



State of Utah

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Department of Administrative Services

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Executive Director

Division of Facilities Construction and Management

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Director

ADDENDUM #1

Date: February 19, 2009

To: Contractors

From: Matt Boyer, Project Manager, DFCM

Reference: Cache Valley Hunters Education Building Re-Roof
Division of Wildlife Resources – Logan, Utah
DFCM Project No. 08295520

Subject: **Addendum No. 1**

Pages	<u>Addendum</u>	47 pages
	Total	47 pages

Note: *This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.*

While we contend that SB220 should only be potentially applicable to a contract issued after the effective date of said bill, this is to clarify that for purposes of this contract, regardless of the execution or effective dates of this contract, the status of Utah Law and remedies available to the State of Utah and DFCM, as it relates to any matter referred to or affected by said SB220, shall be the Utah law in effect at the time of the issuance of this Addendum.

- 1.1 **SCHEDULE CHANGES** – There are no changes to the project schedule.
- 1.2 **GENERAL** – See attached addenda from McNeil Engineering.

Utah!
Where ideas connect

ADDENDUM NO. 01

TO THE

Roofing Project

AT

Cache Valley Hunter Education Bldg. Re-roof

DFCM Project #08295520

Bid Due Date: Monday February 23, 2009

FOR

Division of Facilities Construction and Maintenance

Prepared by

McNeil Consulting Engineering, L.C.

This addendum issued the 18th day of February, 2009 is for all persons preparing bids for the above named project, and as such, shall be made a part of the contract documents.

The addendum consists of this cover sheet and 1 page. All changes, corrections, deletions, and/or additions to the initial bidding documents enumerated herein shall be included in the bidders proposal. In case of any conflict, this addendum shall govern.

Acknowledgment of receipt of this addendum shall be marked in the appropriate place on the bid proposal form.

This addendum is to be attached to and is to become a part of the specification covering the above noted projects, and the said specification is to apply insofar as consistent with the items hereafter noted:

- ITEM 1: The covered walkway/barrier that is shown on the plan will not be needed as shown. A single walkway barrier extending from the building out ten feet to be placed by the east door is all that will be required. The contractor will be responsible for installing cones and safety tape around the construction site at a ten foot distance from the building. This must be maintained during the entire project. Due to the height of the parapet on the front of the building no cones or safety tape will be required across the front of the building.
- ITEM 2: The disk distributed at the Pre-bid meeting did not have the specification installed. The specification is being attached to this addendum.
- ITEM 3: The gas line pipe on the roof is to be primed and painted as part of the contract. All materials and labor to accomplish this task are to be included in this job.
- ITEM 4: The existing metal panels will not be salvaged by the owner. The contractor will be responsible to remove and dispose off site all construction debris.
- ITEM 5: The existing edge metal on the shed will be left in place. The new edge metal will be placed over the top of this existing edge metal.
- ITEM 6: The existing metal support between the two existing units on the lower roof can be re-used to support the units mounted on top of this support. The support must rest on a new pair of sleepers installed on the deck and wrapped with roofing membrane and a new 24 GA metal cap.

DIVISION 06: WOOD, PLASTICS, AND COMPOSITES

06 0000 WOOD, PLASTICS, AND COMPOSITES

06 0573 PRESERVATIVE WOOD TREATMENT

06 1000 ROUGH CARPENTRY

06 1011 WOOD FASTENINGS

06 1100 WOOD FRAMING

END OF TABLE OF CONTENTS

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SECTION 06 0573**PRESERVATIVE WOOD TREATMENT****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Quality of wood preservative treatment where specified.
- B. Related Requirements:
 - 1. Section 06 1100:
 - a. Characteristics of wood to be pressure-treated.
 - b. Furnishing and installing of pressure-treated wood.

1.2 REFERENCES

- A. Reference Standards:
 - 1. American Wood-Preserver's Association:
 - a. AWPA C1-96, 'All Timber Products, Pressure Treatment.'
 - b. AWPA C2-96, 'Lumber, Timbers, Bridge Ties and Mine Ties, Pressure Treatment.'
 - c. AWPA C31-xx, 'Lumber Used Out of Contact with the Ground and Continuously Protected from Liquid Water.'
 - d. AWPA C33-xx, 'Standard for Preservative Treatment of Structural Composite Lumber by Pressure Processes.'
 - e. AWPA P5-xx, 'Waterborne Preservatives.'
 - f. AWPA N1-96, 'All Millwork, Preservative Treatment by Non-Pressure Process.'

1.3 SUBMITTALS

- A. Informational Submittals:
 - 1. Certificate: Certificate of pressure treatment showing compliance with specification requirements and including information required under IBC Section 2303.1.8.1.

PART 2 - PRODUCTS**2.1 SYSTEMS**

- A. Manufacturers:
 - 1. Type One Acceptable Manufacturers:
 - a. Arch Wood Protection Inc, Smyrna, GA www.wolmanizedwood.com.
 - b. Hoover Treated Wood Products, Thomson, GA www.frtw.com.
 - c. Osmose Inc, Griffin, GA www.osmose.com.
 - d. U S Borax Inc, Valencia, CA www.borax.com/wood.
 - e. VIANCE, Charlotte, NC www.treatedwood.com.
 - f. Equal as approved by Architect before bidding. See Section 01 6200.
- B. Performance:
 - 1. Framing lumber grade and species shall be as specified in Section 06 1100 for particular use.
 - 2. Interior Wood In Contact With Concrete or Masonry:
 - a. Preservatives:

- 1) Disodium octoborate tetrahydrate (DOT / SBX) meeting requirements of AWPA C31 and with retention of 0.25 lbs per cu ft 4 kg per cu meter.
- 2) Zinc borate meeting requirements of AWPA C33 and with retention of 0.17 lbs per cu ft 2.7 kg per cu meter.
 - b. Lumber: Treat in accordance with AWPA C31 or C33 and dry after treatment.
 - c. Millwork: Treat in accordance with AWPA N1 and dry after treatment.
3. Exterior Wood Continuously Exposed To Weather:
 - a. Preservatives: Waterborne preservatives meeting requirements of AWPA C2 with retention levels as required by AWPA C2 for specific application.
 - b. Lumber: Treat in accordance with AWPA C2 and dry after treatment.

PART 3 - EXECUTION: Not Used

END OF SECTION

SECTION 06 1011**WOOD FASTENINGS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
1. Quality of wood fastening methods and materials used for Rough Carpentry unless specified otherwise.
- B. Related Requirements:
1. Furnishing and installing of other fasteners are specified in individual Sections where installed.

1.2 REFERENCES

- A. Reference Standards;
1. ASTM International:
 - a. ASTM F 1667-03, 'Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.'

1.3 SUBMITTALS

- A. Action Submittals:
1. Product Data:
 - a. Manufacturer's literature on framing anchors and powder actuated fasteners.
 2. Shop Drawings:
 - a. Submit diameter and lengths of fasteners proposed for use on Project. If length or diameter of proposed fasteners differ from specified fasteners, also include technical and engineering data for proposed fasteners including, but not limited to:
 - 1) Adjusted fastener spacing where using proposed fasteners and,
 - 2) Adjusted number of fasteners necessary to provide connection capacity equivalent to specified fasteners.
 - b. Submit on powder-actuated fasteners other than those specified in Contract Documents showing design criteria equivalents at each application.
 - c. Show type, quantity, and installation location of framing anchors. Where necessary, reference Drawing details, etc, for installation locations.

PART 2 - PRODUCTS**2.1 MANUFACTURED UNITS**

- A. Description:
1. Nail Terminology:
 - a. When following nail terms are used in relation to this Project, following lengths and diameters will be understood. Refer to nails of other dimensions by actual length and diameter, not by one of listed terms:

Nail Term	Length	Diameter	Length	Diameter
8d Box	2-1/2 inches	0.113 inch	63.5 mm	2.827 mm
8d Common	2-1/2 inches	0.131 inch	63.5 mm	3.389 mm
10d Box	3 inches	0.128 inch	76.2 mm	3.251 mm
10d Common	3 inches	0.148 inch	76.2 mm	3.759 mm
16d Box	3-1/2 inches	0.135 inch	88.9 mm	3.411 mm

16d Sinker	3-1/4 inches	0.148 inch	82.6 mm	3.759 mm
16d Common	3-1/2 inches	0.162 inch	88.9 mm	4.115 mm

B. Materials:

1. Fasteners:
 - a. Fasteners in contact with preservative treated wood shall be hot-dipped galvanized or G-185 coated.
 - b. Nails:
 - 1) Meet requirements of ASTM F 1667.
 - 2) Unless noted otherwise, nails listed on Drawings or in Specifications shall be common nail diameter, except 16d nails, which shall be box diameter.
 - c. Wood Screws:
 - 1) SDS Screws:
 - a) Category Four Approved Products. See Section 01 6200 for definitions of categories.
 - (1) SDS Screws by Simpson Strong Tie Co, Dublin, CA www.strongtie.com.
 - 2) All Other: Standard type and make for job requirements.
 - d. Powder-Actuated Fasteners:
 - 1) Type One Quality Standard: Hilti X-DNI 62P8.
 - 2) Manufacturers:
 - a) Hilti, Tulsa, OK www.us.hilti.com.
 - b) Redhead Division of ITW, Wood Dale, IL www.itw-redhead.com and Markham, ON www.itwconstruction.ca.
 - c) Equals as approved by Architect through shop drawing submittal before installation. See Section 01 6200.
2. Adhesives:
 - a. Construction Mastics: Meet requirements of American Plywood Association Specification AFG-01 September 1974. Use phenol-resorcinol type for use on pressure treated wood products.
3. Framing Anchors:
 - a. Framing anchors and associated fasteners in contact with preservative treated wood shall be hot-dipped galvanized, G-185 coated, or stainless steel. However, do not use stainless steel items with galvanized items.
 - b. Type Two Acceptable Products:
 - 1) KC Metals Inc, San Jose, CA www.kcmetals.com.
 - 2) Simpson Strong Tie Co, Dublin, CA www.strongtie.com.
 - 3) United Steel Products Co Inc (USP), Montgomery, MN www.uspconnectors.com.
 - 4) Equals as approved by Architect through shop drawing submittal before installation. See Section 01 6200.

