SECTION 07 61 00

SHEET METAL ROOFING

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\*\* NOTE TO SPECIFIER\*\* Petersen Aluminum Corp.; aluminum and steel metal roofing with concealed, non-penetrating fasteners.
This section is based on the products of Petersen Aluminum Corp., which is located at:
1005 Tonne Rd.
Elk Grove Village, IL 60007
Toll Free Tel: 800-722-2523
Tel: 847-228-7150
Fax: 847-956-7968
Email: [request info (rheselbarth@petersenmail.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Petersen+Aluminum+Corp.&coid=34773&rep=&fax=847-956-7968&message=RE:%20Spec%20Question%20(07610pac):%20%20&mf=)
Web: <https://www.pac-clad.com>

 [ [Click Here](http://www.arcat.com/arcatcos/cos34/arc34773.html) ] for additional information.

Petersen Aluminum produces a full line of metal roofing and siding products from its facilities in Elk Grove, IL; Annapolis Junction, MD; Kennesaw, GA and Tyler, TX. Petersen maintains extensive roll forming equipment in each of its plants. Panels are available up to 55 feet in length in a wide choice of colors.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Metal roofing, including flashing and accessories.
		2. Metal wall and fascia panels.
		3. Metal soffit panels.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 07 62 00 - Sheet Metal Flashing and Trim.
		2. Section 07 71 00 - Roof Specialties: Coping and gravel stops.
		3. Section 07 90 00 - Joint Protection.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2001a.
		2. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2001.
		3. ASTM E 283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 1991 (Reapproved 1999).
		4. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000.
		5. ASTM E 408/C - 1371: "Standard Test Method for Total Normal Emittance of Surfaces Using inspection - Meter Techniques.
		6. ASTM E 903/C - 1549: Standard Test Method for Solar Absorbtance, using Integrating Spheres.
		7. ASTM E 1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference; 1995.
		8. ASTM E 1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems; 1995.
		9. Dade County County (Florida) Acceptance Report Numbers: 01-1106-01 and 01-1106-02.
		10. FM - Tests Requirements for Class 1 Panel roofs, Factory Mutual Research Corporation.
		11. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; 1994.
		12. UL2218: Class 4 Impact Resistance Rating.
		13. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors National Association; 1993.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
		3. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors and textures.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
		2. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
		3. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
		4. Operation and Maintenance Data: Include methods for maintaining installed products and precautions relating to cleaning materials and methods that might be detrimental to finishes and performance.
		5. Close Out: Warranty documents specified herein.
	1. QUALITY ASSURANCE
		1. Installer Qualifications: Installer with documented experience in performing work of this section who has specialized in the installation of work similar to that required for this project.
		2. Pre-Installation Meeting: Conduct pre-installation meeting to acquaint installers of roofing and related work with project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store products in manufacturer's unopened packaging with identification labels intact until ready for installation.
		2. Store materials protected from exposure to harmful conditions. Store material in dry, above ground location.
			1. Stack pre-finished material to prevent twisting, bending, abrasion, scratching and denting. Elevate one end of each skid to allow for moisture to run off.
			2. Prevent contact with material that may cause corrosion, discoloration or staining.
			3. Do not expose to direct sunlight or extreme heat trim material with factory applied strippable film.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
	4. WARRANTY
		1. Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official covering finish, including color, fade, chalking and film integrity.
		2. Warranty Period: 20 years commencing on Date of Substantial Completion.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Petersen Aluminum Corp., which is located at: 1005 Tonne Rd.; Elk Grove Village, IL 60007; Toll Free Tel: 800-722-2523; Tel: 847-228-7150; Fax: 847-956-7968; Email: [request info (rheselbarth@petersenmail.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Petersen+Aluminum+Corp.&coid=34773&rep=&fax=847-956-7968&message=RE:%20Spec%20Question%20(07610pac):%20%20&mf=); Web: <https://www.pac-clad.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.
	1. SHEET METAL ROOFING
		1. General: Factory fabricated panels; panels fabricated on site using portable roll former are prohibited.
			1. Performance Requirements: Provide sheet metal roofing that has been manufactured, fabricated and installed to achieve the following performance without defects, damage, failure or infiltration of water.

\*\* NOTE TO SPECIFIER \*\* All PAC-Clad panels can meet the following wind uplift requirement except Snap-On Batten Seam, aluminum Snap-On, aluminum Redi-Roof, aluminum Integral, steel Integral over 18 inches wide, and Flush panels. Delete this requirement if not required.

* + - * 1. Wind Uplift: Provide UL 580 Class 90 rated assembly.

\*\* NOTE TO SPECIFIER \*\* The following FM, Class 1 applies to Tite-Loc Plus Panels Only. Delete if not applicable.

