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This MANU-SPEC^a utilizes the Construction Specifications Institute (CSI) *Manual of Practice*, including *MasterFormat*®, *SectionFormat*® and *PageFormat*®. A MANU-SPEC is a manufacturer-specific product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies preformed metal wall and roof panels and corrugated panels, including fascia, soffit and liner panels. Panels are composed of either Galvalume, galvanized or aluminum substrates, prefinished and factory-formed, marketed under the Multi-Rib, Multi-V, Mega-Rib, Max-Rib, Mini-Rib, R-Panel, Mesa, U-Panel, 5-V, MarqueeLok, M-Cor, Matrix, Multi-Cor, MCP (McElroy Canopy Panel and MSR trade names. Panel finishes include a fluoropolymer (70% Kynar 500^a or 70% Hylar 5000^a) resin coating or siliconized polyester systems. (Kynar 500 is a registered trademark of Arkema, Inc.; Hylar 5000 is a registered trademark of Ausimont USA.) Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles. This MANU-SPEC does not include other McElroy Metal, Inc., products, such as Sheet Metal Roofing.

SECTION 07410 METAL ROOF & WALL PANELS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Factory-formed metal roof and wall panels, including fascia, soffit and liner panels and includes:
1. Factory-formed panels in vertical installation.
 2. Factory-formed panels in horizontal installation.
 3. Metal flashings and trim.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers per CSI *MasterFormat* and specifier's practice.

- B. Related Sections: Section(s) related to this section include:
1. Cold Formed Metal Framing: Division Metal Framing Section.
 2. Building Insulation: Division 7 Building Insulation Section.
 3. Sealants: Division 7 Joint Sealers Sections.

Specifier Note: Paragraphs below list industry standards referenced in this section. Verify use of listed standards and add edition date of standards retained. Conditions of the Contract or Division 1 References Section may establish edition date of standards referenced. This article does not require compliance with standard, but is merely a listing of references used.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
1. ASTM A653/A653M Standard Specification for Steel Sheets, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 2. ASTM A792/A792M Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy Coated by the Hot-Dip Process.
 3. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 4. ASTM D2247 Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
 5. ASTM E1680 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Metal Roof Systems Under Specified Pressure Differences Across the Specimen.
 6. ASTM E1646 Standard Test Method for Water Penetration of Metal Roof Systems by Uniform Static Air Pressure Difference.
 7. ASTM G90 Standard Practice for Performing Accelerated Outdoor Weathering of Non-Metallic Materials Using Concentrated Natural Sunlight.

1.03 SYSTEM DESCRIPTION

Specifier Note: Delete paragraph below if any of these panels are selected: Multi-V, Max-Rib, Mini-Rib, Multi-Cor, M-Cor, MarqueeLok, Matrix, U-Panel, Mesa

- A. Panel Performance Requirements: Provide panels, which have been manufactured, fabricated and installed to withstand structural and thermal movement, wind loading and weather exposure to maintain manufacturer's performance criteria without defects, damage, failure or infiltration of water.

Specifier Note: Select performance requirements based upon the panel selected in Section 2.02

Multi-Rib

1. Air Infiltration: Maximum 0.007 cfm/lf (0.039 m³/hr/m) of seam at static pressure of +/-6.24 psf (0.30 kPa) when tested per ASTM E1680.
2. Water Penetration: No uncontrolled water penetration through the panel joints at a static pressure of 12.0 psf (0.57 kPa) when tested in accordance with ASTM E1646.

Mega-Rib

3. Air Infiltration: Maximum 0.011 cfm/lf (0.061 m³/hr/m) of seam at static pressure of +/-6.24 psf (0.30 kPa) when tested per ASTM E1680.
4. Water Penetration: No uncontrolled water penetration through the panel joints at a static pressure of 12.0 psf (0.57 kPa) when tested in accordance with ASTM E1646.

R-Panel

5. Air Infiltration: Maximum 0.011 cfm/lf (0.061 m³/hr/m) of seam at static pressure of +/-6.24 psf (0.30 kPa) when tested per ASTM E1680.
6. Water Penetration: No uncontrolled water penetration through the panel joints at a static pressure of 12.0 psf (0.57 kPa) when tested in accordance with ASTM E1646.

Specifier Note: Delete paragraph below unless Kynar painted finish is selected.

- B. Finish Performance Requirements:
1. Color Change and Fade Resistance: No cracking, peeling, blistering or loss of adhesion when tested in accordance with ASTM G23; color change, after removal of surface deposits such as dirt or chalk, maximum 5 Δ Hunter units.
 2. Humidity Resistance: No blistering, peeling or loss of adhesion, after 2000 hours testing in accordance with ASTM D2247.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor either before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.

1.04 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit manufacturer's product data for specified products.
- C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors and textures.
1. Indicate layout of panels and panel sizes, including custom-fabricated panels if indicated; indicate each item of trim and accessories.
 2. Indicate in detailed drawings profile and gauge of interior and exterior sheets, and locations and types of fasteners; indicate locations, gauges, shapes and methods of attachment of panels, trim and accessory items.
 3. Indicate products/materials required for construction activities of this section not supplied by manufacturer of products of this section.
- D. Samples: Submit selection and verification samples for finishes, colors and textures.

Specifier Note: Delete paragraph below if colors and finishes are pre-selected.

1. Selection Samples: For each product requiring color selection, 2 sets of manufacturer's sample chips representing full range of colors and finishes available.
 2. Verification Samples: For each color and finish selected, 2 chips indicating match to selected color and finish.
- E. Quality Assurance Submittals: Submit the following:

Specifier Note: Delete paragraph below if substitutions are prohibited.

1. Contractor Certificates: Contractor's certification that:
 - a. Manufacturer of products of this section meets specified qualifications.
 - b. Installer of products of this section meets specified qualifications.
2. Manufacturer Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical requirements.

3. Manufacturer's Instructions: Manufacturer's installation instructions.
- F. Closeout Submittals: Submit the following:
1. Warranty: Warranty documents specified herein.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria which establish an overall level of quality for products and workmanship for this section. Coordinate Article below with Division 1 Quality Assurance Section.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in the installation of work similar to that required for this project.

Specifier Note: Retain below paragraph to suit project requirement; otherwise, delete below paragraph.

1. Certificate: When requested, submit certificate indicating qualification.
- B. Sheet Metal Industry Standard: Comply with Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Architectural Sheet Metal Manual.

Specifier Note: Retain paragraph below for erected assemblies, either onsite or offsite, required for review of construction, coordination of work of several sections, testing or observation of operation. Mock-ups establish standards by which work will be judged. Coordinate below with Division 1 Quality Control (Mock-up Requirements) Section.

- C. Mock-Ups: Install at project site a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's acceptance of finish color, texture and pattern and workmanship standard. Comply with Division 1 Quality Control, Mock-Up Requirements Section.
1. Include eave, ridge, valley, gable and hip conditions.

Specifier Note: Edit paragraph below to specifying mock-up size.

2. Mock-Up Size: [specify size]
 3. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
 4. Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.
- D. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination, Project Meetings Section.

1.06 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirements Sections.
1. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Identify fabricated components with UL 90 label where appropriate.
- C. Packing, Shipping, Handling and Unloading:
1. Bundle panels in waterproof wrapping paper when nested, or wooden crates when panels cannot be nested.
 2. Package trim and accessories in waterproof wrapping paper.
- D. Storage and Protection: Store materials protected from exposure to harmful conditions. Store material in dry, above-ground location.
1. Stack prefinished material to prevent twisting, bending, abrasion, scratching and denting. Elevate one end of each skid to allow for moisture run off.
 2. Store products of this section in manufacturer's unopened packaging until installation of products.
 3. Maintain dry, heated storage area for products of this section until installation of products.

1.07 PROJECT CONDITIONS

- A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

Specifier Note: Coordinate Article below with Conditions of the Contract and with Division 1 Closeout Submittals (Warranty) Section.