PART 3 - EXECUTION

3.1 ERECTION

- A. Secure one Manufacturer approved fastener in each hole of framing anchor that bears on framing member unless approved otherwise in writing by Architect.
- B. Provide washers with bolt heads and with nuts bearing on wood.

END OF SECTION

SECTION 06 1100**WOOD FRAMING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install wood framing and blocking as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 06 0573: Quality of Preservative Wood Treatment.

1.2 REFERENCES

- A. Reference Standards:
 - 1. U. S. Department of Commerce:
 - a. Voluntary Product Standard DOC PS 20-99, 'American Softwood Lumber Standard.'

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Conference:
 - 1. Schedule pre-installation conference immediately before beginning framing work.
 - 2. Review items such as:
 - a. Rough opening requirements
 - b. Nails and nailing requirements.
 - c. Connections.

1.4 SUBMITTALS

- A. Informational Submittals:
 - 1. Test And Evaluation Reports: Technical and engineering data on nails to be set by nailing guns for Architect's approval of types proposed to be used as equivalents to specified hand set nails and adjusted number and spacing of pneumatically-driven nails to provide equivalent connection capacity.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 - 1. Protect lumber and plywood and keep under cover in transit and at job site.
 - 2. Do not deliver material unduly long before it is required.
- B. Storage And Handling Requirements:
 - 1. Store lumber and plywood on level racks and keep free of ground to avoid warping. Stack to insure proper ventilation and drainage.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Dimension Lumber:
1. Meet requirements of PS 20 and National Grading Rules for softwood dimension lumber.
 2. Bear grade stamp of WWPA, SPIB, or other association recognized by American Lumber Standards Committee identifying species of lumber by grade mark or by Certificate of Inspection.
 3. Lumber 2 inches 50 mm or less in nominal thickness shall not exceed 19 percent in moisture content at time of fabrication and installation and be stamped 'S-DRY', 'K-D', or 'MC15.'
 4. Lumber shall be S4S.
 5. Preservative Treated Plates / Sills:
 - a. 2x4 38 mm by 64 mm: Standard and better Douglas Fir, Southern Pine, or HemFir, or StrandGuard by iLevel by Weyerhaeuser Boise, ID www.ilevel.com.
 - b. 2x6 38 mm by 140 mm And Wider: No. 2 or or MSR 1650f - 1.5e Douglas Fir, Southern Pine, HemFir, or StrandGuard by iLevel by Weyerhaeuser, Boise, ID www.ilevel.com.
- B. Lumber Ledgers: No. 1 Douglas Fir, Larch, or Southern Pine.
- C. Blocking: Sound lumber without splits, warps, wane, loose knots, or knots larger than 1/2 inch 13 mm.
- D. Furring Strips: Utility or better.
- E. Sill Sealer: Closed-cell polyethylene foam, 1/4 inch 6 mm thick by width of plate.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Use preservative treated wood for wood members in contact with concrete or masonry, including wall, sill, and ledger plates, door and window subframes and bucks, etc.
- B. Interface With Other Work:
1. Coordinate with other Sections for location of blocking required for installation of equipment and building specialties.
 2. Where manufactured items are to be installed in framing, provide rough openings of dimensions within tolerances required by manufacturers of such items. Confirm dimensions where not shown on Drawings.
- C. Tolerances:
1. Walls:
 - a. 1/4 inch 6 mm in 20 feet 6 meters, non-cumulative in length of wall.
 - b. 1/8 inch 3 mm in 10 feet 3 meters with 1/4 inch 6 mm maximum in height of wall.
 - c. Distances between parallel walls shall be 1/4 inch 6 mm maximum along length and height of wall.
 2. Nailing:
 - a. Stud to plate:

2 by 4 inch nominal	38 by 89 mm	End nail, two 16d OR toe nail, four 8d
2 by 6 inch nominal	38 by 140 mm	End nail, three 16d OR toe nail, four 8d
2 by 8 inch nominal	38 by 184 mm	End nail, four 16d OR toe nail, six 8d
2 by 10 inch nominal	38 by 235 mm	End nail, five 16d OR toe nail, six 8d
1-3/4 by 5-1/2 inch LVL	44 by 140 mm LVL	End nail, three 16d OR toe nail, four 8d
1-3/4 by 7-1/4 inch LVL	44 by 184 mm LVL	End nail, four 16d OR toe nail, six 8d
1-3/4 by 9-1/4 inch LVL	44 by 235 mm LVL	End nail, five 16d OR toe nail, six 8d
1-3/4 by 11-1/4 inch LVL	44 by 286 mm LVL	End nail, six 16d OR toe nail eight 8d
 - b. Top plates: Spiked together, 16d, 16 inches 400 mm on center.

- c. Top plates: Laps, lap members 48 inches 1200 mm minimum and nail with 16d nails 4 inches 100 mm on center
 - d. Top plates: Intersections, three 16d.
 - e. Backing And Blocking: Three 8d, each end.
 - f. Corner studs and angles: 16d, 16 inches 400 mm on center.
- D. Roof And Ceiling Framing:
1. Place with crown side up at 16 inches 400 mm on center unless noted otherwise.
 2. Install structural blocking and bridging as necessary and as described in Contract Documents.
 3. Special Requirements:
 - a. Roof And Ceiling Joists: Lap joists 4 inches 100 mm minimum and secure with code approved framing anchors.
 - b. Roof Rafters And Outlookers:
 - 1) Cut level at wall plate and provide at least 2-1/2 inches 64 mm bearing where applicable. Spike securely to plate with three 10d nails.
 - 2) Attach to trusses or other end supports with framing anchors described in Contract Documents.
 - 3) Provide for bracing at bearing partitions.
- E. Accessory / Equipment Mounting (nailers):
1. Furnish and install blocking in wood framing required for hardware, specialties, equipment, accessories, and mechanical and electrical items, etc.
 2. Furnish and install back blocking in wood framing required for joints in gypsum wallboard.
 - a. Install back blocking between I-joist framing members with equivalent of Simpson Z2 clips attached with four 10d x 1-1/2 inch nails at each end, two into 'I' joist and two into blocking.
 - b. Attach back blocking at trusses, stick framing, or walls with two 10d nails in each end of each piece of blocking.
- F. Accessory / Equipment Mounting And Standing & Running Trim Blocking (nailers):
1. Furnish and install blocking in wood framing required for hardware, specialties, equipment, accessories, and mechanical and electrical items, etc.
 2. Attach blocking not installed with clips with two fasteners in each end of each piece of blocking.
- G. Furring Strips
1. On Wood or Steel: Nail or screw as required to secure firmly.
 2. On Concrete or Masonry:
 - a. Back up furring strips on exterior walls or walls in contact with earth with 15 lb felt strip.
 - b. Nail at 12 inches 300 mm on center maximum.

END OF SECTION

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DIVISION 07: THERMAL AND MOISTURE PROTECTION

07 3000 STEEP SLOPE ROOFING

07 3113 ASPHALT SHINGLES

07 5000 MEMBRANE ROOFING

07 5323 ETHYLENE-PROPYLENE-DIENE-MONOMER ROOFING: EPDM

07 6000 FLASHING AND SHEET METAL

07 6210 GALVANIZED STEEL FLASHING AND TRIM
07 6310 STEEP SLOPE ROOF FLASHING
07 6311 PERFORATED METAL SOFFIT
07 6322 STEEL FASCIA

07 7000 ROOF AND WALL SPECIALTIES AND ACCESSORIES

07 7123 MANUFACTURED GUTTERS AND DOWNSPOUTS

07 9000 JOINT PROTECTION

07 9213 ELASTOMERIC JOINT SEALANTS

END OF TABLE OF CONTENTS

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SECTION 07 3113**ASPHALT SHINGLES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install roofing system as described in Contract Documents.
- B. Products Installed But Not Furnished Under This Section:
 - 1. Roof flashing.
 - 2. Ridge vent.
- C. Related Requirements:
 - 1. Section 07 6310: Roof flashing and drip edge.
 - 2. 07 6322: Fascia.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International:
 - a. ASTM D 226-05, 'Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.'
 - b. ASTM D 3018-03, 'Standard Specification for Class 'A' Asphalt Shingles Surfaced with Mineral Granules.'
 - c. ASTM D 3462-05, 'Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.'
 - d. ASTM D 4586-00, 'Standard Specification for Asphalt Roof Cement, Asbestos-Free.'