* + - * 1. FM: Test Requirements for Class 1 panel roofs.
				2. Static Air Infiltration: 0.06 cu ft/min/sq ft (1.1 cu m/h/sq m) at 6.24 lb/sq ft (300 Pa) air pressure differential, maximum, when tested in accordance with ASTM E 283 or ASTM E 1680.
				3. Water Infiltration: No evidence of water penetration at inward static air pressure differential of 12.0 lb/sq ft (575 kPa), when tested in accordance with ASTM E 331 or ASTM E 1646.
				4. Thermal Movement: Accommodate movement expected due to ambient and surface temperature ranges likely to occur at project site.

\*\* NOTE TO SPECIFIER \*\* Consult manufacturer for longer lengths.

* + - 1. Panel Lengths: As indicated on drawings; panels 55 feet (16.76 m) and less fabricated in one continuous length.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Texture: Smooth texture, dull matte specular gloss 25 to 35 percent at 60 degrees F (15.5 degrees C).
			2. Texture: Standard E-5 stucco embossed pattern.
			3. Texture: Striated.
			4. Finish: Factory applied PAC-CLAD finish:
				1. Topside: Full-strength fluoropolymer, 70 percent Kynar 500 or Hylar resin, 1.0 mil (0.025 mm) total dry film thickness.
				2. Underside: Wash coat of 0.3 to 0.4 mil (0.076 to 0.1 mm) dry film thickness.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - * 1. Color: As selected by Architect from manufacturer's standard colors.
				2. Color: \_\_\_\_\_\_\_\_.
			1. Panel Fasteners: Non-penetrating type, as required to achieve wind uplift rating or otherwise as recommended by manufacturer.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following roof panels, which are presented in approximately descending order of performance. Tite-Loc panels are mechanically seamed in the field using a seaming tool provided by the manufacturer; 1/2:12 minimum slope.

* + 1. Roof Panels: Petersen Aluminum Tite-Loc Panels; tension-leveled panels with 2 inch (50 mm) high mechanically crimped standing seams.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Seam Style: Double-folded to 90 degrees.
			2. Seam Style: Triple-folded to 180 degrees (Tite-Loc Plus).

\*\* NOTE TO SPECIFIER \*\* Delete three of the following four paragraphs. Tite-Loc Plus (triple-folded seam is not available in 0.040 inch aluminum.

* + - 1. Material: 24 gage, 0.024 inch (0.61 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			2. Material: 22 gage, 0.03 inch (0.76 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			3. Material: 0.032 inch (0.8 mm) aluminum, ASTM B 209 3105-H14 alloy.
			4. Material: 0.040 inch (0.1mm) aluminum, ASTM B 209 3105-H14 alloy.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Panel Width: 12 inch (305 mm), center to center.
			2. Panel Width: 16 inch (406 mm), center to center.
			3. Panel Width: 18 inch (457 mm), center to center.

\*\* NOTE TO SPECIFIER \*\* The following eave notching is optional. Delete if not required.

* + - 1. Eave Notching: Factory produced eave notching for trimmed eave panels.
			2. Sealant Bead: Factory applied sealant bead.

\*\* NOTE TO SPECIFIER \*\* Snap-Clad panels do not have a separate seam cover. They are intended for installation over solid substrates and direct to structure, with minimum 3:12 slope.

* + 1. Roof Panels: Petersen Aluminum PAC-CLAD SNAP-CLAD Panels; tension leveled flat panels with continuously interlocked standing seam; one-piece design without separate seam cover.
			1. Seam Height: 1-3/4 inches (44 mm) minimum.

\*\* NOTE TO SPECIFIER \*\* Delete four of the following five paragraphs.

* + - 1. Material: 24 gage, 0.024 inch (0.61 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			2. Material: 22 gage, 0.03 inch (0.76 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			3. Material: 0.032 inch (0.8 mm) aluminum, ASTM B 209 3105-H14 alloy.
			4. Material: 0.040 inch (0.1mm) aluminum, ASTM B 209 3105-H14 alloy.
			5. Material: 16 oz. Cold Rolled Copper, ASTM B370.

\*\* NOTE TO SPECIFIER \*\* Delete three of the following four paragraphs. Aluminum panels 18 inches wide are not UL Class 90 wind uplift rated.

* + - 1. Panel Width: 10 inch (254 mm), center to center.
			2. Panel Width: 12 inch (305 mm), center to center.
			3. Panel Width: 16 inch (406 mm), center to center.
			4. Panel Width: 18 inch (457 mm), center to center.

\*\* NOTE TO SPECIFIER \*\* The following eave notching is optional. Delete if not required.

* + - 1. Eave Notching: Factory produced eave notching for trimmed eave panels.

