This Guide Specification is derived from Construction Specifications Institute (CSI) *Project Resource Manual (*PRM) following *MasterFormat*™ guidelines. It is a Protean-specific proprietary product specification guide. **Optional text is indicated by brackets [ ];** delete optional text in final copy of specification. **Specifier Notes** pre-cede specification text; delete notes in final copy of specification. Revise section number and title below to suit project requirements, specification practices and section content. Refer to *CSI MasterFormat* for other section numbers and titles.

**07 4213.13**

**FORMED METAL WALL PANELS**

**PART 1 GENERAL**

* 1. SUMMARY
		1. Section Includes: Metal wall panels and accessories used for exterior wall cladding, parapets, fascia and soffits as the siding component of weathertight system. Metal panel supplier to be responsible for anchorage details, sealant recommendations, extrusions, flashings and expansion/contraction provisions. Wall cladding may serve as a component of a rain screen system with modifications to sealant recommendations and a vapor-permeable air barrier provided under separate contracts.

# Note: Revise Paragraph below to suit project requirements. Add section numbers and titles per CSI MasterFormat and specifiers practice.

* + 1. Related Requirements:

# Note: Include in this Paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the Subparagraph below. Do not include Division 00 documents or Division 01 sections since it is assumed that all technical sections are related to all project Division 00 documents and Division 01 sections to some degree. Refer to other documents with caution since referencing them may cause them to be considered part of the Contract.

* + - 1. Section [06 1600 – Sheathing].
			2. Section [07 2700 – Air Barriers].
			3. Section [07 9000 – Joint Protection].
			4. Section [ ].
	1. REFERENCES

# Note: Define terms that are unique to this Section and are not provided elsewhere in the contract documents. Include in this Article terms that are unique to the work result specified that may not be commonly known in the construction industry.

* + 1. Definitions:
			1. Weathertight system: An exterior wall detail where wall cladding and associated sealants serve as a water barrier to internal components.
			2. Rainscreen: An exterior wall detail where wall cladding stands off from the moisture-resistant surface of an air barrier applied to wall sheathing or masonry substrate to create a capillary break and to allow drainage and evaporation.

2. [ ].

# Note: Paragraph below may be omitted when specifying manufacturer’s proprietary products and recommended installation. Retain References Paragraph when specifying products and installation by an industry reference standard. List retained standard(s) referenced in this section alphabetically. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Contract Conditions Section 01 42 00 – References may establish the edition date of standards. This Paragraph does not require compliance with standard(s). It is a listing of all references used in this section. Only include here standards that are referenced in the body of the specification in PARTS 1, 2 and/or 3. Do not include references to building codes at any level.

* + 1. Reference Standards:
			1. ASTM International (ASTM):
				1. ASTM B209-10 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
				2. ASTM E283-04 Test Method for Determining Rate of Airflow through Exterior Windows, Curtain Walls and Doors under Specified Pressure Differences Across the Specimen.
				3. ASTM E330-02 Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static

Air Pressure Difference.

* + - * 1. ASTM E331-00 Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air

Pressure Difference.

* + - * 1. ASTM D2247 Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
				2. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
				3. ASTM C1363 Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus
			1. American Architectural Manufacturers Association (AAMA):
				1. AMA 611-14 Voluntary Specification for Anodized Architectural Aluminum.

# Note: AAMA 2605-11 is for 70 percent PVDF fluoropolymer coating. Delete if 70 percent PVDF fluoropolymer coating is not specified.

* + - * 1. AAMA 2605-11 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
			1. Specialty Steel Industry of North America (SSINA):
				1. Designer Handbook Special Finishes for Stainless Steel.

b. [ ].

# Note: Article below includes 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 Contract Conditions and Section 01 33 00 - Submittal Procedures.

* 1. SUBMITTALS
		1. Product Data: Manufacturer’s standard specifications, descriptive literature and certifications, including:
			1. Product Data Sheets.
			2. Standard Guide Details
			3. Standard color charts.
			4. Blank warranty forms.
			5. [Certification letter prepared, stamped, signed and dated by Professional Engineer, registered to practice in state where metal wall panel system is to be installed, verifying that metal wall panel system design meets building code and project design criteria.]
			6. [Certification letter on installer]

7. [ ].