1.08 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

Manufacturer's Warranty: Submit, for Owner's acceptance, a sample of manufacturer's standard warranty document.

Specifier Note: Coordinate paragraph below with manufacturer's warranty requirements. McElroy Metal, Inc., offers a standard warranty against defects in product workmanship and materials, including deterioration of panel finish. Consult with manufacturer for specific project warranty requirements.

1. Warranty Period: [Specify term.] years commencing on Date of Substantial Completion.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "of equal" products.

2.01 METAL WALL & ROOF PANELS

Specifier Note: Paragraph below is a supplement to CSI *MasterFormat* and an addition to MANU-SPEC. Retain or delete paragraph below to suit project requirements and specifier's practice.

A. Manufacturer: McElroy Metal, Inc.

1. Contact: 1500 Hamilton Rd., Bossier City, LA 71111; Telephone: (800) 562-3576, (318) 747-8097; Fax: (318) 747-8099; E-mail: info@[mcelroymetal.com](mailto:info@mcelroymetal.com); website: www.mcelroymetal.com.
2. Proprietary Products: McElroy Preformed Wall and Roof Panels.

Specifier Note: Edit paragraph below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 1 Product Requirements (Product Substitution Procedures) Section.

B. Substitutions: No substitutions permitted.

2.02 MANUFACTURED UNITS

Specifier Note: Paragraphs below list proprietary wall and roof panels offered by McElroy Metal, Inc. Select panel type appropriate to project. Panels are factory formed. Matching flashing and trim may be factory formed or field formed from substrate material. Consult with manufacturer regarding product options. Select product characteristics required; delete characteristics not required.

Specifier Note: Delete panel types not required. If more than one panel type is required, give each a drawing designation name or type number. Coordinate panel types with drawings and consider a panel schedule at the end of this section, if required.

A. McElroy Metal Multi-Rib Panel:

Specifier Note: Edit paragraph below.

1. Profile: Major longitudinal ribs 1 3/16" (30 mm) deep, spaced 12" (305 mm) on center; minor longitudinal ribs centered between major ribs, spaced 3" (76 mm) on center panel; normal-run where ribs protrude from panel plane, viewed from exterior, reverse-run where ribs recede from panel plane, viewed from exterior.
2. Size: 36" (914 mm) cover width, lengths indicated on drawings.
3. Material : Galvalume Sheet Steel conforming to ASTM A792; AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

Specifier Note: Delete paragraph above or below. Galvalume is inventoried in 26 gauge, 24 gauge, 22 gauge. Galvalume with purlin leg is inventoried in 29 gauge and 26 gauge. Aluminum is inventoried in 0.024" (0.61 mm) and 0.032" (0.81 mm).

4. Material: Aluminum sheet conforming to ASTM B209; [-] sheet thickness.

Specifier Note: Select one paragraph from below options. Bare finish refers to unpainted galvalume. Mill finish refers to unpainted aluminum.

5. Finish: Bare.
6. Finish: Mill.
7. Finish: Stucco embossed texture.
8. Finish: Siliconized polyester color coat applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
9. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than 1 color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

B. McElroy Metal Mega-Rib Panel:

1. Profile: Longitudinal ribs 1 1/2" (38 mm) deep, spaced 7.2" (183 mm) on center.

2. Size: 36" (914 mm) cover width, lengths indicated on drawings.

Specifier Note: Delete one of the following two paragraphs below. Insert material thickness. Mega-Rib Galvalume is inventoried in 24 and 22 gauge. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

3. Material: Galvanized steel sheet conforming to ASTM A653, G90 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

Specifier Note: Delete all but one of the following four paragraphs. White polyester coating is inventoried for Mega-Rib 28 3/4" (730 mm) in Galvalume only. Bare finish is inventoried for Mega-Rib 28 3/4" (730 mm) in Galvalume only. Siliconized polyester coating is inventoried for Mega-Rib 28 3/4" (730 mm) in Galvalume only.