\*\* NOTE TO SPECIFIER \*\* The following paragraph is optional. Delete if not required.

* + - 1. Sealant Bead: Factory applied sealant bead.

\*\* NOTE TO SPECIFIER \*\* Redi-Roof standing seam panels do not have a separate seam cover; batten panels do have separate batten caps. Redi-Roof is intended for installation over solid substrate with underlayment, at minimum 3:12 slope.

* + 1. Roof Panels: Petersen Aluminum PAC-CLAD Redi-Roof Panels; tension leveled.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Panel Type: Standing seam panels, with 1-9/16 inch (40 mm) seam height; one-piece without separate seam cover; offset profile.
			2. Panel Type: Standing seam panels, with 1-3/8 inch (35 mm) seam height; one-piece without separate seam cover; flat profile.
			3. Panel Type: Batten panels, 1-1/4 inch (32 mm) batten height; with batten caps fabricated from matching material with positive, metal-to-metal locking mechanism; offset profile.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs. Aluminum panels are not UL Class 90 rated.

* + - 1. Material: 24 gage, 0.024 inch (0.61 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			2. Material: 0.032 inch (0.8 mm) aluminum, 3105-H14 alloy.
			3. Material: 16 oz. Cold Rolled Copper, ASTM B370.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Panel Width: 12 inches (305 mm), center to center.
			2. Panel Width: 16 inches (406 mm), center to center.
			3. Panel Width: 18 inches (457 mm), center to center.

\*\* NOTE TO SPECIFIER \*\* The following curved panel option is available for Redi-Roof batten panels only -- 9 foot (2.7 m) radius minimum. Delete if not required.

* + - 1. Curved Profile: Radius as indicated on drawings.

\*\* NOTE TO SPECIFIER \*\* The following eave notching is optional. Delete if not required.

* + - 1. Eave Notching: Factory produced eave notching for trimmed eave panels.

\*\* NOTE TO SPECIFIER \*\* Snap-On Panels have a separate seam/batten cover and are intended for installation over solid decking with underlayment, at minimum 3:12 slope.

* + 1. Roof Panels: Petersen Aluminum PAC-CLAD Snap-On Panels; tension leveled flat panels with separate seam cover.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following three types. Batten seam panels are not UL Class 90 wind uplift rated.

* + - 1. Type: Standing seam, with 1 inch (25.4 mm) seam height.
			2. Type: High standing seam, with 1-1/2 inch (38 mm) seam height.
			3. Type: Batten seam, with 1-1/2 inch (38 mm) batten height.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs. Aluminum panels are not UL Class 90 rated. Batten seam panels are not available in 22 gage steel.

* + - 1. Material: 24 gage, 0.024 inch (0.61 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			2. Material: 22 gage, 0.03 inch (0.76 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			3. Material: 0.032 inch (0.8 mm) aluminum, ASTM B 209 3105-H14 alloy.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following widths. 1 inch standing seam is available in 12, 18, 19 or 20 inch widths. High standing seam is available in 11, 18, and 19 inch widths. Batten seam is available in 11, 12, and 18 inch widths.

* + - 1. Panel Width: 11 inches (279 mm), center to center.
			2. Panel Width: 12 inches (305 mm), center to center.
			3. Panel Width: 18 inches (457 mm), center to center.
			4. Panel Width: 19 inches (482 mm), center to center.
			5. Panel Width: 20 inches (508 mm), center to center.

\*\* NOTE TO SPECIFIER \*\* The following curved panel option is available only in 1 inch (25 mm) high standing seam panels -- 9 foot (2.7 m) radius minimum. Delete if not required.

* + - 1. Curved Profile: Radius as indicated on drawings.

\*\* NOTE TO SPECIFIER \*\* Integral Panels are intended for installation over solid substrate with underlayment, at minimum 3:12 slope.

* + 1. Roof Panels: Petersen Aluminum PAC-CLAD Integral Panels; tension leveled flat panels, one-piece design without separate seam cover.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Type: Standing seam, 1-1/2 inch (38 mm) seam height.
			2. Type: Batten seam, 1-1/2 inch (38 mm) seam height.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Material: 24 gage, 0.024 inch (0.61 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			2. Material: 0.032 inch (0.8 mm) aluminum, ASTM B 209 3105-H14 alloy.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Panel Width: 11 inches (279 mm, center to center.
			2. Panel Width: 18 inch (457 mm), center to center.
			3. Panel Width: 19 inch (483 mm), center to center.
		1. Wall, Fascia, and Soffit Panels: Petersen Aluminum PAC-CLAD Flush Panels; tension leveled flat panels with interlocking 1 inch (25 mm) high legs.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Type: Flush seam.
			2. Type: Reveal seam.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following two paragraphs. Delete all if stiffening beads are not required.

