Guide Specifications

2012 Master Format™ Section 07 42 13.19

Metl-Span® 7.2 Insul-Rib™ Wall Panel For Commercial & Industrial Buildings

PART 1 – GENERAL

1.1 Work Included

A. Pre-insulated metal panel cladding where indicated on the drawings. Also included are all necessary trims, fasteners, sealants and gaskets as required for a weathertight installation. Panels shall be secured to the structure with concealed clips and fasteners in the sidejoints.
   1. Steel faced factory foamed-in-place with compatible joinery.
   2. Sealants between panels and their intersection.

1.2 Related Section

A. Section 01 81 13- Sustainable Design Requirements: LEED: The Leadership in Energy & Environmental Design green building rating systems developed and adopted by the U.S. Green Building Council (USGBC).
B. Section 05 12 00 – Cold Formed Metal Framing
C. Section 07 41 16- Insulated Core Metal Roof Panels
D. Section 07 62 00 – Sheet Metal Flashing and Trim
E. Section 07 92 00 – Joint Sealants

1.3 References

A. National Fire Protection Association (NFPA)
   3. NFPA 286 – Fire Test of Evaluating Conditions of Wall and Ceiling Finish to Roof Fire Growth
B. American Society for Testing and Materials (ASTM)
   2. ASTM E72 – Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
   3. ASTM E330 – Structural Performance of Exterior Curtain Walls by Uniform Static Air Pressure Difference
   4. ASTM E1592 – Structural Performance of Metal Roofing and Siding Systems by Uniform Static Air Pressure Difference
5. ASTM F1642 – Standard Test Method for Glazing and Glazing Systems subject to Airblast Loading
7. ASTM E283 – Standard Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen
9. ASTM E18 – Test Methods for Rockwell Hardness of Metallic Finishes
10. ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
12. ASTM A792 – Standard Specification for Steel Sheet, Aluminum-Zinc Alloy Coated Steel by the Hot-Dip Process
13. ASTM A924 – General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
14. ASTM D1621 – Compressive Properties of Rigid Cellular Plastics
15. ASTM D1622 – Apparent Density of Rigid Cellular Plastics
16. ASTM D1623 – Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
17. ASTM C273 – Shear Properties of Sandwich Core Materials
18. ASTM E90-99 – Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
19. ASTM E413-87 – Classification of Rating Sound Insulation
20. ASTM E1332-10a – Classification for Rating Outdoor-Indoor Sound Attenuation

C. Factory Mutual (FM)
   1. FM Approval Standard 4881 – Class 1 Exterior Wall Structural Performance
   2. FM Approval Standard 4880 – Class 1 Fire Rating of Insulated Wall, Ceiling and Roof Panels


E. Canadian Certifications
   1. CAN/ULC S102 – Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies
   2. CAN/ULC S101 – Fire Endurance Tests of Building Construction and Materials
   3. CAN/ULC S134 – Fire Test of Exterior Wall Assemblies
   4. CAN/ULC S138 – Fire Growth of Insulated Building Panels in a Full-Scale Room Configuration


1.4 Performance Requirements
A. Structural and Wind load Tests:
   1. The design load/deflection criteria shall be verified from tests per ASTM E72 “Chamber Method” using a 20 psf (.96 kPa) simulated wind load. A deflection limit of L/180 for exterior wall panels, L/120 for partition and liner walls and L/240 for ceiling panels shall apply.
   2. FM Approval Standard 4881, Standard for Class 1 Exterior Wall Systems. Wind pressures are calculated per FM Global Property Loss Prevention Data Sheet 1-28, ratings are established and support spacing is determined based on FM Approval Standard 4881 listings.

B. Thermal Performance:
   1. Tested in accordance with ASTM C1363, “test method for thermal performance of building materials and envelope assemblies by means of a hot box apparatus”. Please see the material specifications section for overall “R” values.