4. Finish: Manufacturer's standard white polyester coating.
5. Finish: Bare.
6. Finish: Siliconized polyester color coat applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
7. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than one color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

Specifier Note: Multi-V paragraph below specifies an exposed fastener panel, with fasteners positioned in the valleys making fasteners visually less apparent.

C. McElroy Metal Multi-V Panel:

1. Profile: Major longitudinal ribs 1 3/16" (30 mm) deep, spaced 12" (305 mm) on center; minor longitudinal ribs centered between major ribs.
2. Size: 36" (914 mm) cover width, lengths indicated on drawings.

Specifier Note: Edit paragraph below. Insert material thickness. Galvalume is inventoried in 29 gauge, 26 gauge and 24 gauge.

3. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

Specifier Note: Delete one of the following two paragraphs below.

4. Finish: Bare.
5. Finish: Siliconized polyester color coat applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
6. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than one color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

D. McElroy Metal Max-Rib Panel:

1. Profile: Major longitudinal ribs 3/4" (45 mm) deep, spaced 9" (229 mm) on center; minor longitudinal ribs centered between major ribs.
2. Size: 36" (914 mm) cover width, lengths indicated on drawings.

Specifier Note: Edit paragraph below. Insert material thickness. Galvalume is inventoried in 29 gauge, 26 gauge and 24 gauge.

3. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

4. Finish: Siliconized polyester color coat applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
5. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than 1 color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

E. McElroy Metal Mini-Rib Panel:

1. Profile: Longitudinal ribs 3/8" (9.5 mm) deep, spaced 3" (76 mm) on center.
2. Size: 36" (914 mm) cover width, lengths indicated on drawings.

Specifier Note: Delete one of the following two paragraphs below. Insert material thickness. Mini-Rib Galvalume is inventoried in 29 gauge, 26 gauge and 24 gauge. Mini-Rib galvanized is inventoried in 29 gauge only.

3. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

Specifier Note: Delete all but one of the following four paragraphs.

4. Finish: Bare.
5. Finish: Siliconized polyester color coat applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
6. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than one color is required, retain third Paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

F. McElroy Metal Multi-Cor Corrugated Panels:

1. Profile: Longitudinal ribs 7/8" (22.2 mm) deep, spaced 2.67" (68 mm) on center, 35 1/2" (902 mm) sheet width.
2. Size: 31 3/8" (813 mm) cover width, lengths indicated on drawings.

Specifier Note: Delete one of the following two paragraphs below. Insert material thickness. Multi-Cor Galvalume is inventoried in 29 gauge, 26 gauge and 24 gauge. Multi-Cor galvanized is inventoried in 29 gauge only.

3. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

4. Material: Galvanized steel sheet conforming to ASTM A653, G90 coating; [-] gauge sheet thickness.

Specifier Note: Delete all but one of the following four paragraphs.

5. Finish: Bare.
6. Finish: Siliconized polyester color coat applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
7. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than one color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.

- b. Color: [Specify color.].
 - c. Color: Specified in Schedule at end of section.
- G. McElroy M-Cor Corrugated Panel:
- 1. Profile: Longitudinal ribs 1/2" (12.7 mm) deep, spaced 2.67" (68 mm) on center, 39 3/8" (1000 mm) sheet width.
 - 2. Size: 37 3/8" (949 mm) cover width for wall applications, lengths indicated on drawings.
 - 3. Size: 34 7/8 (886 mm) cover width for sidewall applications, lengths indicated on drawings.

Specifier Note: Delete one of the following two paragraphs below. Insert material thickness. M-Cor Galvalume is inventoried in 29 gauge, 26 gauge and 24 gauge. M-Cor galvanized is inventoried in 29 gauge only.

- 4. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.
- 5. Material: Galvanized steel sheet conforming to ASTM A653, G90 coating; [_] gauge sheet thickness.

Specifier Note: Delete all but one of the following four paragraphs.

