

**Sheffield Metals International Guide Specification
SMI WAV™ Wall Panel over Metal Framing**

Sheffield Metals International (SMI) WAV Wall Panels (WAV-16-4F or WAV-16-4C) provide 16-inch panel coverage for installation over metal framing.

Sheffield Metals International (SMI) provides Engineered Metal Roof and Wall systems throughout the entire United States including Alaska, Hawaii, and the Caribbean. We provide complete package engineering and continuous support for the most complex projects. We are also a leader in the distribution of coated and bare metal products. We specialize in providing painted Galvalume® and aluminum for the architecturally driven metal panel industry, including:

- More than 50 Sherwin Williams® colors continuously stocked in Galvalume®

- Several popular colors in aluminum products in both coil and sheet

- Color matching for virtually any custom color

- Products meeting LEED requirements

- Zinc (elZinc®), stainless steel, and copper products in both coil and sheet

- 40-year Kynar® and 40-year silicone-modified polyester (SMP) coating warranties
- 5- to 35-year weathertight warranties - SMI warranty documents are available for viewing online

- Premium metal supplier coast to coast via five regional distribution centers

SMI's Architectural Department gives the architectural community access to their product data, testing and installation details. Their representatives have extensive backgrounds in the technical design, bidding, and installation phases of architectural metals work. SMI’s full-time, in-house Technical Department assists with proper panel profile selection, architectural detailing, engineering requirements, architectural submittals, estimating services, roll-forming machine training and support, technical and installation questions, and project problem solving. SMI's Technical Department manages weathertight warranties in-house, performing inspections directly without the use of third party inspectors.

**Specifiers**: In order to hide the Specifier notes, click on File, then Options, then Display and uncheck Hidden Text, click OK and close. To *reveal* the Hidden Text, follow steps as in hide, but then check Hidden Text, click OK and close. To print document with Hidden Text, at Display check Print Hidden Text.

Contact: Sheffield Metals International (800) 283-5262; specifications@sheffieldmetals.com; [www.sheffieldmetals.com](http://www.sheffieldmetals.com)

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SECTION 074213.13 - METAL WALL PANELS

1. GENERAL
	* + 1. SECTION INCLUDES
				1. Ribbed metal wall panels installed with concealed fasteners over metal framing, with related metal trim and accessories.
			2. RELATED REQUIREMENTS

**Specifier: If retaining this optional article, edit list below to correspond to Project.**

* + - * 1. Division 01 Section "Sustainable Design Requirements" for related sustainable design general requirements.
				2. Division 07 Section "Metal Wall Panels" for formed metal wall panels.
				3. Division 07 Section "Joint Sealants" for field-applied joint sealants.
			1. REFERENCES

**Specifier: If retaining this optional article, edit list below to correspond to Project.**

* + - * 1. American Architectural Manufacturer's Association (AAMA): [www.aamanet.org](http://www.aamanet.org):

AAMA 621 – Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) & Zinc-Aluminum Coated Steel Substrates.

AAMA 809.2 – Voluntary Specification Non-Drying Sealants.

AAMA 2605 – Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

* + - * 1. American Society of Civil Engineers (ASCE): [www.asce.org/codes-standards](http://www.asce.org/codes-standards):

ASCE 7 – Minimum Design Loads for Buildings and Other Structures.

* + - * 1. ASTM International (ASTM): [www.astm.org](http://www.astm.org):

ASTM A 653 – Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

ASTM A 755 – Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Pre-painted by the Coil-Coating Process for Exterior Exposed Building Products.

ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

ASTM B 209 – Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

ASTM C 645 – Specification for Nonstructural Steel Framing Members.

ASTM C 754 – Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

ASTM D 2244 – Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.

ASTM D 4214 – Test Methods for Evaluating Degree of Chalking of Exterior Paint Films.

ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

ASTM E 283 – Standard Test Method for Determining Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences across the Specimen.

ASTM E 331 - Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference.