* + 1. Shop Drawings: Show job specific information, including:
			1. Overall dimensioned plans, elevations and sections indicating full extent of metal panel work with each panel identified by

manufacturer’s location number.

* + - 1. Each panel fully dimensioned with finished openings for doors and windows; utility penetrations; connections to adjacent panels and structural members including type and number of fasteners; mechanical and electrical rough-in items; built-in mounting plates for miscellaneous items; and other special conditions.
			2. [Verified field dimensions.]

4. [ ].

# Note: Samples are actual products intended to illustrate the products to be incorporated into the project. Sample submittals are commonly necessary for such characteristics as colors, textures and other appearance issues.

* + 1. Samples:
			1. Color chip no less than 2” x 2” for color approval.
			2. [[Full size] Manufacturer’s standard samples of metal wall panel [color] [colors] and finishes prepared on similar [same] metal specified for panels.]

3. [ ].

# Note: Specify submittals intended to document manufacturer storage, installation and other instructions.

* + 1. Manufacturer’s Written Instructions, including:
			1. Delivery, storage and handling.
			2. Preparation and Installation.
			3. Maintenance.

4. [ ].

# Note: Coordinate Article below with Contract Conditions and with Section 01 78 36 - Warranties.

* + 1. Warranty: Fully executed, issued in Customer’s name, and registered with manufacturer, including:
			1. Manufacturer’s [five-year] warranty, from date of substantial completion, against defects in materials and workmanship.

# Note: Select warranty for specified finish.

* + - 1. Manufacturer’s [five-year] warranty, from date of substantial completion, against defects in anodic finish.
			2. Manufacturer’s [twenty-year] warranty, from date of substantial completion, against defects in sprayed fluoropolymer finish.
			3. Manufacturer’s [twenty-year] warranty, from date of substantial completion, against defects in coil coated fluoropolymer finish.
	1. QUALITY ASSURANCE
		1. Authorized Installer: Trained and certified by manufacturer or otherwise acceptable to manufacturer, experienced in performing work of this section and specialized in installation of work similar to that required for this project.

B. [ ].

* 1. DELIVERY, STORAGE AND HANDLING
		1. Deliver materials in accordance with manufacturer’s written instructions.
		2. Deliver materials in manufacturer’s original packaging with identification labels intact.
		3. Store materials protected from exposure to harmful weather conditions and at temperature conditions in accordance with manufacturer’s written instructions.

# Note: USGBC’s LEED® certification includes credits for the diversion of construction waste from landfill. Diversion can be tracked by either weight or volume but must be consistent for all materials.

* + 1. Remove packaging materials from site and dispose of at appropriate recycling facilities.
		2. Remove protective film from panels only after installed.

F. [ ].

# PART 2 PRODUCTS

**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, 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.**

* 1. METAL WALL PANELS

# Note: Include in the following Paragraph; manufacturer’s name, address, phone number, e-mail address and website URL.

* + 1. Manufacturer: Protean Construction Products, Inc.

1. Contact: 11901 Riverwood Dr.; Burnsville, MN 55337; Phone: 952-895-4000;

Email: info@protean.com; Website: http//[www.protean.com.](http://www.protean.com.)

# Note: Substitution procedures must either be in the Contract Conditions or in Section 01 25 00 - Substitution Procedures. Do not include substitution procedures here.

1. Single Source Responsibility: Provide components and materials specified in this section from a single manufacturer.
2. Substitutions: No bidder of metal wall panel systems will be accepted without prior written approval of the architect based on submission requirements specified in Section 01 25 00.

**Note: Coordinate reference standards acronyms used in PART 2 with PART 1, Reference Standards. FM-200 configuration allows for use as a barrier system with sealant a will seal tape, or as a rainscreen without sealant and tape. Choose whether you desire a rainscreen or barrier condition.**

* + 1. Basis of Design: Product: Protean FM-200 Panels used for exterior wall cladding, parapets, fascia and soffits as the siding component that also includes a ventilated drainage plane and a vapor-permeable air barrier provided under separate contracts], [a weather tight system with tape and sealant applied under separate contracts]; and, meeting ASTM E283, E330, E331,E84, D227, C1363. Product also tested in an NFPA-285 wall assembly. .
			1. Configuration: [Rectangular] [Square] [ ] [Custom] shaped; fabricated from metal skins and polyisocyanurate core in thickness, lengths and widths as illustrated in contract drawings. Panels shall be assembled on a dead level platen in a vacuum press for a period of time sufficient to cure adhesive to a bond bond strength stronger than core material.
			2. Custom fabricated from pre-finished metal skins and polyisocyanurate core.
			3. Liner material to be roll formed to create a side joint of the interlocking, labyrinth type allowing for positive attachment of the interior and exterior skins through the use of concealed fasteners, in accordance with ICBO requirements to withstand both positive and negative wind loading. The panel joint shall provide for a 1/2" capillary break and nominal gutter height of 2 1/4" to create a rain screen and pressure equalization chamber.
			4. Polyisocyanurate foam core will assure flatness and may be modified in thickness as required by design calculations to assure conformance with specified R-value.
				1. Panels shall have a flatness criterion not to exceed 1/32” in 18”. Using a straight edge, no point shall be more than 1/32” away from straight edge between two points of contact.
			5. Normal dimensional tolerances on length and width of +/- 0.023” up to 48” (+/- 0.064” over 48”) and +/- 0.1875” diagonal.

# Note: Standard panel face material includes Types 3003 or 3105 aluminum; optional panel material includes Type 5005 for anodized finish, Types 304 and 316 stainless steel, and G90 and Galvalume ™. Select panel face material from one of the following four paragraphs.

* + - 1. Face Material: Type 3003/3105 aluminum alloy sheet meeting ASTM B209:

#

# Note: Standard thickness is 0.040 inch (1.02 mm); other thicknesses are available.

a. Aluminum thickness: **[0.040 inch (1/.02 mm)]** [0.050 inch 1.27 mm)] [0.063inch (1.60 mm)]

# Note: See Standard Color Guide at [www.protean.com](http://www.protean.com/) for standard painted colors.

1. Standard color meeting AAMA 2605: 70 percent PVDF fluoropolymer coating; 18-standard colors in coil or spray

application.

1. Custom color meeting AAMA 2605: Custom color matching available.
	* + 1. [Face Material: Type 5005 aluminum alloy sheet and plate meeting ASTM B209:]

# Note: Standard thickness is0.040 inch (1.02 mm); other thicknesses are available.

a. [Aluminum thickness: Aluminum thickness: **[0.040 inch (1/.02 mm)]** [0.050 inch 1.27 mm)] [0.063inch (1.60 mm)] ]

# Note: See Anodize Color Card at [www.linetec.com](http://www.linetec.com/) for standard anodize colors. Anodized finish is NOT recommended.

* + - * 1. [Standard color meeting AAMA 611: Class 1 anodic coating; clear and 7-standard colors.]
				2. [Custom color meeting AAMA 611: Limited custom anodic color matching available.]
			1. [Face Material: Type 304 [Type 316] stainless steel sheet meeting ASTM A240:]

# Note: Standard thickness is 20 Ga (91 mm); other thicknesses are available.

* + - * 1. [Stainless Thickness: **[20 Ga (91 mm)]** [18 Ga 1.23mm)] ]
			1. [Face Material: G90 Galvanized steel meeting ASTM A525 or Galvalume™ steel]

# Note: Standard thickness is 22 Ga (76 mm); other thicknesses are available.

* + - * 1. [Steel Thickness: **[22 Ga (76 mm)]** **[20 Ga (91 mm)]]**

# Note: Standard panel face material includes Types 3003 or 3105 aluminum; 3003/3105 liner material shall also be used with 5005 face material AND can be used 304/316 face material. Galvanized liner should be used with galvanized face material. Select panel face material from one of the following three paragraphs.

* + - 1. Liner Material: Type 3003/3105 aluminum alloy sheet meeting ASTM B209:

# Note: Standard aluminum liner thickness is 0.040 inch (1.02 mm).

* + - * 1. Aluminum thickness: **[0.040 inch (1/.02 mm)]**
				2. Finish: standard Kynar primer coat
			1. [Liner Material: Type 304 [Type 316] stainless steel sheet meeting ASTM A240:]

# Note: Standard thickness is 20 Ga (91 mm); other thicknesses are available. Stainless liner not required wit stainless face.

