Tremco, a low modulus, high performance architectural expoxidized polyurethane which meets Federal Specification TT-S-00227E, Type II, Class A, Grade NS. Color as selected by Architect from manufacturer's standard colors. Provide primer prior to installation where required by manufacturer; conform to manufacturer's written instructions.

B. CAULKING COMPOUND

"Vulcatex" as manufactured by W.R. Grace Co., or as approved in advance by the Architect. Color as directed by Architect. Provide proof of compliance with Fed. Spec. TT-C598, grade 1.

C. PRIMERS

Use primers as required by manufacturers.

D. BACKING

Closed cell butyl sponge rod, closed cell polyurethane rod, or polyethylene foam. Dimension shall be one third larger than the joint width. Open celled foam backed shall be accompanied by masking tape to prevent adherence of sealant to backing.

3 EXECUTION

A. CAULKING WITH ELASTOMER SEALANTS

All exterior joints and all joints marked "sealant" except those included under another section.

1. Use polyurethane sealant for floor and sidewalk joints. Shore Hardness 35-40.
2. Use polysulfide or silicone at the Contractor's option at all other locations.
3. Depth of sealant not less than joint width.

B. CAULKING WITH CAULKING COMPOUND

Where indicated on drawings or noted by the single word "caulk". Elsewhere as necessary for interior applications.

C. JOINT PREPARATION

1. Concrete Surfaces:

Sandblast or rough brush to remove all dust, dirt, grease and other foreign matter.

2. Metal and Glass:

Use an oil-free solvent. Take care not to contaminate solvent supply. Use "progressing cleaning" method; i.e., wipe surface to be cleaned with solvent-soaked clean cloth and immediately wipe dry with dry cloth.

D. APPLICATION

Install backing rod at all locations. All materials are to be installed by skilled workmen in the following manner: Place nozzle of the gun at bottom of the joint and completely fill from the bottom so that sealant or caulking compound is extruded into the joint without the entrapment of air. Tool joint so that sealant or caulking compound is pressed into the joint and wetting of the joint interface is assured. Protect adjacent surfaces which are not to receive sealant or caulking compound by use of masking tape. Tape shall be removed immediately after sealant is applied, leaving a clean, sharp line.

E. PROTECTION

Protect all caulked joints for at least 24 hours. Protect from dust, moisture, and other harmful substances during installation.

F. CLEANING

Clean adjacent surfaces free of sealant and caulking compound or soiling; clean as work progresses. Use solvent or cleaning agent as recommended by manufacturer of sealant or caulking compound. Do not scratch or otherwise damage visible surfaces. Do not allow silicone sealants to touch glass surfaces; all glass touched by silicone shall be replaced with clean glass.

END OF SECTION

1 GENERAL

A. GENERAL REQUIREMENTS

Conform to the Provisions of Part I and DIVISION 1.

B. DESCRIPTION

1. Related Work Described Elsewhere:

Misc. Steel & Iron, Priming, covered in Section 05500.

2. Description of Work:

The Painting required for the Work under this Section includes, but is not necessarily limited to, the painting of all new unfinished surfaces and existing surfaces as scheduled, including mechanical and electrical items, and existing surfaces as indicated in the Finish Schedule as specified in Part 3 and this section of the Specifications except those surfaces noted below:

Exposed finish metals (brass, bronze, stainless steel, copper, chrome).

Sealant, interior and exterior.

Exterior concrete.

Glass and plastic laminate.

Resilient floor coverings, bases.

Items having a complete factory finish, except items built into surfaces which have painted finish (touch-up as required).

Permanently concealed surfaces need not be painted, except for prime coats on metal and millwork.

3. Definitions:

The term "paint", as used herein, includes enamels, paints, sealers, fillers, emulsions, and other coating whether used as prime, intermediate or finish coats.