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Conference: Schedule pre-installation conference after installation of sheathing but before installation of any roofing system component.

1.4 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data: Color and style selection.
 - 2. Samples: Full size shingle.
- B. Informational Submittals:
 - 1. Manufacturer Instructions: Manufacturer's installation instructions and details for installation of secondary underlayment at penetrations, dormers, eaves, rakes, etc, to fit environmental conditions at Project.
- C. Maintenance Material Submittals:
 - 1. Extra Stock Materials: Provide one square minimum of bundled shingles.

1.5 FIELD CONDITIONS

- A. Ambient Conditions: Do not install shingles at lower temperatures than allowed by Manufacturer for application.

1.6 WARRANTY

- A. Special Warranty:
1. Shingle Manufacturer's special 40-year minimum labor and material warranty written for VMR program, including but not limited to:
 - a. First 5 years minimum of warranty will provide for full replacement cost, including tear-off and disposal, for any failure, including material defects and workmanship. Remaining 35 years of warranty will provide for pro-rated replacement cost.
 - b. Roofing system will resist blow-offs in winds up to 110 mph for 5 years when installed as specified below.
 2. Warrant secondary underlayment at steeple base for 60 days of exposure.

PART 2 - PRODUCTS

2.1 SYSTEM

- A. Components:
1. Shingles And Underlayment:
 - a. Fiberglass mat shingles meeting or exceeding requirements of ASTM D 3018, Type I and UL Class A. Meet requirements of ASTM D 3462 where required by local codes.
 - 1) Color as selected by Architect from Manufacturer's full color line.
 - b. Category One VMR Products And Manufacturers. See Section 01 6200 for definitions of Categories.
 - 1) CertainTeed Roofing Products, Valley Forge, PA.
 - a) Shingles:
 - (1) High Wind: Landmark Premium.
 - (3) Hip And Ridge Shingles: Shadow Ridge or Laminate Accessory.
 - b) Primary Underlayment Under Shingles: CertainTeed 30 lb felt, Roofers' Select, or UL approved product meeting requirements of ASTM D 226.
 - c) Secondary Underlayment Under Shingles: WinterGuard Granular or WinterGuard Sand.
 - 2) GAF Materials Corp, Wayne, NJ.
 - a) Shingles:
 - (1) High Wind: Timberline Prestique Lifetime.
 - (3) Hip And Ridge Shingles: TimberTex or PacificRidge as required by GAF for shingle used.
 - b) Primary Underlayment Under Shingles: Leatherback ASTM 30 Felt or Shinglemate.
 - c) Secondary Underlayment Under Shingles: Weatherwatch or Stormguard.
 - 3) Or approved equals.

2.2 ACCESSORY PRODUCTS

- A. Fasteners:
1. Primary Underlayment:
 - a. Corrosion resistant roofing nails with one inch diameter head and 3/4 inch long shank minimum.
 - 1) If shingles applied as underlayment is laid, use metal or plastic head Simplex nails or one inch long shingle roofing nails.
 - 2) If shingles not applied as underlayment is laid, use plastic head only.

2. Shingles:
 - a. Eleven gauge hot-dipped galvanized roofing nails with **3/8 inch 9.5 mm** nominal diameter head and of sufficient length to penetrate through roof sheathing **1/4 inch 6 mm** or **3/4 inch 19 mm** minimum into solid wood decking.
 - b. Coil type non-corrosive gun-driven nails of same size as hand-driven nails are acceptable.
 - c. Staples not permitted.

- B. Asphalt Roofing Cement: Any manufacturer's product meeting requirements of ASTM D 4586 and acceptable to Shingle Manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine deck to determine if it is satisfactory for installation of roofing system. Conditions include, but are not limited to, moisture on deck, protruding deck fasteners, specified gaps between sheathing, and other items affecting issuance of roofing warranty. Report unsatisfactory conditions in writing to Architect.

3.2 PREPARATION

- A. Clean roof sheathing, including removal of dirt and debris, before installation of underlayment.

3.3 INSTALLATION

- A. Underlayment:
 1. General:
 - a. Do not use permanent underlayment installation as temporary roof. If temporary roof is used, remove completely before installation of permanent underlayment.
 - b. Follow Roofing Manufacturer's recommendations for installation of primary and secondary underlayment, particularly at eaves, rakes, and penetrations, unless specified installation procedures and Drawing details are more stringent.
 - c. Do not leave underlayment exposed to weather more than 14 days after beginning of underlayment installation. If underlayment is exposed for more than 14 days after beginning of underlayment installation, treat as temporary roof under first paragraph above. If moisture is deposited on exposed underlayment, obtain written approval from Manufacturer's Representative before installing shingles.
 2. Secondary:
 - a. Under Shingles:
 - 1) Lap end joints **6 inches 150 mm** and side joints **3 inches 75 mm** minimum.
 - 2) Apply continuous **12 inch 300 mm** wide strip at edge of eaves and rakes before installing drip edge.
 - 3) Apply two **36 inch 900 mm** wide courses along eaves and rakes as described in Contract Documents with first course overlapping drip edge and **12 inch 300 mm** wide previously applied strip.
 3. Primary:
 - a. Apply **36 inch 900 mm** wide courses over complete deck, including areas covered with secondary underlayment unless specified otherwise. Maintain end laps of **8 inches 200 mm** and side laps of **19 inches 475 mm**. Stop primary underlayment between **3 and 6 inches 75 and 150 mm** of inside edge of strip of secondary underlayment installed over edge of formed valley metal.
 - b. Nailing:
 - 1) Secure primary underlayment to deck with roofing nails **one inch 25 mm** if from edge and **18 inches 450 mm** on center.

- 2) Do not nail through metal flashing, except drip edge, when installing primary underlayment.

B. Shingles:

1. Before installing shingles, inspect underlayment and metal installation with Architect and Owner. Correct improperly installed and damaged material before beginning shingle installation.
2. Cut high wind shingles in accordance with Manufacturer's instructions, or use approved starter course. Nail to eave granule side up in continuous mastic bed with cut edge down-slope and edge overhanging eave **3/8 inch 9 mm** so sealing tabs are at edge of eave. Install shingles with maximum exposure recommended by Manufacturer. Lay first course directly over starter strip with ends flush with starter strip at eaves and so joints in starter strip are offset **4 inches 100 mm** minimum from joints in first course.
3. Insure alignment by snapping chalk line at least each fifth course to control horizontal alignment.
4. Lay shingles so end joints are offset in accordance with Manufacturer's installation procedures.
5. Except over formed valley metal, use 6 nails in each shingle placed as required by Shingle Manufacturer. Place nail one inch from each end of strip and remainder evenly spaced between. Should any nail fail to penetrate sheathing by **1/4 inch 6 mm** minimum, drive additional nail nearby. Adjust nail gun pressure for nailing flush and tight to deck without cutting shingle surface. Over valley metal, hand seal shingles. Do not drive nails through valley metal. Drive nails perpendicular to shingle surface so nail head is flat against shingle.
6. Run chalk line so valley will be **6 inches 150 mm** wide at top and diverge **3/32 inch one mm** per ft down to eaves. Neatly trim shingles to this line.
7. Install specified hip and ridge shingles in accordance with Shingle Manufacturer's instructions. Run ridge shingles as directed by Architect.
8. Vent pipe sleeve flange minimum width **6 inches 150 mm**. Fit shingles under lower edge and over sides and upper edge. Set vent pipe flange in asphalt roofing cement. Embed shingles in asphalt roofing cement where they overlap flange. Apply bead of asphalt roofing cement at junction of vent pipe and vent flashing.
9. Run courses true to line with end joints properly placed. Leave shingles flat without wave and properly placed.
10. Hand-Sealing:
 - a. Clip off and seal upper inside corner of each valley shingle to valley with asphalt roofing cement.
 - b. If ambient temperature or exposure to sun will not be sufficient to secure adhesive strip to under-lying shingle within one week, hand seal shingles with asphalt roofing cement.

3.4 CLEANING

- A. Clean shingles and building of soiling caused by this installation.
- B. Leave metals clean and free of defects, stains, and damaged finish. Replace fascia metal that is scratched through finish to base metal.
- C. Remove debris resulting from work of this Section from roof and site.

END OF SECTION

SECTION 07 5323**ETHYLENE-PROPYLENE-DIENE-MONOMER ROOFING: EPDM****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install fully adhered membrane roofing system as described in Contract Documents.
- B. Products Installed But Not Furnished Under This Section:
 - 1. Sheet metal work including caps, sleeves, umbrella hoods, pipe enclosure boxes, strapping, and scuppers.
- C. Related Requirements:
 - 1. Section 07 6210 or 07 6220: Sheet metal work.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International:
 - a. ASTM C 208-95 (2001), 'Standard Specification for Cellulosic Fiber Insulating Board.
 - b. ASTM C 564-03a, 'Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.'
 - c. ASTM C 920-02, 'Standard Specification for Elastomeric Joint Sealants.'
 - d. ASTM C 1177-06, 'Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.'
 - e. ASTM D 312-00, 'Standard Specification for Asphalt Used in Roofing.'