ASTM E 330 – Standard Test Method for Structural Performance of Exterior Windows, Doors and Curtain Walls by Uniform Static Air Pressure Difference

* + - 1. ADMINISTRATIVE REQUIREMENTS
				1. Pre-installation Meeting: Prior to erection of framing, conduct pre-installation meeting attended by Owner, Architect, manufacturer's representative, inspection agency, structural support Installer, and related trade contractors.
			2. QUALITY ASSURANCE
				1. Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum five years' experience in manufacture of similar products in successful use in similar applications.

**Specifier: Retain paragraph and subparagraphs below if Owner allows substitutions but requires strict control over qualifying of substituted manufacturers.**

Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:

Product data, including certified independent test data indicating compliance with requirements.

Side by side comparison of specified characteristics.

Samples of each component.

Project references: Minimum of five completed installations, with Owner and Architect contact information.

Sample warranty.

Substitutions following award of contract are not allowed except as stipulated in Division 01 General Requirements.

Approved manufacturers must meet separate requirements of Submittals Article.

**Specifier: Review of manufacturers' qualifying of installers is recommended for larger projects. SMI requires Installer certification when project requirements include extended warranty.**

* + - * 1. Installer Qualifications: Experienced Installer certified by metal panel manufacturer with minimum of five years’ experience with successfully completed projects of a similar nature and scope.

Installer's Field Supervisor: Certified by metal panel manufacturer with minimum of five years' experience with successfully completed projects of a similar nature and scope, able to communicate with workers and Architect, supervising work on site whenever work is underway.

* + - 1. ACTION SUBMITTALS
				1. Product Data: Manufacturer’s data sheets for specified products.

Include data indicating compliance with performance requirements.

Include structural data indicating compliance with requirements of authorities having jurisdiction.

**Specifier: Retain and edit below to comply with Project requirements for LEED or other sustainable design requirements.**

* + - * 1. Sustainable Design Submittals:

Product Data: For recycled content, indicating postconsumer and pre-consumer recycled content.

**Specifier: Retain "Shop Drawings" Paragraph below when warranted by Project size or complexity.**

* + - * 1. Shop Drawings: Show layout of metal panels. Include details of each condition of installation, panel profiles, and attachment to building. Provide details of edge conditions, joints, fastener and sealant placement, flashings, openings, penetrations, and special details.
				2. Samples for Initial Selection: For each exposed product specified. Provide representative color charts of manufacturer's full range of colors.
				3. Samples for Verification: Provide 12-inch- (305 mm-) long section of each metal panel profile. Provide color chip verifying color selection.
			1. INFORMATIONAL SUBMITTALS
				1. Qualification Information: For Installer firm and Installer’s field supervisor.
				2. Product Test Reports: Upon request, for each product, for tests performed by a qualified testing agency.
				3. Manufacturer's Warranty: Sample copy of manufacturer's standard warranty.
			2. CLOSEOUT SUBMITTALS
				1. Maintenance data.
				2. Manufacturer's Warranty: Executed copy of specified warranty.
			3. DELIVERY, STORAGE, AND HANDLING
				1. Protect products of metal panel system during shipping, handling, and storage to prevent staining, denting, deterioration of components or other damage. Protect panels and trim bundles during shipping.

Deliver, unload, store, and erect metal panel system and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations.

Store in accordance with Manufacturer's written instructions. Provide wood collars for stacking and handling in the field.

* + - 1. COORDINATION

**Specifier: Paragraph below is a reminder to Contractor to verify coordination that should also take place during design. Review wind uplift tests and product approvals with structural engineer to ensure that the structural framing members selected meet the requirements of the specified testing.**

* + - * 1. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leak-proof, secure, and noncorrosive installation.
			1. WARRANTY

**Specifier: A selection of different warranty terms below are available from SMI. Verify that other allowable manufacturers furnish warranty meeting requirements.**

**NOTE: When designing with AZ50 Galvalume delete line 2 b. When designing with AZ55 Non-painted Galvalume Plus delete line 2 a.**

**Specifier: Contact SMI Architectural Department (802) 431-7878 to verify appropriate substrate warranty and project location.**

* + - * 1. Substrate Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials within specified warranty period when exposed to normal atmospheric conditions.