C. CHANGE ORDER OVERHEAD AND PROFIT

If change orders result in additional cost to subcontractor, the actual cost plus fifteen percent (15%) overhead and profit shall be added to the Contract Sum. If changes result in decreased cost to subcontractor, the actual savings shall be deducted from the Contract Sum.

D. QUALITY ASSURANCE

1. Applicators:

The firm engaged for work under this Section shall, upon request, furnish in writing, his qualifications attesting to past satisfactory experience in painting work of not less than the scope of this project. Maintain a crew of painters throughout duration of the work who shall be qualified to fully satisfy the requirements of this Specification. Employ only qualified journeymen in this painting and decorating work; apprentices may be employed on the project to work under the direction of qualified journeymen, in accordance with trade regulations.

2. Health & Safety:

Conform to Federal and State requirements for Safety, Health, and Pollution regulations for painting work applicable to this project.

E. SUBMITTALS

1. Materials List:

Before any paint materials are delivered to the job site, submit to the Architect in accordance with the provisions of Section 01340 of these Specifications a complete list of all materials proposed to be furnished and installed under this portion of the Work.

2. MSDS Submittals:

Before any materials are delivered to the site, Material Safety Data Sheets (MSDS) shall be submitted on all materials/products that contain or use chemical solution for treatment or as additives and/or display Hazardous/Warning/Caution information in their products literature or on their labels.

3. Substitutions:

In each case where the material proposed is not as specified comply with the requirements of Section 01640, Substitutions and Product Options.

4. Samples:

Paint and finish colors will be selected by the Architect. Upon request by the Architect obtain a minimum of three sets of color cards. Furnish additional samples as required until colors, finishes and textures are approved. Retain approved samples to be used as the quality standard for final finishes.

F. PRODUCT HANDLING

1. Delivery of Materials:

Deliver paint materials to the jobsite in sealed, original, labelled containers, each bearing manufacturer's name, type of paint, brand name, color designation and instructions for mixing and/or reducing.

2. Storage of Materials:

Adequate storage facilities are to be made available at them jobsite. Store paint materials at a minimum ambient temperature of 45 degrees F. in a well ventilated and heated designated area or areas.

3. Fire Hazard & Safety:

Take all necessary precautionary measures to prevent fire hazards and spontaneous combustion.

4. Toxic Materials:

Where toxic materials, and both toxic and explosive solvents are used, take appropriate precautions, as a regular procedure, conforming to the manufacturer's recommendations therefor, and to the requirements of the applicable safety regulatory agencies. In applying acid etch coating or solutions to metals, concrete, plaster, and toxic materials to copper, provide ventilation and take protective measures to conform to the requirements of the safety regulatory agencies.

G. JOB CONDITION

1. Weather Conditions:

Do no exterior work on unprotected surfaces if it is raining or moisture from any other source is present, or expected before applied paints can dry or attain proper cure without damage thereto. Allow surfaces wetted by rain or other moisture source to dry and to attain temperatures and condition specified hereinafter before proceeding with work, or continuation of previously started work.

2. Temperatures:

Except as noted hereinafter, do no painting work when temperatures on the surface or of the air in the vicinity of the painting work are below plus 40 degrees F. or below those temperatures recommended by the manufacturer for the materials type used. The minimum temperatures for latex finishes to be not less than plus 45 degrees F. for interior work and plus 50 degrees F. for exterior work unless specifically approved in writing by the Architect. Temporary heat for interior work will be provided as specified under Section 01500, Temporary Facilities, of these Specifications.

3. Lighting:

Do not proceed with work under this Section unless a lighting level of a minimum of 15 candlepower per square foot is provided on the surfaces to be painted or finished.

4. Ventilation:

Provide adequate continuous ventilation as required for the various specified materials used in the spaces scheduled but in no case for a time less than that recommended by the paint manufacturer for drying.

