SECTION 07 41 13

INSULATED METAL ROOF PANELS

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\*\* NOTE TO SPECIFIER \*\* All Weather Insulated Panels ; insulated metal panels.  
This section is based on the products of All Weather Insulated Panels , which is located at:  
929 Aldridge Rd  
Vacaville, CA 95688  
Toll Free Tel: 888-970-2947  
Fax: 707-359-2286  
Email: [request info (sales@awipanels.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=All+Weather+Insulated+Panels+&coid=49209&rep=&fax=707-359-2286&message=RE:%20Spec%20Question%20(07411aws):%20%20&mf=)  
Web: [www.awipanels.com](http://www.awipanels.com)   
 [ [Click Here](http://www.arcat.com/arcatcos/cos49/arc49209.html) ] for additional information.  
All Weather Insulated Panels Is an innovator in the design, construction and advancement of insulated metal panels and is strategically positioned to meet the growing energy, environmental and economic challenges facing the North American building industry. All Weather Insulated Panels has 3 state-of-the-art continuous line manufacturing facilities: Vacaville, CA, Little Rock, AR and Hamilton, Ontario, Canada.  
From freezing, sub-zero temperatures to dry heat or high humidity, Mother Nature continually tests the limits of building envelopes. All Weather Insulated Panels are specifically engineered to maintain interior climate control regardless of external weather conditions. Discover the wide range of panel color, finishes, dimensions, concealed fastening systems, trims and engineering systems that will help you unleash your full design capabilities.

1. GENERAL
   1. SECTION INCLUDES
      1. Pre-insulated metal roof panels.
   2. RELATED SECTIONS

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

* + 1. Section 05 12 16 - Fabricated Fireproofed Steel Columns.
    2. Section 07 41 13 - Metal Roof Panels.
  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 International (ASTM):
       1. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
          1. ASTM D 2126 - Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
       2. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
          1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
          2. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.
          3. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
    2. Factory Mutual Research Corporation (FMRC) Standard 4771 - Approval Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR), and Liquid-Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction.
    3. Factory Mutual Research Corporation (FMRC) Standard 4880 - Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coating and Exterior Wall Systems.
    4. Factory Mutual Research Corporation (FMRC) Standard 4881 - Standard for Class 1 Exterior Wall Systems.
  1. SYSTEM DESCRIPTION - ROOF PANELS
     1. General: Furnish and install all steel faced factory insulated roof panels forming the exterior cladding and the related accessories and trims required for a complete weathertight roof installation.
     2. Design: The metal faced foam core roof panels shall be produced on a continuous process manufacturing line under strict quality control and must be independently audited quarterly by a recognized audit facility/testing lab. Panel thickness, gauges, spans between supports and overall lengths shall be as required to contribute to the combined action of the roof in resisting the specified design loads with a deflection not to exceed L/240.
     3. Performance:
        1. The panels ability to withstand positive and negative design loads shall be verified by testing in accordance with the ASTM E 72 Vacuum Chamber Method with the standard deflection criteria to be L/240.
        2. The panel thermal properties shall be verified by actual tested values in accordance with the ASTM C 518 steady state thermal transmission test method. Aged K Factor shall not exceed 0.14 @ 75 degree F (24 degree C) mean temperature or 0.13 @ 40 degree F (4.4 degree C) mean temperature.
        3. The panel core shall have a flame spread maximum of 25 and smoke developed maximum of 450 as tested in accordance with the ASTM E 84 test method.
        4. The panel shall have Factory Mutual Class 1 Approval for wall and roof/ceiling construction in accordance with the full scale FM 4880 test program with no height restriction.
        5. The panels shall have Factory Mutual Approval for wind uplift, hailstorm, foot traffic, and spread of flame (ASTM E 108- Class A rated) in accordance with FM 4471.
        6. The panels shall be State of Florida Product Approved.
        7. The polyisocyanurate foam core shall meet or exceed the following physical properties:
           1. R Value (1 inch (25.4 mm)): 8.
           2. Compressive Strength: 25 psi (175 kPa).
           3. Density (in-place): 2.1 to 2.5 pcf (37 gram/liter to 40gram/liter).
           4. Shear Strength: 28 to 32 psi (193 kPa to 221 kPa).
           5. Closed Cell Content: 95%.
           6. Dimensional Stability: 14 day aged (ASTM D 2126): -20 degree F (-29 degree C) < 1% change, dry heat 158 degree F (70 degree C) < 1% change, Humid Heat 158 degree F (70 degree C).
  2. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     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: Contractor shall furnish detailed drawings showing location and profile of insulated panels, as well as location and shape of formed metal flashings, and the location and type of sealants and fasteners.
     4. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.
  3. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.
     2. Installer Qualifications: Minimum 2 year experience installing similar products.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
       1. Finish areas designated by Architect.
       2. Do not proceed with remaining work until workmanship is approved by Architect.
       3. Refinish mock-up area as required to produce acceptable work.
  1. PRE-INSTALLATION MEETINGS
     1. Convene minimum two weeks prior to starting work of this section.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
     2. Manufacturer shall provide panel contractor with written instructions for recommended product storage and handling.
     3. Handling: Handle materials to avoid damage.
  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 recommended limits.
  4. SEQUENCING
     1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
  5. WARRANTY
     1. Manufacturer shall warrant the panels as free from defects in material and workmanship for 2 years from the date of production.
     2. Manufacturer shall warrant that the exterior paint finish will not:
        1. Chip, crack, check, or peel for a period of thirty years from date of installation (except for such crazing that may occur on tightly roll-formed edges and brake bends).
        2. Chalk in excess of a numerical rating of 8 for a period of thirty years from date of installation when measured in accordance with the standard procedures outlined in ASTM D-659.
        3. Fade or change color in excess of 5 E units for a period of thirty years from date of installation when calculated in accordance with ASTM D-2244. The color change is to be measured on exposed painted surface cleaned of surface soils and oxidation.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: All Weather Insulated Panels , which is located at: 929 Aldridge Rd; Vacaville, CA 95688; Toll Free Tel: 888-970-2947; Fax: 707-359-2286; Email: [request info (sales@awipanels.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=All+Weather+Insulated+Panels+&coid=49209&rep=&fax=707-359-2286&message=RE:%20Spec%20Question%20(07411aws):%20%20&mf=); Web: [www.awipanels.com](http://www.awipanels.com)
      2. Web: http://www.awipanels.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 - Product Requirements.
       1. This specification is written with the All Weather Insulated Panels wall panel as the basis of acceptable design, quality and performance. Requests for substitutions shall be submitted in writing no less than 14 days prior to bid.
  1. INSULATED ROOF PANELS