- 6. Finish: Manufacturer's standard white polyester coating.
- 7. Finish: Bare.
- 8. Finish: Siliconized polyester color coat applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
- 9. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than one color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
 - b. Color: [Specify color.].
 - c. Color: Specified in Schedule at end of section.
- H. McElroy MarqueeLok Wall, Soffit and Fascia Panel

- 1. Profile: 1" deep pan profile.

Specifier Note: Delete three of the following four paragraphs below to specify panel configuration

- a. Flat Pan
 - b. Flat Pan with perforations
 - c. Ribbed
 - d. Ribbed with perforations.
- 2. Size: 12" cover width, lengths indicated on drawings.

Specifier Note: Delete one of the following two paragraphs below. Insert material thickness. MarqueeLok is inventoried in 24 gauge Galvalume and .032 aluminum.

- 3. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.
- 4. Material: Aluminum sheet conforming to ASTM B209, [-] sheet thickness.

Specifier Note: Delete all but one of the following four paragraphs.

- 5. Finish: Bare.
- 6. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than one color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color.].

- c. Color: Specified in Schedule at end of section.

I. McElroy Metal R-Panel:

Specifier Note: Edit paragraph below.

1. Profile: Major longitudinal ribs 1 1/4" (32 mm) deep, spaced 12" (305 mm) on center; minor longitudinal ribs centered between major ribs, spaced 4" (102 mm) on center panel; normal-run where ribs protrude from panel plane, viewed from exterior, reverse-run where ribs recede from panel plane, viewed from exterior.
2. Size: 36" (914 mm) cover width, lengths indicated on drawings.
3. Material: Galvalume Sheet Steel conforming to ASTM A792; AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

Specifier Note: Delete paragraph above or below. Galvalume is inventoried in 26 gauge, 24 gauge, 22 gauge. Galvalume with purlin leg is inventoried 26 gauge.

4. Material: Aluminum sheet conforming to ASTM B209; [-] sheet thickness.

Specifier Note: Select one paragraph from below options. Bare finish refers to unpainted galvalume. Siliconized polyester coating is inventoried for 26 gauge galvalume only.

5. Finish: Bare.
6. Finish: Stucco embossed texture.
7. Finish: Siliconized polyester color coat applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
8. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than 1 color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

J. McElroy U-Panel:

Specifier Note: Edit paragraph below.

1. Profile: Major longitudinal ribs 47/64" (19 mm) deep, spaced 6" (152 mm) on center; normal-run where ribs protrude from panel plane, viewed from exterior, reverse-run where ribs recede from panel plane, viewed from exterior.
2. Size: 36" (914 mm) cover width, lengths indicated on drawings.
3. Material : Galvalume Sheet Steel conforming to ASTM A792; AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

Specifier Note: Delete paragraph above or below. Galvalume is inventoried in 26 gauge, 24 gauge, 22 gauge. .

Specifier Note: Select one paragraph from below options. White polyester coating is available for Galvalume and aluminum. Bare finish refers to unpainted galvalume. Mill finish refers to unpainted aluminum. Stucco embossed texture is inventoried for aluminum only. Siliconized polyester coating is inventoried for 26 gauge galvalume only.

4. Finish: Bare.
5. Finish: Stucco embossed texture.
6. Finish: Siliconized polyester color coat applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
7. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than 1 color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

K. McElroy Mesa Panel:

1. Profile: Major longitudinal ribs 3/4" (45 mm) deep, spaced 9" (229 mm) on center; minor longitudinal rib centered between major ribs.

2. Size: 36" (914 mm) cover width, lengths indicated on drawings.

Specifier Note: Edit paragraph below. Insert material thickness. Galvalume is inventoried in 29 gauge, 26 gauge and 24 gauge.

3. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.
.
4. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than 1 color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

L. McElroy 5V Panel:

1. Profile: Major longitudinal ribs 7/16" (11 mm) deep, spaced 12" (305 mm) on center; minor longitudinal ribs centered between major ribs.
2. Size: 24" (610 mm) cover width, lengths indicated on drawings.

Specifier Note: Edit paragraph below. Insert material thickness. Galvalume is inventoried in 29 gauge and 26 gauge.

3. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.
.
4. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than 1 color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

M. McElroy Matrix Wall and Soffit Panel

1. Profile: 3/8" deep profile with inverted rib at 6" on center.

Specifier Note: Delete one of the following two paragraphs below to specify panel configuration

- a. With Perforations
 - b. Without perforations
2. Size: 12" cover width, lengths indicated on drawings.

Specifier Note: Delete one of the following two paragraphs below. Insert material thickness. Matrix is inventoried in 24 gauge and 29 gauge Galvalume and .032 aluminum.

3. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.
.
4. Material: Aluminum sheet conforming to ASTM B209, [-] sheet thickness.

Specifier Note: Delete all but one of the following four paragraphs.

5. Finish: Bare.
6. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than one color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

N. McElroy Metal MCP (McElroy Canopy Panel):

Specifier Note: Edit paragraph below.

1. Profile: Canopy panel pan with male seam 2.97" (75.43 mm) deep and female seam 3" (76.19 mm) deep at longitudinal panel edges.
2. Size: 16" (406 mm) cover width, lengths indicated on drawings.
3. Material: Galvalume Sheet Steel conforming to ASTM A792; AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

Specifier Note: Select one paragraph from below options. Bare finish refers to unpainted galvalume.

4. Finish: Bare.
5. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than 1 color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

O. McElroy Metal MSR (McElroy Shadow Rib):

Specifier Note: Edit paragraph below.

1. Profile: Major longitudinal rib 1 1/2" (38 mm) deep with male seam 2.97" (75.43 mm) deep and female seam 3" (76.19 mm) deep at longitudinal panel edges.
2. Size: 16" (406 mm) cover width, lengths indicated on drawings.
3. Material: Galvalume Sheet Steel conforming to ASTM A792; AZ55 coating for bare; AZ50 coating for painted; [-] gauge sheet thickness.

Specifier Note: Select one paragraph from below options. Bare finish refers to unpainted galvalume. Siliconized polyester coating is inventoried for 26 gauge galvalume only.

4. Finish: Bare.
5. Finish: Polyvinylidene fluoride color coat, minimum 70% polyvinylidene fluoride resin content, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following three paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than 1 color is required, retain third paragraph below and coordinate with section schedule.

- a. Color: Selected from full range of manufacturer's standard colors.
- b. Color: [Specify color].
- c. Color: Specified in Schedule at end of section.

P. Trim:

1. Manufacturer's standard sheet metal matching panel material and finish, break-formed to profiles indicated on drawings, and including, but not limited to:

Specifier Note: Delete items paragraph below not required.

- a. Copings.
- b. Gravel stops.
- c. Gutters and downspouts.
- d. Termination and transition strips.

Specifier Note: If a colored coating is specified above, determine method of color selection and delete all but one of the following four paragraphs. Coordinate selection method with requirements for submittal samples specified in Part 1. If more than one color is required, retain third paragraph below and coordinate with section schedule.

2. Color: Match panel finish.
 3. Color: Selected from full range of manufacturer's standard colors.
 4. Color: [Specify color.].
 5. Color: Specified in Schedule at end of section.
- Q. Clips and Fasteners: Supply items required for installation of panels in accordance with manufacturer's installation instructions and other indicated items; supply galvanized clips and fasteners.

2.03 MATERIALS

- A. Aluminum Sheet: ASTM B209, aluminum and aluminum alloy 3105 with H14 temper in accord with manufacturer's standard to suit forming operations and finish specified.
- B. Galvanized Steel Sheet: ASTM A653, G90 steel sheet, zinc coated (galvanized) by hot dip process, structural quality.

Specifier Note: Coordinate article below for related materials specified in other sections with product requirements of this section.

2.04 RELATED MATERIALS

- A. General: Coordinate use of related materials:
 1. Underlayment: Refer to Division 7 Roofing Section.
 2. Plywood Deck: Refer to Division 6 Rough Carpentry Section.
 3. Sealants: Refer to Division 7 Joint Sealants Section.