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Conference: Schedule pre-installation conference after installation of roof sheathing but before application of roofing system.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Base flashings and membrane terminations.
 - 2. Roof plan showing orientation of existing gypsum roof deck and orientation of membrane roofing.
 - 3. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
- C. Samples for Verification: For the following products, in manufacturer's standard sizes:
 - 1. Sheet roofing, of color specified, including T-shaped side and end lap seam.
 - 2. Walkway pads or rolls.
- D. Qualification Data: For qualified Installer and manufacturer.

- E. Manufacturer Certificate: Signed by roofing manufacturer certifying that membrane roofing system complies with requirements specified in "Performance Requirements" Article.
 - 1. Submit evidence of complying with performance requirements.
 - 2. Prior to start of work, submit Manufacturer's preinstallation product compliance notification as specified in "Performance Requirements" Article.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.
- G. Research/Evaluation Reports: For components of membrane roofing system, from the ICC-ES.
- H. Field quality-control reports.
- I. DFCM history record.
- J. Maintenance Data: For membrane roofing system to include in maintenance manuals.
- K. Provide a 24 hour emergency phone number to project manager and agency contact person.
- L. Contractor must submit a pre-installation noticed from manufacture prior to start of any work. This will include confirmation that the membrane and all accessories being used meet requirements of specification. This will also include confirmation that the scope of work is in accordance with published technical data as per manufacture. This also includes confirmation that a warranty has been requested and will be issued on the DFCM manufacture warranty form at the completion of roofing. This document must be included in contractor's submittal package.
- M. Submit record Shop Drawings to manufacturer, if requested.

1.5 QUALITY ASSURANCE

- A. Qualifications: Applicator shall be approved by Roofing System Manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Make no deliveries to Project until installation is about to commence, or until approved storage area is provided. Deliver and maintain materials in Manufacturer's original, unopened containers or rolls, with labels intact and legible.
- B. Store materials, except membranes, in dry place with temperatures between 60 and 80 deg F 16 and 27 deg C. Restore materials that are allowed to become colder than specified temperature to proper temperature before using. Store materials on clean, raised platforms and with weather protective covering when stored outdoors.
- C. Select and operate material handling equipment so as not to damage existing construction or new roofing system, or to overload structural system.

1.7 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. Temperature ranges shall be within tolerances allowed for material being used.
 - 2. Follow Manufacturer's instructions for cold temperature installation. Follow specified precautions for storage of materials and expose only enough cement and adhesive to be used within four-hour period.
 - 3. Roof surface shall be free of ponded water, ice, and snow.
 - 4. Do not expose membrane and accessories to constant temperature in excess of 180 deg F 82 deg C.

1.8 WARRANTY

- A. Special Warranty: DFCM form, without monetary limitation, Total Systems warranty in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.
 - 1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, adhesives, and other components of membrane roofing system.
 - 2. Provide manufacturer's I-90 wind warranty.
 - 3. Warranty Period: 20 years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on DFCM contractor warranty form provided by Owner, signed by Installer, covering Work of this Section, including all components of membrane roofing system such as membrane roofing, base flashing, roof insulation, fasteners, and walkway products, for the following warranty period:
 - 1. Warranty Period: Five years from date of Substantial Completion.
- C. Provide

PART 2 - PRODUCTS

2.1 SYSTEM

- A. Manufacturers:
 - 1. Category Four Approved System Manufacturers. See Section 01 6200 for definitions of Categories.
 - a. Carlisle Syntec Systems, Carlisle, PA www.carlisle-syntec.com.
 - b. Firestone Building Products Co, Carmel, IN www.firestonebpco.com.
 - c. Genflex by Gencorp Co, Indianapolis, IN www.genflex.com.
 - d. Versico, Carlisle, PA www.versico.com.
 - e. Johns Manville, Denver, CO www.jm.com.
- B. Performance:
 - 1. Design Criteria:
 - a. System shall have Class 'A' rating from UL.
 - b. Perimeter wood blocking, insulation, and sheet metal installation shall, as minimum, be in accordance with recommendations of FM Loss Prevention Data Sheet 1-49, June 1985.
- C. Materials:
 - 1. Insulation / Recovery Board:
 - 1) Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class I, Grade 3, felt or glass-fiber mat facer on both major surfaces. Use insulation with Long Term Thermal Resistance (LTTR) that meets current code and requirements of building.
 - 2) A fire barrier must be installed as part of this system if required by manufacturer to meet the code requirement for such a barrier over a wood deck.
 - b. Mopping Asphalt: Meet requirements of ASTM D 312, High Melt Point.
 - 2. Membrane: EPDM, 0.060 inch 1.5 mm thick by optimum width and length determined by job conditions
 - 3. Coating: Not used on this project.
 - 4. Walkways:
 - a. Flexible Walkways: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads, approximately 3/16 inch thick, and acceptable to membrane roofing system manufacturer.
 - 1) Provide product equivalent to Carlisle's Sure-Seal Walkway Pads (30 inches by 30 inches with factory rounded corners) adhered to the EPDM membrane roof with Splicing Cement or Splice Tape.
 - 5. Elastomeric Sealant:
 - a. Meet requirements of one of following:

- 1) ASTM C 920, Type M, Grade NS, Use NT, Class 25.
 - 2) Fed Spec TT-S-001543A.
6. Vent Pipe Extensions:
 - a. Pipe: Schedule 40 PVC pipe of equivalent diameter to vent pipe.
 - b. Connectors: Neoprene pipe sleeves with stainless steel drawbands, meeting requirements of ASTM C 564.
 7. Elastomeric Flashing:
 - a. Elastomeric Sheet Flashing: Uncured EPDM, 0.060 inch 1.5 mm thick.
 - b. Prefformed Pipe Sleeves: Factory prefabricated, 0.060 inch 1.5 mm thick.
 8. Bonding (Flashing) Adhesive: As furnished by Membrane Manufacturer.
 9. Splicing Adhesive: EPDM based contact cement furnished by Membrane Manufacturer.
 10. Lap Sealant: EPDM based, trowel or gun consistency as selected by Membrane Manufacturer.
 11. Water Cut-Off Mastic: As furnished by Membrane Manufacturer.
 12. Surface Cleaner: As furnished by Membrane Manufacturer.
 13. Mastic: One component, low viscosity, self-wetting butyl mastic.
 14. Nite Seal: Compatible with materials with which it is used, furnished by Membrane Manufacturer.
 15. Pourable Sealer: Compatible with materials with which it is used, furnished by Membrane Manufacturer.
 16. Rubber Nailing Strips (RNS) and Fasteners: Extruded nailing strips and fasteners furnished by Membrane Manufacturer.
 17. Separation Sheets:
 - a. Aluminum foil laminated between two layers of kraft paper with non-asphaltic adhesive, for use at membrane splices and dry applied cavity fill locations.
 - b. Acceptable Products:
 - 1) Poly-Foil Barrier 718200 by Fortifiber Corp, Reno, NV www.fortifiber.com
 - 2) Equal as approved by Architect before installation and acceptable to Membrane Manufacturer. See Section 01 6200.
 18. Coatings: Not used on this project.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protection:
 1. Prevent interior leakage, materials falling into interior, and other such occurrences.
 2. Install temporary water cut-offs at completion of each day's work and completely remove upon resumption of work.
 3. Provide temporary walkways and work platforms as necessary to complete work under this Section with no damage to existing surfaces, surfaces exposed during work, and to new materials applied.
 4. Coordinate application of membrane to provide protection of underlying materials from wetting or other damage by the elements on a continuous basis.
 5. Sheet metal sleeves, caps, and enclosures shall be completely installed on daily basis.
- B. Surface Preparation:
 1. Surfaces to receive new materials shall be free of dirt, debris, loose materials and free moisture. Mechanically scrape exposed surfaces, if necessary to remove projections.
 2. Verify that surfaces receiving new materials have no defects or errors that would result in poor application or cause latent defects in workmanship.
 3. Inspect anchoring of wood members for conformance to specified requirements. Upgrade nonconforming fasteners to meet specified requirements.
 4. Reset or replace existing fasteners that are loose, deformed, damaged, or corroded.
 5. Fill insulation joints wider than 1/4 inch 6 mm with insulation cut to fit.