C. Vapor Barrier:
   1. Air Infiltration: Air infiltration shall not exceed .06 cfm per square foot of wall area when tested in accordance with ASTM E283 at a static pressure of 12 psf (.576 kPa)
   2. Static Water Penetration: There shall be no uncontrolled water penetration through the panel joints at a static pressure of 20 psf (.96 kPa) when tested in accordance with ASTM E331.
   3. Dynamic Water Penetration: There shall be no uncontrolled water penetration through the panel joints when subjected to a 95 mph (153 kph) slip stream air flow and application of water for a 15 minute period in accordance with AAMA501.1
   4. Condensation Resistance Factor: The minimum condensation resistance factor of the panel shall be 92 when tested in general accordance with AAMA 1503.1

D. Fire:
   1. Surface Burning Characteristics: The insulated core shall have been tested in accordance with ASTM E84 for surface burning characteristics. The core shall have a maximum flame spread of 25 and a smoke developed rating of 450.
   2. Factory Mutual Research Corporation (FMRC) Standard 4880, 50’ (15.24 m) High Corner Test for Unlimited Height Structures: The panel assembly shall not support a self-propagating fire which reaches any limits of the 50 foot (15.24 m) high corner test structure as evidenced by flaming or material damage of the ceiling of the assembly.

   **Note to Specifier:** Approval is applicable to structures of unlimited height.
4. Canadian Certifications – Flame spread: Evaluation of fire spread over the exterior surface shall be conducted and in compliance with CAN/ULC S138 Fire Growth of Insulated Building Panels in a Full-Scale Room Configuration.

5. IBC Chapter 26: Panel performance under the above test methods, shall meet the requirements of IBC, Chapter on foam plastics.

E. Bond Strength:
   1. Fatigue Test: The panel shall withstand deflection cycling at L/180 to two million alternate cycles with no evidence of delamination, core cracking or permanent bowing.
   2. Freeze/Heat Cycling: The panel shall exhibit no delamination, surface blistering or permanent bowing when subjected to cyclic temperature extremes of -20°F (-28°C) to +180°F (+82°C) for twenty-one (21) eight hour cycles.
   3. Humidity Test: The panel shall exhibit no delamination or metal corrosion at interface when subjected to a 140°F (60°C) temperature and 100% relative humidity for a total of 1200 hours.
   4. Autoclave Test: The panel shall exhibit no delamination of the foam core from metal skins when exposed to 2 psi (.122 kg/sq. cm) pressure at a temperature of 212°F (100°C) for a total of 2 ½ hours.

1.5 Quality Assurance

A. Installer Qualifications: Installed by a contractor with a minimum of five (5) years’ experience with this type of construction, and documentation indicating successful completion of contracts for projects of similar size, scope and materials.

B. Manufacturer’s Qualifications: The manufacturer shall have a minimum of ten (10) years’ experience in production of factory foamed-in-place insulated metal panels.

1.6 Submittals

A. Complete shop drawings, including elevations, fastening patterns and sections of each condition shall be submitted for approval prior to fabrication. Such drawings shall also include material type, metal thickness, paint finish and manufacturer’s installation suggestions.

B. Submit under provisions of Section 01 33 00.

C. Manufacturer’s data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Material type, metal thickness and finish.
   4. Installation methods.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer’s full range of available colors and patterns.

E. Panel Samples: Submit 1′-0″ (30.48 cm) by full width sample panel indicating the metal, texture and finish proposed.

F. LEED Submittals:
   1. EA – Energy and Atmosphere
      a. EA Credit 1: Optimize Energy Performance
i. Demonstrating percentage of performance improvement that meets or surpasses ASHRAE/IESNA Standard 90.1-2004.

b. EA Prerequisite 2: Minimum Energy Performance
   i. Insulated metal wall panel will contribute to higher energy efficiency of a building that must comply with a 10% improvement in the performance compared to benchmark rating based on ASHRAE/IESNA Standard 90.1-2007 (with errate but without addenda) in EA Prerequisite 2.

2. MR – Material and Resource
   a. MR Credit 1.1 & 1.2: Building Reuse
      i. Maintain Existing Walls, Floors & Roof
      ii. Maintain Interior Non-Structural Elements
   b. MR Credit 3: Materials Reuse
   c. MR Credit 4: Recycled Content
      i. Percentage weight of post-consumer and pre-consumer recycled content – use materials with recycled content.
      ii. Recycled content value of product assembly by weight.
      iii. Indicate total value (cost) of each product used.
   d. MR Credit 6: Rapidly Renewable Materials
      i. The foam core in the wall panels contains a component that contributes to one point for using rapidly renewable buildings materials and products for 2.5% of the total value of all building materials and products used in the project (based on cost.)

3. IEQ – Indoor Environmental Quality
   a. IEQ Credit 4.1: Low-Emitting Materials – Adhesives and Sealants
      i. Product data on adhesives and sealants to comply with standards for South Coast Air Quality Management District rule #1168.
      ii. Product data for paint and coatings having no VOC’s

4. ID- Innovation in Design:
   a. ID Credits 1.1 to 1.4:
      i. The wall panel integrated into a building’s overall design can contribute to points if the building’s design team applies strategies or measures that demonstrate performance above the requirements in categories and/or innovative performance not specifically addressed by LEED in ID Credits 1.1 to 1.4.

G. Buy American Act Certification: Submit documentation certifying that products comply with provisions of the Buy American Act 41 U.S.C 10a-10d.

1.7 Warranty

A. Submit manufacturer’s written two (2) year limited warranty providing panels to be free from defects in materials and workmanship, beginning from the date of substantial completion excluding coil coatings (paint finishes) that are covered under a separate warranty.
B. The installation contractor shall issue a separate one (1) year warranty against defects in installed materials and workmanship, beginning from the date of substantial completion of the installation.

1.8 Finish Warranty

A. Submit Manufacturer’s forty (40) year limited warranty on the exterior paint finish for adhesion to the metal substrate and thirty (30) year limited warranty on the exterior paint finish for chalk and fade.

Note to Specifier: No warranty is offered for the interior painted surface of the panel.

PART 2 – PRODUCTS

2.1 Acceptable Manufacturer:

A. 7.2 Insul-Rib™ Insulated Metal Wall Panels as manufactured by Metl-Span of Lewisville, TX, 75057, USA, Phone: (972) 221-6656, Fax: (972) 420-9382, Email: panel@metlspan.com Website: www.metlspan.com.

2.2 Panel Design

A. Construction: Pre-insulated wall panels shall have roll-formed exterior and interior faces chemically bonded to continuously foamed-in-place polyurethane. The steel faces shall have a stucco embossed texture. Laminated panels shall not be accepted.

B. Metl-Span 7.2 Insul-Rib™ Wall Panel: Concealed fastener wall panels with offset double tongue and groove joinery and an extended metal shelf allowing fasteners to penetrate both metal faces with clips concealed in the side joint.
   1. Exterior Profile: 1-1/2” deep ribs at 7.2” on-center.
   2. Interior Profile: Mesa Wave Pattern nominal 1/8” deep; Light Mesa Pattern nominal 1/16” deep
   3. Module Width: 36”
   4. Thickness: 2.5”, 3”, 4”, 5” & 6” - Thickness measured from interior skin to the top of the High Rib.

C. Side Connections:
   1. The side joints of the 7.2 Insul-Rib™ wall panel shall have offset double tongue and groove joinery with an extended metal shelf allowing fasteners to penetrate both metal faces with clips concealed in the side joint.

D. Sealants:
   1. All Sealants shall be field applied to ensure maximum vapor and water tightness.

2.3 Materials

A. The exterior face gauge shall be (26 Ga., 24 Ga., 22 Ga.) thick (select one), G-90 galvanized steel conforming to ASTM A-653 and/or prefinished AZ-50 aluminum-zinc
coated steel conforming to ASTM A-792, minimum grade 33 with stucco embossed texture.

B. The interior liner shall be (26 Ga., 24 Ga., 22 Ga.) thick (select one), G-90 galvanized steel conforming to ASTM A-653 and/or AZ-50 aluminum-zinc coated steel conforming to ASTM A-792, minimum grade 33 with stucco embossed texture.

C. Foam core shall be continuously foamed-in-place, zero ODP and zero VOC closed cell polyurethane.

D. Provide complete insulated metal wall panel assembly incorporating trim and miscellaneous flashings. Provide required fasteners, clips, closures, tapes and sealants as specified by the Manufacturer.

E. Flashing and trim shall be brake-formed sheet metal in the same thickness and finish to match the panels.

2.4 Finishes

A. Exterior face sheet shall be treated with a nominal 0.2 mil (5 microns) base primer, followed by a nominal 0.7 mil (17.5 microns) finish coat of full strength 70% PVDF Fluoropolymer coating in manufacturer’s standard colors.

**Note to Specifier:** Thick mil coatings for aggressive environments are available at extra cost. Siliconized Polyester is also available. Consult the factory or website at metlspan.com for complete information.

B. The interior sheet shall be a nominal 0.2 mil (5 microns) primer followed by a nominal 0.7 (17.5 microns) polyester coating in USDA compliant Igloo White.

PART 3 – EXECUTION

3.1 Examination

A. Panel installer shall examine all structural steel before beginning installation to insure that all supporting members are straight, level, plumb and satisfactory for panel installation.

B. Intermediate framing member (secondary structural supports) alignment tolerances required, as specified below:
   1. 0 to 1/4" outward of the actual wall framing plane for members at 10’ or greater spacing.
   2. 0 to 1/8" outward of the actual wall framing plane for members at 5’ to 10’ spacing.
   3. 0 to 1/16” outward of the actual wall framing plane for members at less than 5’ spacing.

C. Do not begin installation until unsatisfactory conditions are corrected.

D. Beginning of installation shall signify the structure and adjacent conditions as being proper and acceptable.

3.2 Delivery, Storage and Handling
A. Protect products of metal roof panel system during shipping, handling, and storage to prevent staining, denting, deterioration of components or other damage.
B. Deliver, unload, store, and erect insulated metal wall panels and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations.
C. Store in accordance with Manufacturer’s written instruction.
D. Shield foam insulated metal wall panels from direct sunlight until installation.
E. Store products off the ground, with panels sloped for drainage and covered to protect factory finishes from damage. Stack bundles no more than two (2) high.

3.3 Installation

A. Installation of panels shall be made in accordance with manufacturer’s recommended procedures, approved shop drawings, installation guide book and manufacturer’s handbook of construction details.
B. Flashing and trim shall be installed true and in proper alignment. Sealant shall be installed where indicated, without skips and voids, to insure weather tightness and integrity of the vapor barrier.

3.4 Damaged Material

A. Replace damaged panels and other components of work that cannot be repaired by finish touch-up or similar minor repair.
B. The panel installer shall inspect and approve each completed wall area and shall be responsible for protection of completed work from damage by other trades.
Note to Specifier: The use of touch-up paint is not recommended for minor surface scratches. However, it is recommended to always use touch-up paint if the scratch goes to bare metal. When using touch-up paint, it should be limited to small areas. Touch-up paint will never match coil-coated finishes’ longevity, color and gloss.

3.5 Cleaning

A. Replace damaged panels and other components of work, which cannot be repaired by finish touch-up or similar minor repair.
B. Wipe finished surfaces clean of any filings caused by drilling or cutting to prevent rust staining.
C. Protective film on trim should be removed before exposure to sunlight.

All specifications and designs are subject to change without notice.