5. Protection:

Adequately protect other surfaces from paint and damage caused by this work. Make good any damage caused by failure to provide suitable protection, but not any damage caused by other trades. Provide sufficient drop cloths, shields and protective equipment to prevent spray or drippings from fouling surfaces not being painted and, in particular, surfaces within the paint storage and preparation areas. Place cotton waste, cloths and material which may constitute a fire hazard in closed metal containers and daily remove from the site. Coordinate the work with other trades that they remove electrical outlet and switch plates, mechanical diffusers, escutcheons, registers, surface hardware, fittings and fastenings, prior to starting work

under this Section; storage during, and replacement after, painting work will be by other trades.

2 PRODUCTS

A. PAINT MATERIALS

1. Manufacturer:

All paint materials selected for coating systems for each type of surface shall be the product of a single manufacturer. Paint materials listed herein, unless otherwise designated in the "Schedule of Painting Systems" are the product of Sherwin Williams. Comparable products of Benjamin Moore or Glidden may be used subject to approval by the Architect in accordance with Section 01640, Substitutions and Product Options included in the Project Referenced Documents.

2. Compatibility:

All paint materials and equipment shall be compatible in use: finish coats shall be compatible with prime coats; prime coats shall be compatible with the surface to be coated; all tools and equipment shall be compatible with the coating to be applied. Thinners, when used, shall be only those thinners recommended for that purpose by the manufacturer of the material to be thinned.

3. Color:

Color schemes shall be as selected by the Architect, however for bidding purposes and unless otherwise specified or noted, paint:

Unfinished access doors, registers, prime coated hardware, uncovered heating pipes, ducts, exposed piping, and panels to match adjacent surfaces. Exterior and interior steel doors and frames different color than adjacent walls.

3 EXECUTION

A. SURFACE CONDITIONS

1. Inspection:

Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence. Verify that paint finishes may be applied in strict accordance with all pertinent codes and regulations and the requirements of these Specifications.

2. Discrepancies:

In the event of discrepancy, immediately notify the Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

B. PREPARATION OF SURFACES

1. General:

Prior to all surface preparation and painting operations, completely mask, remove, or otherwise adequately protect all hardware, accessories, machined surfaces, plates, lighting fixtures, and similar items in contact with painted surfaces but not scheduled to receive paint. Schedule all cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

Mildew removal: Scrub with a T.S.P. solution, a bleaching solution, then rinse with potable water and let thoroughly dry.

Prepare all surfaces in accordance with the paint manufacturer's directions except conform work to the following requirements as a minimum.

2. New Work or Surfaces:

a. Ferrous Metals:

Surfaces shop primed by other: At field welded or abraded spots, apply a phosphoric acid etch solution and let set for a time recommended by the acid etch manufacturer, rinse with potable water, and when thoroughly dry, immediately apply a prime coat. Wash previously primed surfaces free of any remaining minor areas of oil and grease. Surfaces not previously shop primed: Remove rust

and scale by wire brushing, sandblasting, or by other methods and means to clean surface. Remove dust, dirt, oil, grease; clean surface by solvent wash; apply phosphoric acid solution and let set the time recommended by the acid etch manufacturer, rinse off with potable water and when thoroughly dry, immediately apply prime coat.

b. Metal door, windows and their frames:

Prepare surfaces including tops, bottoms and surfaces normally concealed from view as specified hereinbefore for ferrous metals.

c. Galvanized iron:

Remove surface contamination, wash metal with phosphoric acid or approved solution.

d. Zinc coated steel:

Remove surface contamination and prepare surface to paint material manufacturer's instructions for priming.

e. Aluminum:

Remove surface contamination by steam, high pressure water, or solvent washing. Apply acid etch, let dry, then immediately prime paint.

f. Anodized aluminum:

No work required.

g. Gypsum wallboard:

Surfaces are to be crack-free, properly finished, and left clean by other trades. Remove any minor subsequent contamination, dust and dirt. If surface defects appear after prime coating, have defects repaired by and at the expense of the drywall trade; after defects are corrected, proceed with finish painting again using primer over repaired areas.

h. Mechanical and electrical work:

Prepare metal surfaces as specified hereinabove as applicable to type of material scheduled to be painted. Remove dirt, grease and oil from canvas and cotton insulation covering.

