

SECTION 07 42 13.19

INSULATED METAL WALL BARRIER BACK UP PANELS

ATAS International, Inc.

General Specification for Commercial/Industrial and Architectural Applications

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Factory-assembled insulated metal panel system for walls, with trim, related flashings and accessory components.
- B. Secondary sub-girt framing system, attached to building structural frame.

1.02 RELATED REQUIREMENTS

- A. Section 072100 - Thermal Insulation.
- B. Section 072600 - Vapor Retarders: Vapor retarder materials.
- C. Section 072700 - Air Barriers: Air barrier materials.
- D. Section 077100 – Roof Specialties.

1.03 REFERENCE STANDARDS

- A. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- B. ASCE 7 – Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.
- C. ASTM A 755 - Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
- D. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2023.
- E. ASTM C 518 – Standard Test Method for Steady-State Thermal Transmission Properties.
- F. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by means of a Hot Box Apparatus.
- G. ATASM C 237 – Standard Test Method for Shear Properties of Sandwich Core Materials.
- H. ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
- I. ASTM D 1623 - Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
- J. ASTM D 1622 – Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- K. ASTM D 6266 - Standard Test Method for Open Cell Content of Rigid Cellular Plastics.

- L. ASTM E 72 - Standard Test Method for Conducting Strength Tests of Panels for Building Materials.
- M. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
- N. 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 Specimen.
- O. ASTM E 331 – Standard Test Method for Water penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference.
- P. FLA (PAD) - Florida Building Code Online - Product Approval Directory; Current Edition.
- Q. ANSI MCA – FTS-1 Perimeter Edge Metal Roof Flashing Standard
- R. FM Global 4880 – Approval Standard Class 1 Fire Rating of Insulated Wall and Roof/Ceiling Panels.
- S. FM 4881 - Evaluating Exterior Wall Systems – Approval Standard for Class 1 Wall Panels.
- T. NFPA 285 – Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components.
- U. ASTM D1005: Used to test the dry film thickness of silicone polyester coil coatings.
- V. ASTM B117: Used to test the salt spray resistance of silicone polyester coil coatings.
- W. ASTM D714: Used to test the humidity resistance of silicone polyester coil coatings.

1.04 SUBMITTALS

- A. See Section 01 3000 – Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Summary of test results, indicating compliance with specified requirements.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Specimen warranty.
- C. Manufacturers Shop Drawings: Include layouts of wall panels, details of base and penetration conditions, spacing and type of connections, flashings, weather resistive barrier, and special conditions.
 - 1. Show work to be field-fabricated or field-assembled.
 - 2. Include structural analysis signed and sealed by qualified structural engineer, indicating compliance of wall assembly to specified loading conditions.
- D. Selection Samples: For each wall system specified, submit color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each wall system specified, submit samples of minimum size 12 inches (305 mm) square, representing actual wall metal, thickness, profile, color, and texture.
- F. Manufacturer's qualification statement.
- G. Installer's qualification statement.

- H. Test Reports: Indicate compliance of metal roofing system to specified requirements
- I. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.
 - 1. Certified ISO 9001:2015 with Design
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.
- C. Designer Qualifications; Experienced in the design of insulated metal panels and a registered Professional Engineer.
- D. Pre-Construction meeting; Convene meeting prior to ordering materials to review scope of work and verify construction details, with the following attendees:
 - 1. General Contractor
 - 2. Installing Contractor
 - 3. Owner's Representative
 - 4. Architect
 - 5. Manufacturer's Representative
- E. Source Limitations: Obtain components for Insulated Metal Wall Assembly from or approved by system manufacturer.

1.06 MOCK-UP

- A. Provide mock-up of ___ sq ft (___ sq m), including attachment associated flashings, and trims.
- B. Locate as directed by Architect.
- C. Mock-up may remain as part of the work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.
- B. Deliver panels in the original manufacturers weather resistant, shrink-wrapped packaging with clearly marked labels.
- C. Store panels in a clean, level, protected area. Provide ventilation if bundles are exposed to moisture, elevate one end of panels to ensure adequate runoff. Do not stack more than two bundles high. Stack material to prevent twisting, bending, abrasion and denting.
- D. Use proper care in unloading, storing and installing insulated wall panels. Handle in a fashion that will not bend, dent, scratch or otherwise damage the product.
- E. Provide strippable plastic protection on prefinished wall panels for removal after installation.
- F. Refer to the ATAS International Inc. Isoleren Insulated Metal Panels Handling & maintenance Guide for more specific information.

1.08 WARRANTY

- A. See Section 017800 - Closeout Submittals for additional warranty requirements.
- B. The manufacturer warrants the panel free of defects in material and workmanship for a period of two years from the date of production. This excludes the material coatings and finishes which are covered under separate warranties.
- C. The manufacturer warrants the GALVALUME substrate for a period of 20 years subject to the terms and conditions set forth in the manufacturer's product warranty.
- D. Finish Warranty: Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading or chalking within specified warranty period of 30 years from Date of Substantial Completion. Complete forms in Owner's name and register with warrantor.

PART 2 – PRODUCTS

2.01 PREFORMANCE

- A. Acceptable Manufacturer: ATAS International Inc; Isoleren Insulated Metal Wall Panels;
<https://www.atas.com/products/insulated-metal-panels/insulated-metal-wall-panels>
- B. Provide complete insulated metal wall assembly, including panels, clips, fasteners, connectors, and miscellaneous accessories, tested for compliance with the following minimum standards:

Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed $L/180$ of span length(L) when tested in accordance with ASTM E1592.
 - 1. Dead Loads: As required by ASCE 7.
 - 2. Live Loads: As required by ASCE 7.
- C. Overall: Designed considering the load(psf), tributary area (sq. ft), ultimate fastener pullout/pullover (lbs.) and appropriate factor of safety.
- D. Impact Resistance:
 - 1. Severe Hail Resistance FM 4881
- E. Air Infiltration: Maximum 0.001 cfm/sq ft at air pressure differential of +/- 20 psf, when tested according to ASTM E 283.
- F. Water Penetration: No uncontrolled water penetration when subjected to a pressure differential of - 20 psf when tested in accordance with ASTM E 331.
- G. Movement: Accommodate the movement caused by the following without damage to system, components, or deterioration of seals.
 - 1. Normal movement between system components.
 - 2. Seasonal temperature cycling.
 - 3. Deflection of support framing.
- H. Metal Facing Foam Core Bond Strength:

1. Fatigue – Upon completing two-million cycles of L/180 deflection, the panels show no evidence of delamination of the fascia or liner elements, cracking of the foam core, or permanent set.
 2. Freeze/Heat Cycling – At conclusion of twenty-one eight-hour temperature cycles (-20°F to 180°F), the panels show no evidence of delamination, blistering or permanent set.
 3. Humidity – After enduring 1200 hours of 93% humidity at a temperature of 158°F, the panels show no evidence of delamination or inference of corrosion.
 4. Autoclave – When exposed to 218°F and a pressure of 2-psig for 2.5 hours, the panels shall exhibit no delamination of the foam core from the metal skins.
- I. Thermal Resistance: When tested in accordance with ASTM C518 the panels provide a K factor of 0.138 Btu-in/hr-ft²-F* @75°F mean temperature (R-7.25) and 0.129 Btu-in/hr-ft²-F* @35°F mean temperature (R-7.75)
- J. Fire Safety:
1. The panels shall be classified for below deck combustibility according to FM Approval Standard 4880.
 2. The panels shall be classified for above deck combustibility (Class A severe exposure) according to FM Approval Standard 4471 (ASTM E108 Fire Test of Roof Coverings)
 3. Verify the Panels have a maximum Flame Spread of 25 and a maximum Smoke Developed of 450 when tested in accordance with ASTM E 84.
- K. Substitutions: See Section 016000 - Product Requirements.
1. Substitutions will be considered only if materials meet requirements of Basis of Design and are approved by Architect in writing 10 days prior to bid.

2.02 COMPONENTS

- A. General: Provide a complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of wall Assembly.
- B. Profile: ATAS Isoleren ML ---Factory-formed Insulated Metal Wall Panels consisting of roll-formed interior and exterior profiles chemically bonded to a continuously, foamed-in-place, polyisocyanurate insulating core.
1. Exterior profile: Isoleren ML.
 2. Interior profile: Isoleren ML
 3. Exterior Material Gauge: 26 Gauge
 4. Interior Material Gauge: 26 Gauge
 5. Substrate: Galvalume
 6. Insulation Thickness: [2 Inches, 2-1/2 Inches, 3 Inches, 4 Inches, 5 Inches, 6 Inches]
 7. Panel Width: 42 Inches
 8. Exterior Texture: Embossed

9. Interior Texture: Embossed

2.03 ATTACHMENT SYSTEM

- A. Concealed System: Provide manufacturer's standard 16-gauge, 4 inch wide, 5-hole steel concealed anchor clips designed for specific system and engineered to meet performance requirements, including anticipated thermal movement.

2.04 FABRICATION

- A. Field applied seam sealant shall be non-curing butyl.
- B. Match all flashing and trims with adjacent panels in material gauge and finish.
- C. Provide factory formed trims and flashings in 10'-0" lengths unless design dictates otherwise.
- D. Penetration Covers (Z Boxes) to be supplied by panel manufacturers, factory fabricated in the same gauge and finish as metal panels.
- E. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, and equipment curbs of the same material, thickness, and finish as used for the roofing panels.
- F. Follow Manufacturers standard processes as recommended to achieve specified appearance and performance requirements.
- G. Conceal fasteners where possible. Exposed fasteners are not allowed on faces of flashing and accessories exposed to view.
- H. Protect painted finishes on exposed surface from damage by applying a strippable temporary protective covering.

2.05 FINISHES

- A. Below are Siliconized Polyester Colors only.
- B. Protect painted finishes on exposed surface from damage by applying a strippable, temporary protective covering.
- C. Cleaning and Pretreatment
 - 1. Wet chemistry technology
 - 2. Complex Chrome oxide pretreatment
 - 3. Chrome final rinse
- D. Siliconized Polyester Coil Coating System: Siliconized Polyester two-layer performing coatings system complying with AAMA 2604, with at least 80 percent of coil coated aluminum surfaces having minimum total dry film thickness (DFT) of 0.9 mil, 0.009 inch (0.23 mm); color and gloss as selected by Architect to match sample.
 - 1. Color
 - a. Facer side of panel
 - 1. Regal White II
 - b. Liner side of panel: Manufacturer's standard Polyester backcoat system consisting of a wash coat finish over appropriate primer.

1. Regal White I

2.06 SECONDARY FRAMING

- A. Miscellaneous Secondary Framing: Light gauge steel framing incidental to structural supports; fabricated from steel sheets.
- B. Profile: Manufacturer's standard cee, zee, asymmetrical zee, hat channel, plain channel, single slope eave strut, double slope eave strut, and angle.
 - 1. Finish: Galvanized per ASTM A653/A653M, G90.
- C. Framing Connectors: Factory-made formed steel sheet, ASTM A653/A653M SS Grade 50, with G60/Z180 hot dipped galvanized coating and factory punched holes.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Do not begin installation of insulated metal wall panels until substrates have been properly prepared.
- B. Examine primary and secondary wall framing to verify that eave strut, girts, angles, channels, and other structural support members and anchorages have been installed within alignment tolerances required by metal panel manufacturer.
- C. Examine roughing-in for components and systems penetrating metal wall panels to verify locations of penetrations relative to the seam locations of metal wall panel prior to installation.
- D. If substrate preparation is the responsibility of another installer, notify the Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Coordinate wall assembly work with provisions for flashing, trim, penetrations, and other adjoining work to assure that the completed assembly will be weathertight.
- B. Remove protective film from surface of wall panels and associated trims immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.
- C. Separate dissimilar metals by applying bituminous coating, self-adhering rubberized asphalt sheet, or other permanent methods approved by wall panel manufacturer.
- D. Where the metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.03 INSTALLATION

- A. Overall: Install the wall system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of wall assembly securely in place while allowing for thermal and structural movement.
- B. Shim or otherwise plum substrate receiving insulated panels.
- C. Align bottom of metal panel straight and true to base trim.
 - 1. Anchor securely in place using manufacturers spacing and fastening pattern.

- D. Install wall panels with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.
- E. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches or grinders for field cutting is absolutely prohibited.
- F. Accessories: Install all components required for a complete wall assembly, including flashings, gutters, downspouts, trim, moldings, closure strips, caps, equipment curbs, rib closures, ridge closures, and similar wall accessory items.
- G. Install flashing and trim without buckling and tool marks, exposed edges hemmed as metal work proceeds.
 - 1. Locate and space all flashing in uniform vertical and horizontal alignment providing for thermal expansion and contraction of flashing and trim.
- H. Wall Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.
- I. Install Accessory Items with positive anchorage to the building and weathertight mounting. Coordinate with other trades as required.
 - 1. Attach Gutters to eave with gutter hangers spaced not more than 24-inches on center using the manufacturers standard fasteners. Provide end caps and seal weather tight with sealant Provide for thermal expansion and contraction.
 - 2. Attach Downspout sections with straps designed to hold downspouts securely one inch away from the wall, locate straps at the top and bottom and approximately sixty inches on center in between.
 - a. Provide elbow downspouts to underground drainage system as indicated. at the base of the downspout to direct water away from building.
 - b. Connect downspout to underground drainage system as indicated.

3.04 CLEANING

- A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.05 PROTECTION

- A. Do not permit storage of materials against or on installed panels to avoid damage to completed work. Protect wall assembly until completion of project.
- B. Touch-up, repair, or replace damaged wall panels or accessories before Date of Substantial Completion.

3.06 FIELD QUALITY CONTROL

- A. Manufacturers Field Service: Engage an independent third-party factory-authorized service representative to inspect completed metal roof panel installation, including accessories. Report results in writing.
- B. Remove and replace applications of metal wall panels where inspections indicate that they do not comply with specified requirements.

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- C. Additional inspections, at the Contractors expense, will be performed to determine compliance of replaced or additional work with specified requirements.

END OF SECTION