* + - 1. Stiffening Bead: One, manufacturer's standard.
			2. Stiffening Beads: Two, manufacturer's standard.

\*\* NOTE TO SPECIFIER \*\* Delete three of the following four paragraphs.

* + - 1. Material: 24 gage, 0.024 inch (0.61 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			2. Material: 22 gage, 0.03 inch (0.76 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			3. Material: 0.032 inch (0.8 mm) aluminum, ASTM B 209 3105-H14 alloy.
			4. Material: 0.040 inch (1.0 mm) aluminum, ASTM B 209 3105-H14 alloy.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Panel Width: 7 inches (178 mm), center to center.
			2. Panel Width: 11 inches (279 mm), center to center.
		1. Soffit Panels: Petersen Aluminum Soffit Panels; V-grooved.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Type: PAC-750.
			2. Type: PAC-850 (Hook and Grab Interlock Profile).

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Style: Solid.
			2. Style: Perforated, half of width.
			3. Style: Perforated, entire panel.
			4. Material: 0.032 inch (0.8 mm) aluminum, ASTM B 209 3105-H14 alloy.
			5. Panel Width: 12 inches (305 mm), center to center.
		1. Flashing and Trim: Manufacturer's standard flashing and trim profiles, factory formed; fabricated as recommended in SMACNA Architectural Sheet Metal Manual.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following material descriptions.

* + - 1. Material: Same as roof panels.
			2. Material: 24 gage, 0.024 inch (0.61 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			3. Material: 22 gage, 0.03 inch (0.76 mm) ASTM A 653/A 653M G90 hot-dipped galvanized steel, structural quality.
			4. Material: 0.032 inch (0.8 mm) aluminum, ASTM B 209 3105-H14 alloy.
			5. Material: 0.040 inch (0.1mm) aluminum, ASTM B 209 3105-H14 alloy.
			6. Material: 0.050 inch (0.13 mm) aluminum, ASTM B 209 3105-H14 alloy.
			7. Material: 0.063 inch (0.16 mm) aluminum, ASTM B 209 3105-H14 alloy.
			8. Material: 0.080 inch (1 mm) aluminum, ASTM B 209 3105-H14 alloy.
			9. Finish: To match roof panels.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Color: To match roof panels.
			2. Color: \_\_\_\_\_\_\_\_.
	1. ACCESSORY MATERlALS

\*\* NOTE TO SPECIFIER \*\* The following underlayment is optional. Delete if not required.

* + 1. Underlayment: ASTM D 226, Type II No. 30 asphalt saturated organic roofing felt.
		2. Plywood Deck: 5/8 inch (16 mm) nominal thickness; as specified in Section 06 10 00.
		3. Nailable Insulation: 1 inch (25 mm) minimum to 3-1/2 inch (89 mm) maximum nominal thickness classified polyisocyanurate foamed plastic, 2 pcf (32 kg/cu m) density, factory laminated to 7/16 inch (11 mm) thick APA rated oriented strand board (OSB).
		4. Sealant: Elastomeric.
		5. Bituminous Coating: Cold-applied asphaltic mastic, free of asbestos fibers, sulfur, and other harmful impurities.
		6. Touch-Up Paint: Approved by panel manufacturer.
1. EXECUTION
	1. EXAMINATION
		1. Verify that substrates are acceptable for roofing installation in accordance with manufacturer's instructions.
		2. Do not begin installation until substrates have been properly prepared.
		3. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. INSTALLATION
		1. Install in accordance with manufacturer's instructions.
		2. Coordinate metal roofing with other work, including but not limited to drainage, flashing and trim, deck substrates, parapets, copings, walls, and other adjoining work.
		3. Install metal roofing panels to profiles, patterns and drainage indicated, in accordance with manufacturer's instructions, and as necessary to achieve specified performance and a leak-free Installation. Allow for structural and thermal movement.
		4. Separate dissimilar metals using bituminous coating to prevent galvanic action.
		5. Use fasteners recommended by panel manufacturer; conceal fasteners wherever possible; cover and seal exposed fasteners.
		6. Provide uniform, neat seams; provide sealant-type joint where indicated and form joints to conceal sealant.
	3. FIELD QUALITY CONTROL
		1. Post Installation Testing: Owner reserves right to perform post installation testing of installed sheet metal roofing.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if not required. If included, edit to indicate number and duration of periodic site visits. Verify services available with manufacturer.

* + 1. 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.
	1. CLEANING
		1. Remove temporary coverings and protection of adjacent work areas.
		2. Touch-up, repair or replace damaged products.
		3. Clean in accordance with manufacturer's instructions prior to Substantial Completion.
		4. Remove construction debris from project site and legally dispose of debris.
	2. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION