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This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A MANU-SPEC is a manufacturer-specific proprietary 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. Specifier Notes precede specification text; delete notes 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 factory-formed metal wall, soffit and roof panels. These products are manufactured by Petersen Aluminum Corp. 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.

**SECTION 07 41 43
COMPOSITE ROOF PANELS**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: This Section specifies factory-formed metal wall, soffit and roof panels.
- B. Related Sections:

Specifier Note: Include in this Article only those sections that directly affect the work of this section. Do not include Division 00 or Division 01 sections since it is assumed that all technical sections are related to all project Division 00 and Division 01 sections to some degree.

- 1. Section [_____].

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Section 01 42 19 - Reference Standards may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

1.02 REFERENCES

- A. ASTM International:
 - 1. ASTM A653/A653 Standard Specification for Steel Sheet, 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 E283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - 5. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 - 6. ASTM E1592 Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform

Static Air Pressure Difference.

7. ASTM E1646 Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
 8. ASTM E1680 Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.
- B. FM Global (Factory Mutual):
1. FM Class I-90.
- C. Sheet Metal and Air Conditioning Contractor's National Association (SMACNA):
1. SMACNA Architectural Sheet Metal Manual.
- D. Underwriters Laboratories, Inc. (UL):
1. UL 263 Fire Tests of Building Construction and Materials.
 2. UL 580 Tests for Uplift Resistance of Roof Assemblies.
 3. UL 790 Standard Test Methods for Fire Tests of Roof Coverings.
 4. UL 1897 Uplift Tests for Roof Covering Systems.
 5. UL 2218 Impact Resistance of Prepared Roof Covering Materials.

1.03 SYSTEM DESCRIPTION

- A. Materials:
1. G90 hot-dipped galvanized Grade A structural quality steel in compliance with ASTM A653.
 2. Alloy 3105 [H14] [H34] aluminum panels in compliance with ASTM B209.
 3. Cold-rolled copper.
- B. Performance Requirements:
1. Wind uplift in compliance with UL Classification 580 for UL Classified 90 rated assemblies.
 2. Static air infiltration of 0.06 cfm/sf (0.028 liters/second) with 6.24 psi (43 kPa) air pressure differential as tested in accordance with ASTM E283.
 3. No water infiltration at inward static air pressure differential of not less than 6.24 psi (43 kPa) and not more than 12 psi (83 kPa) as tested in accordance with ASTM E331.

Specifier Note: Article below includes the submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Section 01 33 00 - Submittal Procedures.

1.04 ACTION SUBMITTALS

- A. General: Submit listed action submittals in accordance with Conditions of the Contract and Section [01 33 00 - Submittal Procedures] [_____].
- B. Shop Drawings: Indicate information on shop drawings as follows:
1. Layout, profiles and product components including dimensions, anchorage, erection details, flashing details, elevations, plans and sections required to indicate conditions.
- C. Samples: Submit as follows:
1. [Duplicate] [_____], [12 inch x 12 inch (305 x 305 mm)] [_____] samples of each [Roofing] [Soffit] [Wall panel] [_____] [And] [Flashing] product to show selected [Colors] [Finishes] [Textures] used on project.
- D. Product Data: Submit product data, including manufacturer's SPEC-DATA® product sheet, for specified products.
1. Material Safety Data Sheets (MSDS).

1.05 INFORMATION SUBMITTALS

- A. Quality Assurance:
1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
3. Manufacturer's Instructions: Manufacturer's installation instructions.

Specifier Note: Coordinate paragraph below with Part 3 Field Quality Requirements Article. Retain or delete as applicable.

- B. Manufacturer's Field Reports: Manufacturer's field reports specified.

1.06 CLOSEOUT SUBMITTALS

- A. Warranty: Submit warranty documents specified.
- B. Operation and Maintenance Data: Submit operation and maintenance data for installed products in accordance with Section [01 78 00 - Closeout Submittals] [_____].
 1. Include:
 - a. Manufacturer's instructions covering maintenance requirements.