3.2 INSTALLATION

- A. Installation shall be in conformance with latest edition of Manufacturer's specification except where Contract Documents are more restrictive.
- B. Wood Blocking And Nailers:
1. Install blocking, cants, nailers, and sheathing in straight lines and level planes at proper elevation for installation of roofing system, and in accordance with recommendations of FM Loss Prevention Data Sheet 1-49, June 1986 and Manufacturer's requirements.
 - a. Do not use warped wood members unless they can be fastened adequately to permanently hold them in their required alignment.
 - b. Top surface of horizontal blocking shall match elevation of surface of roof insulation.
 2. Lumber / Plywood Connections to Lumber:
 - a. Nail spacing shall be **12 inches 300 mm** on center maximum and staggered across face of piece. Locate nails within **3 inches 75 mm** of each end of piece. Roof edge blocking **96 inches 2 400 mm** each way outside from corners shall be nailed at **6 inches 150 mm** on center maximum.
 - b. Drive nail heads flush with wood surface. Penetration into connecting piece shall be **1-1/4 inch 32 mm** minimum.
 - c. Installed withdrawal resistance shall be 100 lbs per nail minimum.
 3. Lumber / Plywood Anchors to Masonry or Concrete:
 - a. Space anchors as shown on Drawings or **36 inches 900 mm** on center maximum when not shown. Stagger anchors if members are more than **5 inches 125 mm** wide. Roof edge blocking **96 inches 2 400 mm** each way from outside corners shall be nailed at **18 inches 450 mm** on center maximum.
 - b. Countersink head of anchors to be flush with surface.
 - c. Withdrawal resistance shall be 300 lbs per anchor minimum or number of anchors increased to equal that specified. Minimum penetration into masonry shall be **1-1/2 inches 38 mm**.
- C. Insulation:
1. Install leveling or fireguard layer, if required.
 2. Mechanically attach one layer of insulation to deck with four mechanical fasteners per board. Tape joints. Provide special tapered insulation pieces at roof drains and elsewhere as shown on Drawings. Moisture content of insulation shall not exceed 4 percent.
 3. Install recovery / hard board.
- D. Membrane Placing:
1. Position membrane over substrate without stretching.
 2. Allow membrane to relax approximately 1/2 hour before splicing and flashing.
 3. Fold sheet back so one half of underside of sheet is exposed. Sheet fold shall be smooth, no wrinkles or buckles.
 4. Install separation sheet over insulation that needs protection from solvents.
 5. Apply bonding adhesive evenly to one half of underside of membrane and to substrate as recommended by Membrane Manufacturer. Apply so bonding adhesive on both surfaces dries simultaneously. Allow to dry until tacky.
 6. Standing at fold, roll membrane slowly onto coated substrate without causing wrinkles.
 7. Press bonded sheet to substrate with stiff broom.
 8. Fold uncoated half of membrane back and repeat steps 5 through 7 above.
- E. Membrane Splicing:
1. Fold top sheet back about **12 inches 300 mm**. Clean both mating surfaces at splice areas using clean rags with splice wash. Surface should be solid black in color.
 2. Apply splicing cement to both surfaces using a **3 or 4 inch 75 or 100 mm** wide by **1/2 inch 13 mm** thick paint brush or **4 inch 100 mm** medium nap plastic core paint roller at a rate of approximately **175 lineal feet 12 lineal meters** of **3 inch 75 mm** splice area per gallon.
 - a. Brush apply smoothly or roll apply splicing cement, to obtain 100 percent coverage.
 - b. Do not allow glob or puddle.
 - c. Allow cement to dry until tacky but not string or stick to a dry finger touch.

3. Roll top sheet toward splice area, until the cemented area is nearly touching cement on bottom sheet along entire length of splice. Allow sheet to fall freely into place, avoiding stretching and wrinkling.
 4. Roll splice with **2 inch 50 mm** wide steel roller, using positive pressure, toward the outer edge of splice.
 5. Clean splice edge, extending **one inch 25 mm** minimum onto top and bottom membranes with splice wash.
 6. Apply bead of lap sealant completely covering splice edge. Feather lap sealant with specially preformed putty knife or trowel. Complete lap sealant application of splices by end of each working day.
- F. Perimeter Nailing:
1. Install nailers at perimeter of each roof level, curb flashing, skylight, expansion joint, and similar penetration as follows:
 - a. Mechanically attach membrane to wood nailers using Manufacturer's recommended insulation fasteners applied through rubber nailing strips.
 - b. Space fasteners at **12 inches 300 mm** on center maximum, starting one inch from ends with fasteners driven flush with rubber nailing strips.
 - c. Cut off ends at a bevel from the fastener head.
 - d. Where nailing strips would interfere with water flow, cut off and bevel to allow **6 inch 150 mm** open space between fasteners.
 - e. Seal over rubber nailing strip with **6 inch 150 mm** wide flashing using cement and lap sealant on edges.
- G. Flashing:
1. Complete splice between flashing and main roof sheet before bonding flashing to vertical surface. Splice shall extend at least **3 inches 75 mm** beyond fasteners that attach membrane to horizontal surface.
 - a. Clean surface of EPDM in splice area with surface cleaner, using clean rags.
 - b. Apply bonding adhesive to both flashing and surface to which it is being bonded at rate covering approximately **60 sq ft 5.6 sq meters** of finished surface.
 - c. After bonding adhesive has dried to point where it does not string or stick to dry finger, roll flashing into adhesive. Assure that flashing does not bridge where there are changes of direction, for example, where parapet meets roof deck.
 - d. Nail installed flashing at top of flashing every **12 inches 300 mm** on center maximum under metal counterflashing or cap.
 2. Flash penetrants passing through membrane. Flash pipe with molded pipe flashings where installation is possible. Install vent stack and pipe extensions where necessary to achieve **8 inch 200 mm** minimum flashing height. Where molded pipe flashing cannot be installed, use field fabricated pipe seal.
 3. Seal clusters of pipes and unusual shaped penetrations with **2 inch 50 mm** minimum pourable sealer. Use pitch pocket type seal as shown on Membrane Manufacturer's standard details.
 4. Roof Drains:
 - a. Solvent clean and wire brush drain bowl and clamping ring to remove bituminous material.
 - b. Clean bottom surface of EPDM in clamping area with surface cleaner using clean rags.
 - c. Apply membrane to drain using full application of mastic and install clamping ring.
 - d. Set and secure scupper flanges through a continuous bead of mastic, as shown on Drawings. Provide flashing over scupper flanges.
- H. Daily Seal:
1. Exercise care to ensure that water does not flow beneath completed sections of roof. Temporarily seal loose edge of membrane daily and when weather is threatening.
 - a. Mix two components thoroughly according to instructions on label.
 - b. Apply at rate of **100 lineal feet 6.8 meters** per **gallon liter** to smooth surfaces, and **12 inches 300 mm** from edge of membrane onto exposed substrate. If necessary, use trowel to spread material in order to achieve complete seal.
 - c. After embedding membrane, check for continuous contact. Weight edge to provide continuous pressure over length of cut-off.
 - d. Pull sheet free before continuing installation.

3.3 FIELD QUALITY CONTROL

- A. Field Tests:
 - 1. Withdrawal tests of fasteners and nailers may be required.
 - 2. Samples of flashing will be taken to determine degree to which it has cured before installation.
 - 3. Sample of completed splice may be required at location selected by Architect. Patching of test opening shall be at no additional cost to Owner and use specified splicing methods.
 - 4. Field tests may be performed by Architect to evaluate moisture content of installed materials.

- B. Manufacturer Services: Upon completion of installation, representative of Membrane Manufacturer shall make inspection to ensure that system was installed according to Manufacturer's published specifications and details. Make no deviation from Manufacturer's specifications without prior written approval by Manufacturer.

3.4 CLEANING

- A. Remove roofing materials from surfaces not specified to receive these materials such as walls, walkways, metal flashings, etc.

- B. Repair existing grass areas, plantings, and other site improvements that are damaged or altered during performance of roofing work.

- C. Remove scraps, equipment, debris, and foreign materials from roof and grounds at completion of the Work.

- D. Check roof drains to determine if drain is plugged, or if drain bowl, clamping ring, dome, etc, are damaged.

END OF SECTION

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SECTION 07 6210**GALVANIZED STEEL FLASHING AND TRIM****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install miscellaneous flashing, counterflashing, and hold-down clips as described in Contract Documents and not specified to be of other material.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International:
 - a. ASTM A 653-05, 'Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.'
 - b. ASTM A 792-03, 'Standard Specification for Steel Sheet, 55 Percent Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.'

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Type Two Acceptable Manufacturers Of Metal:
 - a. CMG – Coated Metals Group, Denver, CO www.cmgmetals.com.
 - b. Englert Inc, Perth Amboy, NJ www.englertinc.com.
 - c. Fabral, Lancaster, PA www.fabral.com.
 - d. Firestone Metal Products, Anoka, MN www.unaclad.com.
 - e. MBCI, Houston, TX www.mbc.com.
 - f. Metal Sales Manufacturing Corp, Sellersburg, IN www.mtlsales.com.
 - g. Petersen Aluminum Corp, Elk Grove, IL www.pac-clad.com.
 - h. Ryerson, Chicago, IL www.ryerson.com.
 - i. Equal as approved by Architect before installation. See Section 01 6200.
- B. Materials:
 - 1. Sheet Metal:
 - a. Galvanized iron or steel meeting requirements of ASTM A 653, G 90 or Galvalume steel meeting requirements of ASTM A 792 AZ50, 50 ksi.
 - 1) 22 ga 0.792 mm for hold-down clips.
 - 2) 24 ga 0.635 mm for all other.
- C. Fabrication:
 - 1. Form accurately to details.
 - 2. Profiles, bends, and intersections shall be even and true to line.
 - 3. Fold exposed edges 1/2 inch 13 mm to provide stiffness.
- D. Finish:
 - 1. Metal exposed to view shall have face coating of polyvinylidene Fluoride (PVF₂) Resin-base finish (Kynar 500 or Hylar 5000) containing 70 percent minimum PVF₂ in resin portion of formula. Thermo-cured two coat system consisting of corrosion inhibiting epoxy primer and top coat

- factory applied over properly pre-treated metal. Reverse side coating shall be thermo-cured system consisting of corrosion inhibiting epoxy primer applied over properly pre-treated metal.
2. Color as selected by Architect from Manufacturer's standard colors.