Failures include, but are not limited to, the following:

Structural failures including rupturing, cracking, or puncturing.

Deterioration of metals and other materials beyond normal weathering.

Warranty Period:

Painted AZ50 Galvalume: 25-Years, 6-Months after shipment from manufacturer.

AZ55 Non-painted Acrylic-Coated Galvalume Plus: 25-Years, 6-Months after shipment from manufacturer.

**SMI offers optional finish warranties of up to 40 years for selected finishes. Contact SMI Architectural Department (802) 431-7878 to verify warranty period available in the project’s location, and based upon the selected finish, metal substrate, and exposure.**

**Note: When designing with AZ55 Non-painted Galvalume Plus delete Paragraph B.**

* + - * 1. Panel Finish Warranty: On Manufacturer’s standard form, in which Manufacturer agrees to repair or replace metal wall panels that evidence deterioration of factory-applied finish under normal atmospheric conditions, including:

Fluoropolymer Paint System:

Color fading exceeding 5 Hunter units per ASTM D 2244.

Chalking exceeding No. 8 rating per ASTM D 4214.

Failure of adhesion, peeling, checking, or cracking.

Finish Warranty Period, Paint Finish: 40-Years from date of installation.

**Specifier: When applicable, apply the Special Installer Warranty as written below. The typical time frame for this type of warranty is two to five years.**

* + - * 1. Special Installer Warranty: Furnish a written warranty signed by the Panel Installer agreeing to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

Warranty Period: <Insert applicable period> years from date of installation.

1. PRODUCTS
	* + 1. MANUFACTURER

**Specifier: Retain basis of design manufacturer and products listed in this Article where allowed. If inserting comparable manufacturers, carefully review products and engineering capabilities in relation to requirements of this Section, to ensure that other approved manufacturers offer products meeting Sheffield Metal's standards.**

* + - * 1. Basis of Design Manufacturer: **Sheffield Metals International**, (800) 283-5262; specifications@sheffieldmetals.com; [www.sheffieldmetals.com](http://www.sheffieldmetals.com).

Provide basis of design product [ ,or comparable product approved by Architect prior to bid].

* + - * 1. Manufacturer/Source: Provide metal panel assembly and exposed sheet metal accessories from a single manufacturer meeting quality assurance requirements of this Section.
			1. PERFORMANCE REQUIREMENTS
				1. General: Provide metal panel system meeting performance requirements as determined by application of specified tests by a qualified testing facility on manufacturer's standard assemblies.

**Specifier: Recycled Content paragraph below describes calculation utilized for LEED-NC Credit MR 4. Modify as required to meet project recycled content requirements, or delete if recycled content requirements are stipulated solely in Division 01 Section "Sustainable Design Requirements."**

* + - * 1. Recycled Content: For Steel Products: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than [25] percent.
				2. Structural Performance: Provide metal wall panel systems designed to withstand testing in accordance with the ASTM E 330 standard using Uniform Static Air Pressure Difference:

**Specifier: SMI tests for Structural Performance of Sheet Metal Siding by Uniform Static Air Pressure Difference using 2 inch wide, 18 ga hat channel supports and 2” by 2” 24 ga. Galvanized steel clips.**

Wind Loads: Determine loads based on the following minimum design wind pressures: a. Uniform Pressure: [Insert design wind pressure] [as indicated on drawings].

Deflection Limits: Metal wall panels shall withstand horizontal deflections no greater than [L/180] [L/240] [insert deflection] of the span.

Wind Loads: Determine loads based on uniform pressure, importance factor, exposure category, and basic wind speed indicated on drawings per ASCE-7.

* + - * 1. Air Infiltration, ASTM E 283: Maximum 0.004 cfm/sq. ft. at static-air-pressure difference of 1.57 psf.
				2. Water Penetration Static Pressure, ASTM E 331: No uncontrolled water penetration at a static pressure of 6.24 psf.
			1. CONCEALED FASTENER METAL WALL PANEL
				1. General: Provide metal panels designed to be field assembled by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using either a clip/cleat or a fastener flange.

Basis of Design: **Sheffield Metals International, SMI WAV Wall Panels**

**Specifier: SMI WAV Wall panels are designed for attachment to supports with either a clip/cleat or a fastener flange. When panel length is 25 feet or longer, a clip or cleat is the appropriate method of attachment. A fastener flange is the appropriate method of attachment for panels at lengths up to 25 feet.**

[WAV-16-4F – fastener flange] [WAV-16-4C – clip or cleat]

**Specifier: For when designing with the option of Galvalume Plus with clear acrylic coating for use as exposed metallic finish, delete line d.**

Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, structural quality, Grade 50, pre-painted by the coil-coating process per ASTM A 755/A 755M.

Minimum Thickness: [0.0236 inch/24 gage (0.59 mm)] [0.0376 inch/22 gage (0.86 mm)] coated thickness.

Metal Panel Surface: [Smooth] [Stucco embossed].

Exterior Finish: [Fluoropolymer two-coat system] [Fluoropolymer three-coat system] [Non-painted Galvalume Plus AZ55 with acrylic coating].

Color: [As indicated on Drawings] [As selected by Architect from manufacturer's full range of standard colors] [Match Architect's custom color].

Panel Seam Height: 0.875 inch (22.2 mm).

Panel Width: 16.0 inch ( 406.4 mm).

* + - 1. METAL PANEL ACCESSORIES

**Specifier: For when designing with the use of a fastener flange as the appropriate method of attachment, delete Paragraph A below.**

* + - * 1. Panel Clips for Steel Sheets: Manufacturer's standard single-piece galvanized steel clip with ASTM A 653/A 653M, G90 (Z180) hot-dip galvanized zinc coating, 24 ga (0.63 mm) and required as per applicable engineering.
				2. Panel Fasteners: Self-tapping screws and other acceptable corrosion-resistant fasteners recommended by metal panel manufacturer for specified application. Where exposed fasteners cannot be avoided, supply fasteners with EPDM or neoprene gaskets, and heads matching color of metal panels by means of factory-applied coating.
				3. Joint Sealers: Manufacturer's standard or recommended liquid and preformed sealers and tapes, and as follows:

Tape Sealers: Manufacturer's standard non-curing butyl tape, AAMA 809.2.

Concealed Joint Sealant: Non-curing butyl, AAMA 809.2.

* + - 1. METAL PANEL SYSTEM ACCESSORIES
				1. Formed Metal Accessories: Provide complete metal panel assembly incorporating trim and miscellaneous flashings as required for Project, in metal panel manufacturer's recommended profiles. Provide required fasteners, closure strips, and sealants.

Match material, thickness, and finish of metal panels.

**Specifier: Retain the following optional paragraph as required by Project. Items below are not furnished by SMI.**

* + - * 1. Steel Sheet Miscellaneous Framing Components: Profile as indicated on Drawings, ASTM C 645, with ASTM A 653/A 653M, G60 (Z180) hot-dip galvanized zinc coating.
			1. FABRICATION
				1. General: Provide fabricated and finished metal panels and metal panel accessories meeting performance requirements, indicated profiles, finishes, and structural requirements.
				2. On-Site Fabrication: Fabricate metal panels on-site using manufacturer approved portable roll-forming equipment. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.
				3. Form panels in continuous lengths for full length of detailed runs, except where otherwise indicated on approved shop drawings.
				4. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with panel manufacturer's recommended profiles, approved shop drawings, and Project drawings. Form from materials matching metal panel substrate and finish.
			2. FINISHES
				1. Finishes, General: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
				2. Steel Panels and Accessories:

**Specifier: SMI's fluoropolymer coatings are based on Arkema, Inc. Kynar 500 and furnished by Sherwin Williams. SMI recommends a two-coat system for most applications; for circumstances where added abrasion resistance is required, a three-coat system is available; consult an SMI representative. Note: If designing with Non-painted Galvalume, delete Paragraph B.**

Fluoropolymer Two-Coat System: 0.2 – 0.3 mil primer with 0.7 - 0.8 mil 70 percent PVDF fluoropolymer color coat, AAMA 621.

Three-Coat Fluoropolymer: 0.2 – 0.3 mil primer with 0.7 - 0.8 mil 70 percent PVDF fluoropolymer color coat and 0.5 mil 70 percent PVDF fluoropolymer clear topcoat, AAMA 621.

Interior Finish: 0.5 mil total dry film thickness consisting of primer coat and wash coat of manufacturer's standard light-colored acrylic or polyester backer finish.

1. EXECUTION
	* + 1. EXAMINATION
				1. Examine metal panel system substrate and supports with Installer present. Inspect for erection tolerances and other conditions affecting metal panel installation.

Inspect metal panel support substrate to determine if support components are installed as indicated on approved shop drawings. Confirm presence of acceptable supports at recommended spacing to match installation requirements of metal panels.

Panel Support Tolerances: Confirm that panel supports are within tolerances acceptable to metal panel system manufacturer.

* + - * 1. Examine roughing-in for items penetrating metal panels to verify actual locations of penetrations properly located in relation to seam locations of metal panels.
				2. Correct out-of-tolerance work and other deficient conditions prior to proceeding with metal panel system installation.
			1. PREPARATION
				1. Miscellaneous Supports: Install sub framing, girts, furring, and other miscellaneous panel support members indicated on approved shop drawings according to ASTM C 754 and manufacturer's written instructions.
				2. Flashings: Provide flashings as required to complete metal panel system. Install in accordance with Division 07 section "Sheet Metal Flashing and Trim" and approved shop drawings.
			2. METAL PANEL INSTALLATION
				1. Concealed Fastener Metal Wall Panels: Install weathertight metal panel system in accordance with manufacturer's written instructions, approved shop drawings, and project drawings. Install metal panels in orientation, sizes, and locations indicated, assuring that the wall is square, straight, flat and in-plane. Anchor panels and other components securely in place. Provide for thermal and structural movement.
				2. Attach panels to supports using fasteners, and sealants recommended by manufacturer and indicated on approved shop drawings.

Fasten metal panels securely at each location indicated on approved shop drawings, with spacing and fasteners indicated.

Dissimilar Materials: Where elements of metal panel system will come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by manufacturer.

* + - 1. ACCESSORY INSTALLATION
				1. General: Install metal panel trim, flashing, and accessories using recommended fasteners and joint sealers, with positive anchorage to building, and with weather tight mounting. Coordinate installation with flashings and other components.

Install components required for a complete metal panel assembly, including trim, copings, flashings, sealants, closure strips, and similar items.

Comply with details of assemblies utilized to establish compliance with performance requirements and manufacturer's written installation instructions.

Provide concealed fasteners except where noted on approved shop drawings.

Set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently weather resistant.

* + - * 1. Install flashings to comply with metal panel manufacturer's and requirements specified in Division 07 Section "Sheet Metal Flashing and Trim."
				2. Joint Sealers: Install joint sealers where indicated and where required for weathertight performance of metal panel assemblies, in accordance with manufacturer's written instructions.

Prepare joints and apply sealants per requirements of Division 07 Section "Joint Sealants."

* + - 1. CLEANING AND PROTECTION
				1. Remove temporary protective films immediately in accordance with metal panel manufacturer's instructions. Clean finished surfaces as recommended by metal panel manufacturer.
				2. Replace damaged panels and accessories that cannot be repaired to the satisfaction of the Architect.

END OF SECTION