1.07 QUALITY ASSURANCE

- A. Qualifications:
 1. Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
 2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction and approving erection method.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of the Contract and Section 01 41 00 - Regulatory Requirements. Repetitive statements should be avoided. Current data on building code requirements and product compliance may be obtained from manufacturer technical support specialists.

- B. Regulatory Requirements:
 1. FM Class I-90.
 2. SMACNA Architectural Sheet Metal Manual.
 3. UL 263.
 4. UL 580.
 5. UL 790.
 6. UL 1897.
 7. UL 2218.
- C. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with [Section 01 31 19 - Project Meetings] [_____].

1.08 DELIVERY, STORAGE & HANDLING

- A. General: Comply with [01 61 00 - Common Product Requirements] [_____].
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery:
 1. Deliver materials in manufacturer's original packaging with identification labels intact.
- D. Storage and Protection:
 1. Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
 2. Stack prefinished material to prevent twisting, bending, abrasion, scratching and denting.
 3. Elevate one end of each skid to allow for moisture runoff.
 4. Prevent contact with material that may cause corrosion, discoloration or staining.

5. Provide factory installed strippable vinyl film protective coating to panels.

E. Waste Management and Disposal:

Specifier Note: Environment: The disposal of packaging waste into landfill site demonstrates an inefficient use of natural resources and consumes valuable landfill space. Specifying appropriate packaging and construction waste management and disposal procedures may contribute to points required for LEED® construction project certification.

1. Separate waste materials for [Reuse] [And] [Recycling] [_____] in accordance with [Section 01 74 19 - Construction Waste Management and Disposal] [_____].

Specifier Note: Manufacturer may take back packaging and delivery materials for recycling.

2. Remove from site and dispose of packaging materials at appropriate recycling facilities.

3. Collect and separate for disposal [Paper] [Plastic] [Polystyrene] [Corrugated cardboard] [_____] packaging material [In appropriate onsite bins] [_____] for recycling.

Specifier Note: Coordinate article below with Conditions of the Contract and with [01 78 36 - Warranties] [_____].

1.09 PROJECT AMBIENT CONDITIONS

A. Installation Location: Assemble and erect components only when temperatures are above 40 degrees F (4 degrees C).

1.010 SEQUENCING

A. Sequence With Other Work: Comply with manufacturer’s written recommendations for sequencing construction operations.

1.011 WARRANTY

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

B. Manufacturer’s Warranty: Submit, for Owner’s acceptance, manufacturer’s standard warranty document executed by authorized company official. Manufacturer’s warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

Specifier Note: Coordinate article below with manufacturer’s warranty requirements.

C. Warranty: Commencing on date of acceptance by [Owner] [Architect] [Consultant] [_____].

1.012 MAINTENANCE

A. Comply with manufacturer’s written instructions to maintain installed product.

1.013 EXTRA MATERIALS

A. Provide maintenance materials in accordance with Section [01 78 00 - Closeout Submittals] [_____].

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Ensure manufacture has minimum [5] [_____] years experience in manufacturing components similar to or exceeding requirements of project.

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 “or equal” products.

2.02 SHEET METAL ROOFS, SOFFITS, WALL PANELS, TILES

A. Manufacturer: Petersen Aluminum Corp.

1. Contact: 1005 Tonne Rd., Elk Grove Village, IL 60007; Telephone: (800) 323-7960, (847) 228-7150; Fax: (800) 722-7150; website: www.pac-clad.com.

B. Proprietary Products/Systems:

Specifier Note: If more than one metal panel product is required for the project, copy and edit the following articles as required and

Identify metal panels and other variables in a schedule at the end of Part 3 of this section.

1. Roof Panels [RP-1] [_____]:
 - a. Panel Description: [TITE-LOC] [TITE-LOC HS] [TITE-LOC PLUS].
 - 1) Width: [12 inches (305 mm)] [16 inches (406 mm)] [17 5/8 inches (448 mm)] [18 inches (457 mm)].
 - 2) Height: 2 inches (51 mm).
 - b. Panel Description: SNAP-CLAD Standing Seam.
 - 1) Width: [10 inches (254 mm)] [12 inches (305 mm)] [16 inches (406 mm)] [18 inches (457 mm)].
 - 2) Height: 1 3/4 inches (45 mm).
 - c. Panel Description: SNAP-ON Standing Seam.
 - 1) Width: [12 inches (305 mm)] [16 inches (406 mm)] [18 inches (457 mm)] [20 inches (508 mm)].
 - 2) Height: 1 inch (25.4 mm).
 - d. Panel Description: High SNAP-ON Standing Seam.
 - 1) Width: [11 inches (279 mm)] [18 inches (457 mm)] [19 inches (483 mm)].
 - 2) Height: 1 1/2 inches (38.1 mm).
 - e. Panel Description: SNAP-ON Batten.
 - 1) Width: [11 inches (279 mm)] [12 inches (305 mm)] [18 inches (457 mm)].
 - 2) Height: 1 1/2 inches (38.1 mm).
 - f. Panel Description: Redi-Roof Standing Seam.
 - 1) Width: [12 inches (305 mm)] [16 inches (406 mm)] [18 inches (457 mm)] [20 inches (508 mm)].
 - 2) Height: 1 9/16 inches (40 mm).
 - g. Panel Description: Redi-Roof Batten.
 - 1) Width: 12 inches (305 mm).
 - 2) Height: 1 1/4 inches (32 mm).
 - h. Material: [22 gauge (0.85 mm) hot-dipped galvanized steel] [24 gauge (0.70 mm)] hot-dipped galvanized steel] [0.032 inch (0.81 mm) aluminum alloy 3105-H14] [0.040 inch (1.02 mm) aluminum alloy 3105-H14] [16 oz (0.45 kg) cold rolled copper].
 - i. Type: [Standing seam] [High snap-on standing seam] [Batten] [With offsets].
 - j. Radius: [Concave] [Convex] available in TITE-LOC, SNAP-ON Standing Seam and Redi-Roof Batten.
 - k. Sealant: Factory applied and available on TITE-LOC, TITE-LOC HS, TITE-LOC PLUS and SNAP-CLAD Standing Seam.
 - l. Striations (optional).
 - m. Stiffening Beads: [None] [1] [2] [3] manufacturer applied.
 - n. Texture: [Smooth] [Stucco embossed].
 - o. Topside Panel Finish: [From manufacturer's standard colors] [_____].
 - p. Panel Underside Finish: Polyester wash coat with dry film thickness of 0.3 mil.
 - q. Eave notched.
2. Wall Panels [WP-1] [_____]:
 - a. Panel Description: Flush Panel.
 - 1) Width: [7 inches (178 mm)] [11 inches (279 mm)] [12 inches (305 mm)] [18 inches (457 mm)].
 - 2) Height: 1 inch (25.4 mm).
 - b. Panel Description: Reveal Panel.

- 1) Width: [7 inches (178 mm)] [11 inches (279 mm)] [18 inches (457 mm)].
- 2) Height: 1 inch (25.4 mm).
- c. Panel Description: M-Panel.
 - 1) Width: [36 inches (914 mm)] [42 inches (1067 mm)].
 - 2) Height: 3/4 inch (19.1 mm).
- d. Panel Description: R-Panel.
 - 1) Width: [36 inches (914 mm)] [41 inches (1041 mm)].
 - 2) Height: 1 1/4 inch (32 mm).
- e. Panel Description: 7/8 inch (22.2 mm) Panel.
 - 1) Width: Variable.
 - 2) Height: 1 1/2 inches (38.1 mm).
- f. Panel Description: 1/2 inch (12.7 mm) Panel.
 - 1) Width: 40 inches (1016 mm).
 - 2) Height: 1/2 inch (12.7 mm).
- g. Panel Description: 7.2 Rib Panel.
 - 1) Width: 36 inches (914 mm).
 - 2) Height: 1 1/2 inches (38.1 mm).
- h. Material: [22 gauge (0.85 mm) hot-dipped galvanized steel] [24 gauge (0.70 mm) hot-dipped galvanized steel] [0.032 inch (0.81 mm) aluminum alloy 3105-H14] [0.040 inch (1.02 mm) aluminum alloy 3105-H14].
- i. Stiffening Beads: Number [None] [1] [2] [3] manufacturer applied.
- j. Texture: [Smooth] [Stucco embossed].
- k. Venting: [Non-vented] [1 row] [2 rows] available on Flush Panels.
- l. Topside Panel Finish: [From manufacturer's standard colors] [_____].
- m. Panel Underside Finish: Polyester wash coat with dry film thickness of 0.3 mil.
3. Soffit Panels [SP-1] [_____]:
 - a. Panel Description: Flush Panel.
 - 1) Width: [7 inches (178 mm)] [11 inches (279 mm)].
 - 2) Height: 1 inch (25.4 mm).
 - 3) Material: [22 gauge (0.85 mm) hot-dipped galvanized steel] [24 gauge (0.70 mm)] hot-dipped galvanized steel] [0.032 inch (0.81 mm) aluminum alloy 3105-H14] [0.040 inch (1.02 mm) aluminum alloy 3105-H14].
 - b. Panel Description: Reveal Panel.
 - 1) Width: [7 inches (178 mm)] [11 inches (279 mm)].
 - 2) Height: 1 inch (25.4 mm).
 - 3) Material: [22 gauge (0.85 mm) hot-dipped galvanized steel] [24 gauge (0.70 mm)] hot-dipped galvanized steel] [0.032 inch (0.81 mm) aluminum alloy 3105-H14] [0.040 inch (1.02 mm) aluminum alloy 3105-H14].
 - c. Panel Description: PAC-750 Soffit Panel.
 - 1) Width: 12 inches (305 mm).
 - 2) Height: 1/2 inch (12.7 mm).
 - 3) Material: 0.032 inch (0.81 mm) aluminum alloy 3105-H14.
 - d. Panel Description: PAC-850 Soffit Panel.
 - 1) Width: 12 inches (305 mm).
 - 2) Height: 1/2 inch (12.7 mm).

- 3) Material: 0.032 inch (0.81 mm) aluminum alloy 3105-H14.
- e. Stiffening Beads: Number [None] [1] [2] [3] manufacturer applied.
- f. Texture: [Smooth] [Stucco embossed].

Specifier Note: Retain article below to specify venting options for PAC-750 Soffit or PAC-850 Soffit panels.

- g. Venting: [Full Vent] [Half Vent].

Specifier Note: Retain article below to specify venting options for Flush panels.

- h. Venting: [Non-vented] [1 row] [2 rows].
- i. Topside Panel Finish: [From manufacturer's standard colors] [_____].
- j. Panel Underside Finish: Polyester wash coat with dry film thickness of 0.3 mil.
- 4. Tiles [TP-1] [_____]:
 - a. Material: [Copper coated] [Zinc-titanium].
 - b. Tile Dimension: 39 3/8 inches x 13 3/8 inches (1000 x 340 mm).
 - c. Acceptable Material: Petersen Aluminum Corp. Pac-Clad Tegola [Prestige Elite] [Prestige Compact] [Prestige Traditional] [ZT Compact] [ZT Prestige Pre-Patina Elite] [ZT Prestige Pre-Patina Compact] Tiles.
- 5. Flashing and Trim:
 - a. Material: [0.033 inch (0.85 mm) hot-dipped galvanized steel] [0.027 inch (0.70 mm) hot-dipped galvanized steel] [[0.032 inch (0.81 mm)] [0.040 inch (1.02 mm)] [0.051 inch (1.29 mm)] [0.064 inch (1.63 mm)] [0.080 inch (2.05 mm)] alloy 3105-H14 aluminum] [16 oz (0.45 kg) cold rolled copper].
 - b. Profiles: [To manufacturer's standard flashing and trim profiles] [As detailed] [_____].
 - c. [Color and finish to match [Roof] [Wall] [Soffit] [Tile] panels] [_____].

2.03 SOURCE QUALITY CONTROL

- A. Ensure cladding/roofing components and materials are from single manufacturer.

Specifier Note: Edit Paragraph below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Section 01 25 13 - Product Substitution Procedures.

2.04 PRODUCT SUBSTITUTIONS

- A. Substitutions: [In accordance with Section 01 25 13 - Product Substitution Procedures] [_____] [No substitutions permitted].

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

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.

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and Petersen Aluminum Corp. PAC-CLAD SPEC-DATA sheets.

3.02 EXAMINATION

- A. Site Verification of Conditions:
 - 1. Verify that substrate conditions, which have been previously installed under other sections or contracts, are acceptable for product installation in accordance with manufacturer's instructions prior to installation of [Roof] [Wall] [Soffit] [Tile] panels.

3.03 PREPARATION

- A. Ensure surfaces are clean and free of dirt and other foreign matter harmful to performance of [Roof] [Wall] [Soffit] [Tile] materials.

- B. Remove manufacturer's protective film from panel surfaces.
- C. Coordinate panel installation with work of other trades to provide a noncorrosive and leakproof installation.
- D. Prevent galvanic action of dissimilar metals in proximity to one another.

3.04 INSTALLATION

Specifier Note: Coordinate installation with the manufacturer's written installation details and instructions.

- A. Seams: Provide uniform, neat seams.
- B. Fasteners: Conceal fasteners where possible in exposed work. Cover and seal fasteners and anchors for watertight and leakproof installation.
- C. Sealant-Type Joints: Provide sealant-type joint where indicated. Form joints to conceal sealant.

3.05 FIELD QUALITY CONTROL

Specifier Note: Use the following Articles only when manufacturer's field services are desired to verify the quality of the installed components. Establish the number and duration of periodic site visits required by manufacturer and specify below. Consult manufacturer for services required. Delete if field services are not required.

- A. Have manufacturer of products supplied under this Section review work involved in handling, installation/application, protection and cleaning of its product(s), and submit written reports in acceptable format to verify compliance of work with Contract.
- B. Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
- C. Schedule Site Visits to Review Work at Stages Listed:
 1. After delivery and storage of products, and when preparatory Work on which Work of this Section depends is complete, but before installation begins.
 2. [Twice] [_____] during progress of Work at [25%] [_____] and [60%] [_____] complete.
 3. Upon completion of Work, after cleaning is carried out.
- D. Obtain reports within [3] [_____] days of review and submit.

3.06 TESTING AND VERIFICATION

- A. Perform tests recommended and required by manufacturer to verify required performance of panel system, under supervision and monitoring process of accredited and designated design engineer.
- B. Perform and meet tests required by [Owner] [Architect] [Consultant] [Authorities having jurisdiction] [_____].

3.07 FINAL CLEANING

- A. Do cleanup in accordance with Section [01 74 00 - Cleaning and Waste Management] [_____].
- B. Upon completion, remove surplus and excess materials, rubbish, tools and equipment.

3.08 PROTECTION

Specifier Note: Coordinate the following Article with Section 01 76 00 - Protecting Installed Construction.

- A. Protect installed product from damage during construction in accordance with Section [01 76 00 - Protecting Installed Construction] [_____].

3.09 SCHEDULE

Specifier Note: Include a schedule of panel types and locations to suit project requirements.

- A. Roof Panel Type RP-1: [Location].
- B. Roof Panel Type RP-2: [Location].
- C. Wall Panel Type WP-1: [Location].
- D. Soffit Panel Type SP-1: [Location].

E. Tile Type TP-1: [Location].

END OF SECTION