2.05 SOURCE QUALITY

- A. Source Quality: Obtain metal panel products from a single manufacturer.

PART 3 EXECUTION

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, recommendations and installations instructions for substrate verification, preparation requirements and installation.
 1. Strippable Film: Remove manufacturer's protective film, if any, from surfaces of roofing panels.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
 1. Verification of Conditions:
 - a. Panel support systems are ready for construction activities of this section and within specified tolerances.
 - b. Rough-in utilities are in correct locations.
 2. Installer's Examination:
 - a. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
 - b. Transmit 2 copies of installer's report to Architect within 24 hours of receipt.
 - c. Delay construction activities of this section until unacceptable conditions have been corrected.
 - d. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.03 PREPARATION

- A. Coordination: Coordinate metal roofing with other work including drainage, flashing and trim, deck substrates, parapets, copings, walls and other adjoining work to provide a noncorrosive and leakproof installation.
- B. Dissimilar Metals: Prevent galvanic action of dissimilar metals.

Specifier Note: Coordinate Article below with manufacturer's recommended installation details.

3.04 INSTALLATION

- A. General: Install metal roofing panels to profiles, patterns and drainage indicated and required for leakproof installation. Provide for structural and thermal movement of work. Seal joints for leakproof installation.
 1. Seams: Provide uniform, neat seams.
 2. Fasteners: Conceal fasteners where possible in exposed work. Cover and seal fasteners and anchors for watertight and leakproof installation.
 3. Sealant-Type Joints: Provide sealant-type joint where indicated. Form joints to conceal sealant. Comply with Division 7 Joint Sealants Section for sealant installation.

B. Panel Installation:

1. Install panels plumb, true and in correct alignment with structural framing, in accordance with shop drawings and manufacturer's printed installation instructions.
2. Install panels in horizontal installations using manufacturer's concealed fastening system only; sight-exposed fasteners are prohibited.
3. Install panels in vertical installations using manufacturer's concealed fastening system or non-corroding fasteners color-matched to panel.
4. Install trim using concealed fasteners where possible; sight-exposed non-corroding fasteners color-matched to trim are permitted on vertical surfaces only.

C. Installation Tolerances:

Specifier Note: Panel installation tolerances are dependent on tolerances of panel support system construction. Coordinate with other sections.

1. Variation from Plumb: Maximum 1/8" (3.2 mm) in 20 feet (6.096 m).
2. Variation from Level: Maximum 1/8" (3.2 mm) in 20 feet (6.096 m).
3. Variation from True Plane: Maximum 1/8" (3.2 mm) in 20 feet (6.096 m).

3.05 FIELD QUALITY REQUIREMENTS

- A. Site Tests (Post-Installation Testing): Owner reserves right to perform post-installation testing of installed metal panel installation.

Specifier Note: Edit paragraph below. Establish number and duration of periodic site visits with Owner and manufacturer and specify below. Consult with manufacturer for services required. Coordinate paragraph below with Division 1 Quality Assurance Section. Delete paragraph if manufacturer field services not required.

- B. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.

3.06 CLEANING

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.
1. Remove strippable coating and perform dry wipe-down cleaning of panels as erected.

3.07 PROTECTION

- A. Protection: Protect installed product's finish surfaces from damage during construction.
1. Protect installed products from damage by subsequent construction activities.
 2. Replace products having damage other than minor finish damage.
 3. Repair products having minor damage to finish in accordance with panel manufacturer's recommendations.
 4. Architect shall be sole judge of acceptability of repair to damaged finishes; replace products having rejected repairs.

Specifier Note: Retain Article below to suit project requirements. CSI PageFormat allows for Schedules, Forms and Tables to be located at the end of a section. Article may be used to describe specific criteria requirements of similar products or equipment.

3.08 SCHEDULES

Specifier Note: Retain paragraph below to suit project requirements. Reference a schedule or include a schedule as an attachment which indicates where to locate products and equipment.

- A. Schedules: Refer to panel schedule attached to this section.

END OF SECTION