* + - * 1. [Stainless Thickness: **[20 Ga (91 mm)]** [22 Ga (76 mm)]]
			1. [Liner Material: G90 Galvanized steel meeting ASTM A525 or Galvalume™ steel]

# Note: Standard thickness is 22 Ga (76 mm); other thicknesses are available.

* + - * 1. [Steel Thickness: **[22 Ga (76 mm)]** **[20 Ga (91 mm)]]**

# Note: Standard panel core material thickness is 2 inch (51mm). Thickness can be reduced to 1 inch or increased up to 6 inches as required/desired by insulation requirements. Each inch increase R-value by approximately 7.

* + - 1. Core Material: Polyisocyanurate foam core, [1.00 inch thick (25.4 mm)], **2.00 inch thick (51mm),** [\_\_ inch (\_\_\_mm)]
				1. Bun stock polyisocyanurate cut to consistent width
				2. [\_\_\_]
			2. Panel Dimensions:

# Note: Standard panel depth is 2 inch (51 mm); other depths available.

* + - * 1. Depth: 2 inch (51.4 mm).
				2. Width: 6 inch (152 mm) to 54 inch (1372 mm).
				3. Length: 6 inch (152 mm) to 192 inch (4879 mm).
			1. Performance:
				1. Minimum wind load: 20 lb/ft2 (97.6 kg/m2).
				2. Maximum allowable deflection: L/180.
				3. R-value of 14 per 2” of panel thickness when tested to ASTM C1363.
				4. Flame Spread Index: 5 or less when tested to ASTM E84.
				5. Smoke Develop Index: 5 or less when tested to ASTM E84.
				6. Delamination: No delamination when tested to ASTM D2247.
			2. Installation Method: Sequential tongue and groove with concealed stainless-steel fasteners. Panels must be started correctly, and the panels held true to line. Horizontal lines are to be straight and level and vertical lines plumb. Tolerance is to be +/- 1/8” in 10 feet.
	1. ACCESSORIES
		1. Fasteners: All panels shall be positively attached to the structure with project specific fasteners provided by manufacturer. These concealed fasteners shall be of a type and size to resist design loads. No exposed fasteners will be accepted, unless noted otherwise.
		2. Flashing and trim shall be provided as called out in the contract drawings.
		3. Sealants: All sealants shall be in accordance with the latest ASTM standards and shall comply with the sealant specifications of the contract documents.
		4. [Subgirts shall be furnished as part of the scope of this work as noted on the contract drawings as required to provide a complete wall assembly.]

# PART 3 EXECUTION

* 1. DELIVERY AND STORAGE
		1. Panels and accessories shall be crated so that they do not sustain damage during shipment.
		2. Store materials so that they are protected from weather, either indoors or under loose fitting tarps so that air can circulate to dry condensation. Store on a flat surface and block to allow drainage.
	2. EXAMINATION
		1. Verify that substrates are acceptable for installation of metal wall panels in accordance with manufacturer’s written instructions.
			1. Ensure structure and substrate is adequate to support metal wall panels.

2. [ ].

* + 1. Notify [Architect] of unacceptable conditions upon discovery.
		2. Proceed with preparation and installation only after unacceptable conditions have been corrected.

D. [ ].

# Note: Specify actions required to prepare the surface, area or site for incorporation of the section’s primary products. Describe requirements for exposure or removal of existing assemblies, components, products or materials.

* 1. PREPARATION

# Note: Specify preparatory work required prior to installation/application/erection of primary products.

* + 1. Protect adjacent materials and products from damage during installation of metal wall panels.
		2. Prepare substrates to receive metal wall panels and accessories in accordance with manufacturer’s written instructions. C. [ ].
	1. INSTALLATION
		1. Install metal wall panels in accordance with manufacturer’s written instructions and approved submittals.
		2. Install metal wall panels plumb and level.
		3. Accurately fit, align, securely fasten and install free from distortion or defects.
		4. Remove protective film only after installation

E. [ ].

* 1. CLEANING
		1. Clean-up waste and debris daily during installation.
		2. Upon completion, remove surplus materials, remaining debris, tools and equipment.
		3. Collect recyclable waste and dispose of as directed.

D. [ ].

# Note: Specify protection methods completed after installation, but prior to acceptance by the owner. Protection of surrounding areas and surfaces during application or installation is included under PART 3, Preparation. Include only statements unique to this Section.

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

* 1. PROTECTION
		1. Protect installed product from damage during subsequent construction.
		2. Repair damage to adjacent products caused by installation of metal wall panels.

C. [ ].

# END OF SECTION