2.2 ACCESSORY PRODUCTS

- A. Sealants: Rubber base type conforming to Fed Spec TC-S-00230.
- B. Fasteners:
 1. Of strength and type consistent with function.
 2. Nails: Hot-dipped galvanized.
 3. Screws, Bolts, And Accessory Fasteners: Galvanized or other acceptable corrosion resistant treatment.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install with small, watertight seams.
- B. Slope to provide positive drainage.
- C. Provide sufficient hold down clips to insure true alignment and security against wind.
- D. Provide 4 inch 100 mm minimum overlap.
- E. Allow sufficient tolerance for expansion and contraction.
- F. Insulate work to prevent electrolytic action.

3.2 CLEANING

- A. Leave metals clean and free of defects, stains, and damaged finish.

END OF SECTION

SECTION 07 6310**STEEP SLOPE ROOF FLASHING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Products Furnished But Not Installed Under This Section:
 - 1. Pipe flashing for vents and flues.
- B. Related Requirements:
 - 1. Section 07 3113: Installation.
 - 2. Section 07 9213: Quality of sealants.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International:
 - a. ASTM A 653-02a, 'Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.'
 - b. ASTM A 792-05, 'Standard Specification for Steel Sheet, 55 Percent Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.'

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Manufacturers:
 - 1. Type Two Acceptable Manufacturers Of Metal:
 - a. CMG – Coated Metals Group, Denver, CO www.cmgmetals.com.
 - b. Englert Inc, Perth Amboy, NJ www.englertinc.com.
 - c. Fabral, Lancaster, PA www.fabral.com.
 - d. Firestone Metal Products, Anoka, MN www.unaclad.com.
 - e. MBCI, Houston, TX www.mbc.com.
 - f. Metal Sales Manufacturing Corp, Sellersburg, IN www.mtlsales.com.
 - g. Petersen Aluminum Corp, Elk Grove, IL www.pac-clad.com.
 - h. Ryerson, Chicago, IL www.ryerson.com.
 - i. Equal as approved by Architect before installation. See Section 01 6200.
- B. Drip Edge:
 - 1. Metal:
 - a. Steel: Minimum 24 ga 0.635 mm, hot-dipped galvanized to meet requirements of ASTM A 653, 1.25 oz/sq ft. or galvalume meeting requirements of ASTM A 792 AZ50, 50 ksi.
- C. Fabrication:
 - 1. Profiles, bends, and intersections shall be even and true to line.
- D. Finishes:
 - 1. Face coating polyvinylidene Fluoride (PVF₂) Resin-base finish (Kynar 500 or Hylar 5000) for coil coating components containing 70 percent minimum PVF₂ in resin portion of formula. Thermo-cured two coat system consisting of corrosion inhibiting epoxy primer and top coat factory applied over properly pre-treated metal.

2. Reverse side coating of steel flashings to be thermo-cured system consisting of corrosion inhibiting epoxy primer applied over properly pre-treated metal.
3. Color as selected by Architect from Manufacturer's standard colors.

2.2 ACCESSORY PRODUCTS

- A. Pipe Flashing For Plumbing Vent Lines:
 1. 16 oz sheet copper or 4 lb per sq ft lead flashing.
 2. Flashing base shall be at least 24 inches 600 mm square.
- B. Roof Jacks For Metal Flues: Factory-made galvanized steel.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Interface With Other Work: Coordinate with pipe installers for proper size of roof jacks and pipe flashing.
- B. Pipe Flashing For Plumbing Vent Lines.
 1. Copper: Fit snugly around pipes. Calk between copper flashing and pipe with specified sealant.
 2. Lead: Fit around pipes and turn down into pipe 1/2 inch 13 mm with turned edge hammered against pipe wall.

END OF SECTION

SECTION 07 6322**STEEL FASCIA****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
1. Furnish and install metal fascia as described in Contract Documents.

1.2 REFERENCES

- A. Reference Standards:
1. ASTM International:
 - a. ASTM A 653-02a, 'Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.'
 - b. ASTM A 792-05, 'Standard Specification for Steel Sheet, 55 Percent Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.'

1.3 WARRANTY

- A. Manufacturer's written 20-year guarantee for finish.

PART 2 - PRODUCTS**2.1 ASSEMBLIES**

- A. Manufacturers:
1. Type One Acceptable Manufacturers Of Metal:
 - a. AEP / Span, Dallas, TX www.aep-span.com.
 - b. ATAS Aluminum Products, Allentown, PA www.atas.com
 - c. CMG – Coated Metals Group, Denver, CO www.cmgmetals.com.
 - d. Firestone Metal Products, Anoka, MN www.unaclad.com.
 - e. Englert Inc, Perth Amboy, NJ www.englertinc.com.
 - f. Fabral, Lancaster, PA www.fabral.com.
 - g. Ryerson, Chicago, IL www.ryerson.com.
 - h. MBCI, Houston, TX www.mbc.com.
 - i. Metal Sales Manufacturing Corp, Sellersburg, IN www.mtlsales.com.
 - j. Petersen Aluminum Corp, Elk Grove, IL www.pac-clad.com
 - k. Equal as approved by Architect before bidding. See Section 01 6200.
- B. Materials: Minimum 24 ga, hot-dipped galvanized to meet requirements of ASTM A 653, 1.25 oz/sq ft or galvalume meeting requirements of ASTM A 792 AZ50, 50 ksi and complete with accessories recommended by Manufacturer for proper installation.
- C. Fabrication: Fascia may either be shop-fabricated using metal from a specified manufacturer, or a factory-fabricated standard system from a specified manufacturer.
- D. Finishes:
1. Face coating polyvinylidene Fluoride (PVF₂) Resin-base finish (Kynar 500 or Hylar 5000) for coil coating components containing 70 percent minimum PVF₂ in resin portion of formula. Thermo-

- cured two coat system consisting of corrosion inhibiting epoxy primer and top coat factory applied over properly pre-treated metal.
2. Reverse side coating thermo-cured system consisting of corrosion inhibiting epoxy primer applied over properly pre-treated metal.
 3. Color as selected by Architect from Manufacturer's standard colors.

2.2 ACCESSORY PRODUCTS

- A. Fastening Devices: Galvanized steel screws.
- B. Continuous Soffit Vent:
 1. Type Three Acceptable Products:
 - a. Vent-A-Strip by Alcoa Building Products, Sydney, OH www.alcoa.com/alcoahomes.
 - b. Equal as approved by Architect before installation. See Section 01 6200.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Conceal fasteners except where details might require a minimum number to be exposed. Paint heads of exposed fasteners to match background.
- B. Install with slip joints at each end. Screw to substrate through pre-drilled, over-size holes.
- C. Isolate from dissimilar metals not part of fascia system to prevent electrolytic action.
- D. Repair buckling or bowing due to improper installation at no cost to Owner.

END OF SECTION

SECTION 07 7123**MANUFACTURED GUTTERS AND DOWNSPOUTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install gutters and downspouts as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 07 9213: Quality of sealants for joints.

1.2 REFERENCES

- A. Reference Standard:
 - 1. Sheet Metal & Air Conditioning Contractors National Association Inc:
 - a. SMACNA Architectural Sheet Metal Manual, 5th edition 1993.

1.3 SUBMITTALS

- A. Action Submittals:
 - 1. Shop Drawings: Show gutter cross-section, mounting method, gauge of metal, expansion joint design and locations, and downspout locations minimum.

PART 2 - PRODUCTS**2.1 ASSEMBLIES**

- A. Manufacturers:
 - 1. Type Two Acceptable Manufacturers of Metal:
 - a. CMG – Coated Metals Group, Denver, CO www.cmgmetals.com.
 - b. Englert Inc, Perth Amboy, NJ www.englertinc.com.
 - c. Fabral, Jackson, GA www.fabral.com.
 - d. Firestone Metal Products, Anoka, MN www.unaclad.com.
 - e. MBCI, Houston, TX www.mbc.com.
 - f. Metal Sales Manufacturing Corp, Sellersburg, IN www.mtlsales.com.
 - g. Petersen Aluminum Corp, Elk Grove, IL www.pac-clad.com.
 - h. Reynolds Metals Company, Richmond, VA www.rmc.com.
 - i. Ryerson, Chicago, IL www.ryerson.com.
 - j. Equal as approved by Architect before installation. See Section 01 6200.
- B. Materials
 - 1. Steel:
 - a. Downspouts: Rectangular, 26 ga 0.478 mm galvanized steel including necessary elbows.
 - b. Gutters: 24 ga 0.635 mm galvanized steel.
 - c. Brackets: 22 ga 0.792 mm galvanized steel or 26 ga 0.478 mm double-hemmed minimum.
- C. Fabrication:
 - 1. Fabricate in accordance with SMACNA Manual recommendations, where applicable.
 - 2. Cross-sectional configuration of gutter shall be Style A, Page 1.11 of SMACNA Manual.
 - 3. Form accurately to details.

4. Profiles, bends, and intersections shall be even and true to line.

D. Finishes:

1. Metal exposed to view shall have face coating of polyvinylidene Fluoride (PVF₂) Resin-base finish (Kynar 500 or Hylar 5000) containing 70 percent minimum PVF₂ in resin portion of formula. Thermo-cured two coat system consisting of corrosion inhibiting epoxy primer and top coat factory applied over properly pre-treated metal. Reverse side coating shall be thermo-cured system consisting of corrosion inhibiting epoxy primer applied over properly pre-treated metal.
2. Color as selected by Architect from Manufacturer's standard colors.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before starting work, verify governing dimensions at building. Inspect for conditions that would prevent installation of specified system. Do not install over improper conditions.

3.2 INSTALLATION

- A. Insulate work from fascia as necessary to prevent electrolytic action.
- B. Allow no more than 40 feet between downspouts. Lap joints in downspouts **1-1/2 inches 38 mm** minimum in direction of water flow.
- C. Furnish and install outlet tubes and gutter ends where required. Furnish and install expansion joints in runs exceeding **50 feet 15 meters** and in runs that are restrained at both ends. Lap other joints in gutter one inch minimum, apply sealant in lap, and rivet **2 inches 50 mm** on center maximum.

3.3 FIELD QUALITY CONTROL

- A. Field Tests: At completion of this work, block downspouts and flood gutters. Notify Architect two working days before testing. Repair leaks and adjust for proper drainage.

3.4 CLEANING

- A. Leave metals clean and free of defects, stains, and damaged finish.

END OF SECTION

SECTION 07 9213**ELASTOMERIC JOINT SEALANTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install sealants not specified to be furnished and installed under other Sections.
 - 2. Quality of sealants to be used on Project not specified elsewhere, including submittal, material, and installation requirements.
- B. Related Requirements:
 - 1. Removing existing sealants specified in Sections where work required.
 - 2. Furnishing and installing of sealants is specified in Sections specifying work to receive new sealants.
 - 3. Section 07 2419: Sealants for EIF Systems.

1.2 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data:
 - a. Manufacturer's literature and installation recommendations for each Product.
 - b. Schedule showing joints requiring sealants. Show also backing and primer to be used.
- B. Informational Submittals:
 - 1. Manufacturer Report: Certificate from Manufacturer indicating date of manufacture.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Handle to prevent inclusion of foreign matter, damage by water, or breakage.
- B. Deliver and keep in original containers until ready for use.
- C. Store in a cool place, but never under 40 deg F 4 deg C.

PART 2 - PRODUCTS**2.1 SYSTEMS**

- A. Manufacturers:
 - 1. Manufacturer List:
 - a. Dow Corning Corp, Midland, MI www.dowcorning.com.
 - b. GE Sealants & Adhesives, Huntersville, NC .
 - c. Laticrete International Inc, Bethany, CT www.laticrete.com.
 - d. Sherwin-Williams, Cleveland, OH www.sherwin-williams.com.
 - e. Sika Corporation, Lyndhurst, NJ www.sikaconstruction.com .
 - f. Tremco, Cleveland, OH www.tremcosealants.com .
- B. Materials:
 - 1. Sealants provided shall meet Manufacturer's shelf-life requirements.
 - 2. Sealants At Exterior Building Elements:

- a. Louvers.
 - b. Wall penetrations.
 - c. Connections.
 - d. Parapet caps.
 - e. Other joints necessary to seal off building from outside air and moisture.
 - f. Category Four Approved Products. See Section 01 6200 for definitions of Categories.
 - 1) Dow Corning:
 - a) Primer: 1200.
 - b) Sealant: 791.
 - 2) GE Sealants & Adhesives:
 - a) Primer: SS4044.
 - b) Sealant: Silpruf SCS 2000.
 - 3) Tremco:
 - a) Primer:
 - (1) Metal: No. 20.
 - (2) Other: No. 23.
 - b) Sealant: Spectrum 1.
3. Sealants At Exterior Sheet Metal And Miscellaneous:
 - a. Penetrations in soffits and fascias.
 - b. Roof vents and flues.
 - c. Flashings.
 - d. Gutters.
 - e. Category Four Approved Products. See Section 01 6200 for definitions of Categories.
 - 1) 791 or 790 by Dow Corning.
 - 2) Sikaflex 15LM by Sika Corp.
 - 3) Tremsil 600 by Tremco.
 4. Color: As selected by Architect from Manufacturer's standard colors.

2.2 ACCESSORY PRODUCTS

- A. Backing: Flexible closed cell, non-gassing polyurethane or polyolefin rod or bond breaker tape as recommended by Sealant Manufacturer for joints being sealed.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Remove existing sealants where specified. Surfaces shall be clean, dry, and free of dust, oil, grease, dew, or frost.
- B. Apply primer, if required.
- C. Joint Backing:
 1. Rod for open joints shall be at least 1-1/2 times width of open joint and of thickness to give solid backing. Backing shall fill up joint so depth of sealant bite is no more than **3/8 inch 10 mm** deep.
 2. Apply bond-breaker tape in shallow joints as recommended by Sealant Manufacturer.

3.2 APPLICATION

- A. Do not use damaged or deteriorated materials.
- B. Apply sealant with hand-calking gun with nozzle of proper size to fit joints. Use sufficient pressure to insure full contact to both sides of joint to full depth of joint. Apply sealants in vertical joints from bottom to top.

- C. Tool joints immediately after application of sealant if required to achieve full bedding to substrate or to achieve smooth sealant surface. Tool joints in opposite direction from application direction, i.e., in vertical joints, from the top down. Do not 'wet tool' sealants.
- D. Depth of sealant bite shall be **1/4 inch 6 mm** minimum and **1/2 inch 13 mm** maximum, but never more than one half or less than one fourth joint width.
- E. Do not apply caulking at temperatures below **40 deg F 4 deg C**.
- F. Calk gaps between painted or coated substrates and unfinished or pre-finished substrates. Calk gaps larger than **3/16 inch 9 mm** between painted or coated substrates.

3.3 CLEANING

- A. Clean adjacent materials, which have been soiled, immediately (before setting) as recommended by Manufacturer.

END OF SECTION

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DIVISION 09: FINISHES

09 9000 PAINTS AND COATINGS

- 09 9001 COMMON PAINTING AND COATING REQUIREMENTS (09901)
- 09 9113 EXTERIOR PAINTED GALVANIZED METAL (09913)

END OF TABLE OF CONTENTS

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SECTION 09 9001

COMMON PAINTING AND COATING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 1. Common procedures and requirements for field-applied painting and coating.
- B. Related Sections:
 1. Section 07 9213: Quality of Elastomeric Joint Sealants.

1.2 REFERENCES

- A. Master Painters Institute:
 1. MPI(a), Mar 2001, 'Architectural Painting Specification Manual.'
 2. MPI(r), Mar 2001, 'Maintenance Repainting Manual.'

1.3 DEFINITIONS

- A. Gloss Levels:
 1. Specified paint gloss level shall be defined as sheen rating of applied paint, in accordance with following terms and values, unless specified otherwise for a specific paint system.

Gloss Level '1'	Traditional matte finish - flat	0 to 5 units at 60 degrees to 10 units maximum at 85 degrees.
Gloss Level '2'	High side sheen flat - 'velvet-like' finish	10 units maximum at 60 degrees and 10 to 35 units at 85 degrees.
Gloss Level '3'	Traditional 'eggshell-like' finish	10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees.
Gloss Level '4'	'Satin-like' finish	20 to 35 units at 60 degrees and 35 units minimum at 85 degrees.
Gloss Level '5'	Traditional semi-gloss	35 to 70 units at 60 degrees.
Gloss Level '6'	Traditional gloss	70 to 85 units at 60 degrees.
Gloss Level '7'	High gloss	More than 85 units at 60 degrees.

- B. Properly Painted Surface: Surface that is uniform in appearance, color, and sheen and free of foreign material, lumps, skins, runs, sags, holidays, misses, strike-through, and insufficient coverage. Surface free of drips, spatters, spills, and overspray caused by Paint Applicator. Compliance will be determined when viewed without magnification at a distance of 5 feet minimum under normal lighting conditions and from normal viewing position (MPI(a), PDCA P1.92).
- C. Damage Caused By Others: Damage caused by individuals other than those under direct control of Painting Applicator (MPI(a), PDCA P1.92).
- D. Latent Damage: Damage or conditions beyond control of Painting Applicator caused by conditions not apparent at time of initial painting or coating work.

1.4 SUBMITTALS

- A. Product Data:
 1. Include following information for each painting system, arranged in same order as in Project Manual.

- a. Manufacturer's cut sheet for each component of system indicating ingredients and percentages by weight and by volume, environmental restrictions for application, and film thicknesses and spread rates.
 - b. Copies of appropriate entries from MPI Approved Product List. Products from MPI Approved Product List is mandatory for Sections 09 9112, 09 9123 and 09 9124. If proposed manufacturer has products listed for these three Sections, but not for other Sections, Architect may approve products submitted by proposed manufacturer for other Sections.
 - c. Manufacturer's substrate preparation instructions and application instruction for each painting system used on Project.
 - d. Confirmation of colors selected and that each area to be painted or coated has color selected for it.
2. Provide two copies of Product Data submission, one copy to be kept on Project site and second copy to be included in Operations And Maintenance Manual.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Paint and painting materials shall be free of lead and mercury, and have VOC levels acceptable to local jurisdiction.
- B. Field Samples:
 1. Before application of any paint system, meet on Project site with Architect, Owner's representative, and Manufacturer's representative. Architect may select one surface for application of each paint system specified. This process will include establishing acceptable substrate conditions required for Project before application of paints and coatings.
 2. Apply paint systems to surfaces indicated by Architect following procedures outlined in Contract Documents and Product Data submission specified above.
 3. After approval of samples, proceed with application of paint system throughout Project. Approved samples will serve as standard of acceptability.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver specified products in sealed, original containers with Manufacturer's original labels intact on each container. Deliver amount of materials necessary to meet Project requirements in single shipment. Notify Architect two working days before delivery of paint.
- B. Store materials in single place.
- C. Keep storage area clean and rectify any damage to area at completion of work of this Section. Maintain storage area at 55 deg F 13 deg C minimum.

1.7 PROJECT CONDITIONS

- A. Project Environmental Conditions:
 1. Perform painting operations at temperature and humidity conditions recommended by Manufacturer for each operation and for each product.

1.8 SCHEDULING

- A. Coordinate with other trades for materials and systems that require painting before installation.
- B. Schedule painting and coating work to begin when work upon which painting and coating work is dependent has been completed. Schedule installation of pre-finished and non-painted items, which are to be installed on painted surfaces, after application of final finishes.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials used for any painting system shall be from single manufacturer unless approved otherwise in writing by painting system manufacturer. Include such approvals in Product Data submittal.
- B. Linseed oil, shellac, turpentine, and other painting materials shall be pure, be compatible with other coating materials, bear identifying labels on containers, and be of highest quality of an approved manufacturer listed in MPI manuals. Tinting color shall be best grade of type recommended by Manufacturer of paint or stain used on Project.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Instructions to applicator to begin painting and coating work will indicate that substrates to receive painting and coating materials have been previously inspected as part of work of other Sections and are complete and ready for application of painting and coating systems as specified in those Sections.
- B. Before beginning work of this Section, examine, and test surfaces to be painted or coated for adhesion of painting and coating systems. Report in writing to Architect of conditions that will adversely affect adhesion of painting and coating work. Do not apply painting and coating systems until party responsible for adverse condition has corrected adverse condition.
- C. Report defects in substrates that become apparent after application of primer or first finish coat to Architect in writing and do not proceed with further work on defective substrate until such defects are corrected by party responsible for defect.

3.2 PREPARATION

- A. Protection:
 - 1. Remove rags and waste used in painting operations from building each night. Take every precaution to avoid danger of fire.
 - 2. Protect other finish work and adjacent materials during painting. Do not splatter, drip, or paint surfaces not intended to be painted. These items will not be spelled out in detail but pay special attention to the following:
 - a. Do not paint finish copper, bronze, chromium plate, nickel, stainless steel, anodized aluminum, or monel metal except as explicitly specified.
- B. Surface Preparation:
 - 1. Prepare surfaces in accordance with MPI requirements and requirements of Manufacturer for each painting system specified, unless instructed differently in Contract Documents. Bring conflicts to attention of Architect in writing.
 - 2. Surfaces to be painted shall be clean and free of loose dirt. Clean and dust surfaces before painting or finishing.
 - 3. Do no exterior painting while surface is damp, unless recommended by Manufacturer, nor during rainy or frosty weather. Interior surfaces shall be dry before painting. Moisture content of materials to be painted shall be within tolerances acceptable to Paint Manufacturer.

3.3 APPLICATION

- A. Paint or finish complete all surfaces to be painted or coated as described in Contract Documents, including but not limited to following items.

1. Paint mechanical, and electrical, items that require field painting as indicated in Contract Documents. These include but are not limited to:
 - a. Mechanical flues and pipes penetrating roof.
- B. Apply sealant in gaps 3/16 inch and smaller between two substrates that are both to be painted or coated. Sealants in other gaps furnished and installed under Section 07 9213.
- C. In multiple coat paint work, tint each succeeding coat with slightly lighter color, but approximating shade of final coat, so it is possible to check application of specified number of coats. Tint final coat to required color.
- D. Spread materials smoothly and evenly. Apply coats to not less than wet and dry film thicknesses and at spreading rates for specified products as recommended by Manufacturer.
- E. Touch up suction spots after application of first finish coat.
- F. Paint shall be thoroughly dry and surfaces clean before applying succeeding coats.
- G. Make edges of paint adjoining other materials or colors clean, sharp, and without overlapping.

3.4 ADJUSTMENT

- A. Correct deficiencies in workmanship as required to leave surfaces in conformance with 'Properly Painted Surface,' as defined in this Section. Correction of 'Latent Damage' and 'Damage Caused By Others,' as defined in this Section, is not included in work of this Section.

3.5 CLEANING

- A. As work proceeds and upon completion of work of any painting Section, remove paint spots from floors, walls, glass, or other surfaces and leave work clean, orderly, and in acceptable condition. Remove debris caused by work of paint Sections from premises.

3.6 PAINT COLOR SCHEDULE

- A. Color Levels:
 1. Color Level II:
 - a. Number and placement of interior and exterior paint colors and gloss levels shall be as defined by Color Level II from MPI Manual, PDCA P3-93 as modified in following paragraph.
 - b. No more than one paint color or gloss level will be selected for same substrate within designated interior rooms or exterior areas.
 2. Color Level III:
 - a. Number and placement of interior and exterior paint colors and gloss levels shall be Color Level III from MPI Manual, PDCA P3-93 as modified in following paragraph.
 - b. Several paint colors or gloss levels will be selected for same substrate within designated interior rooms or exterior areas.

END OF SECTION

SECTION 09 9113**EXTERIOR PAINTED GALVANIZED METAL****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Preparing and painting new exterior exposed galvanized metal surfaces as Described in Contract Documents.
 - 2. Preparing and painting following existing exterior exposed galvanized metal surfaces as described in Contract Documents.
 - a. Pipes
 - b. Flues
 - c. Roof jacks
 - d. Other such metal flashings
- B. Related Requirements:
 - 1. Section 09 9001: Common Painting Requirements.

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Category Four Approved Products and Manufacturers. See Section 01 6200 for definitions of Categories.
 - a. Products listed in edition of MPI Approved Product List current at time of bidding and later are approved, providing they meet VOC requirements in force where Project is located.
- B. Description:
 - 1. Exposed Miscellaneous Structural Steel:
 - a. New Surfaces: Use MPI(a) EXT 5.3D Pigmented Polyurethane Finish system.
 - b. Previously Finished Work: Use MPI(r) REX 5.3D Pigmented Polyurethane Finish system.
 - 2. All Other:
 - a. New Surfaces: Use MPI(a) EXT 5.3H Latex Finish system
 - b. Previously Finished Surfaces: Use MPI(r) REX 5.3H Latex Finish system.
- C. Performance:
 - 1. Design Criteria:
 - a. New Surfaces: MPI Premium Grade finish requirements.
 - b. Deteriorated Existing Surfaces: MPI Premium Grade finish requirements.
 - c. Sound Existing Surfaces: MPI Custom Grade finish requirements.
 - d. Gloss / Sheen Level Required: Gloss Level 5.
- D. Materials:
 - 1. Polyurethane:
 - a. Vinyl Wash Primer Coat: MPI Product 80.
 - b. Finish Coats:
 - 1) Epoxy MPI Product 101.
 - 2) Polyurethane MPI Product 72.
 - 2. Latex:
 - a. Waterborne Primer Coat: MPI Product 134.
 - b. Finish Coats: MPI Product 11.

PART 3 - EXECUTION**3.1 APPLICATION**

- A. General: See appropriate paragraphs of Section 09 9001.
- B. New Surfaces:
 - 1. Clean 'passivated' or 'stabilized' galvanized steel as specified in SSPC-SP1.
 - 2. After removal of 'passivated' or 'stabilized' coating or for surfaces without coating, clean surfaces to be painted with mineral spirits or product recommended by Paint Manufacturer. Change to clean rags or wiping cloths regularly to reduce possibility of re-contamination of surface.
 - 3. Apply prime coat.
 - 4. Apply finish coats.
- C. Existing Painted Surfaces:
 - 1. Remove deteriorated and chalked existing paint and rust deposits down to sound substrate by sanding, scraping, or wire brushing.
 - 2. Clean existing sound painted surfaces as well as scraped and sanded existing painted surfaces as recommended by Paint Manufacturer.
 - 3. Apply prime coat.
 - 4. Apply finish coats.
- D. Existing Unpainted Surfaces:
 - 1. Wirebrush or power wash as necessary to remove 'white rust.'
 - 2. Apply prime coat.
 - 3. Apply finish coats.

END OF SECTION