C. APPLICATION

1. General:

Apply paint or finish by methods generally accepted by the trade to achieve approved finishes. In multiple coat work, provide each coat of paint of slightly different color than preceding coat. Sand lightly between coats to achieve required finish. Do not apply finishes on surfaces that are not sufficiently dry. Make sure each coat of finish is dry and hard before a following coat is applied unless the manufacturer's directions state otherwise.

2. Finish Film Thickness:

Apply coats of primer and intermediate and finish coats to not less than the dry film thicknesses or spreading rate for each of the various types of specified materials, all as set for in the Schedule of Painting Systems.

3. Substrate Moisture Content Shall Not Exceed the Following:

Plaster and wallboard: 12% Masonry, concrete, concrete masonry units and stucco: 12% for solvent type paint. Surfaces are to be visibly dry on both sides but this requirement does not exclude a "wetting down" process for atex emulsion finishes. Canvas and cotton insulation covering: 12%

4. Film Thickness Tests:

When requested, in selected locations, verify mil thickness by use of Tooke or approved dry film gauge for total dry film thickness.

D. PATCHING

Surfaces damaged by other trades and requiring touch-up or re-finishing, after painting and finishing is completed in any one room or area, shall be done under this Section but at the expense of the trade or trades causing the damage.

E. CLEANING

As the work proceeds and on completion of the Work, promptly remove all paint where spilled, splashed or spattered in manner as not to damage the surface from which it is removed. During the progress of the work, keep the premises free from any unnecessary accumulation of tools, equipment, surplus materials and debris resulting from the work under this Section; leave the premises neat and clean to the satisfaction of the Architect.

F. SCHEDULE OF PAINTING SYSTEMS

Exterior of Building:

a. General:

Paint all new metal surfaces of exposed mechanical and electrical items, including new ductwork and metal strut systems used in exterior applications. Paint all new ferrous, galvanized, and shop primed metal surfaces.

| | | <u>Dry Mil Thickness</u> |
|-----|---|------------------------------|
| (1) | FERROUS METALS 1st Coat: DTM Acrylic Primer Finish - B66W1 2nd & 3rd Coats: Metalatex Acrylic Semi-gloss - B42W101 | 2.5 1.4 ea. |
| (2) | GALVANIZED METAL 1st Coat: DTM Acrylic Primer Finish - B66W1 2nd & 3rd Coats: Metalatex Acrylic Semi-gloss - B42W101 | 2.5 1.4 ea. |
| (3) | ALUMINUM (Unfinished): 1st Coat: DTM Wash Primer Finish B71Y1 2nd & 3rd Coats: Metalatex Acrylic Semi-gloss - B42W101 | 2.5 1.4 ea. |
| (4) | METAL STRUT SYSTEM (supports for mech. piping, elec. conduits, etc): 1st Coat: DTM Acrylic Primer Finish - B66W1 2nd & 3rd Coats: DTM Acrylic Finish - B42W101 | 2.5 1.4 ea. |
| (5) | CONCRETE: 1st Coat: Heavy Duty Block Filler - B42W46 2nd & 3rd Coats: Metalatex Acrylic Semi-Gloss B42W101 | 8.0 1.4 ea. |
| (6) | PAVEMENT MARKINGS 1st & 2nd Coat: Setfast Premium Latex TM-2159 | |
| (7) | EXISTING WOOD SIDING: 1st & 2nd Coat: Emerald Exterior Acrylic Latex K47 | 2.4 ea. |
| (8) | NEW CEMENT FIBER BOARD SIDING 1 st & 2 nd Coat: Emerald Exterior Acrylic Latex K47 | 2.4 ea. |

END OF SECTION