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. HR Series as manufactured by All Weather Insulated Panels.

\*\* NOTE TO SPECIFIER \*\* HR3 roof and wall panels are an economical solution compared to field assembled High Rib roof applications. This 40" wide panel installs quickly and easily by through fastening into supporting members. A unique EPDM gasketed saddle washer allows the fastener to be located at the standing ribs and out of shed water. Delete if not required.

* + - 1. Model HR3 - 3 Rib Insulated Panels.

\*\* NOTE TO SPECIFIER \*\* HR5 roof panels are an economical alternative to field assembled High Rib roof applications. This 5 Rib profile allows for long span requirements and/or severe loading conditions. This 40" wide panel installs quickly and easily by through fastening into supporting members. A unique EPDM gasketed saddle washer allows the fastener to be located at the standing ribs and out of shed water. Delete if not required.

* + - 1. Model HR5 - 5 Rib Insulated Panels.
      2. Thickness: The insulated metal roof panel shall be 1.5 inches (38 mm) thick.
      3. Thickness: The insulated metal roof panel shall be 2.5 inches (64 mm) thick.
      4. Thickness: The insulated metal roof panel shall be 4 inches (102 mm) thick.
      5. Thickness: The insulated metal roof panel shall be 5 inches (127 mm) thick.
      6. Thickness: The insulated metal roof panel shall be 6 inches (152 mm) thick.
      7. Width: 40 inches (1016 mm) wide as detailed on the design drawings.
      8. Joint: The side joint shall be a 1-7/16 inches (36.5 mm) standing rib overlap design utilizing a continuous ribbon of 3/32 x1/2 inch (2.4 x 13 mm) butyloid tape sealant equivalent to Schnee-Morehead SM5277 applied to the adjacent panel rib to be covered by the overlapping metal edge. The 1/4x14 hex head sealing washered fasteners shall be installed through pre-punched EPDM sealed 16 ga saddle washers. The fasteners shall positively lock the face and liner sheet of the panel to the structural supports and provide positive resistance to negative wind loads. An additional minimum 1/4 inch (6 mm) continuous bead of approved non-skinning butyloid gun grade sealant equivalent to Schnee-Morehead 5430 shall be applied at the liner side edge of the roof panel joint prior to engagement.
      9. Exterior Panel Face: The panel exterior metal substrate shall be 26ga G90 Galvanized or AZ50 Galvalume Steel coated with a 30 year 70% PVDF finish with a total dry film thickness of 1.0 mil (0.0254 mm) including primer.
      10. Color: The exterior color shall be selected from manufacturer's six in-stock standards.
      11. Interior Panel Face: The panel interior shall have shallow v-groove striations on 2.48 inches (63 mm) centers. The interior metal substrate shall be minimum 26ga G60 Galvanized or AZ35 Galvalume Steel coated with a polyester finish with a dry film thickness of 1.0 mil (0.0254 mm) including primer. Interior color shall be Imperial White.
      12. The continuously foamed in-place panel core shall be Class 1 rigid polyisocyanurate (polyurethane) foam meeting the physical properties.
      13. The insulated panel manufacturer shall furnish either the formed metal flashings or the flat stock in the same gauge, color and paint finish system as the panel facings.

\*\* NOTE TO SPECIFIER \*\* The look of traditional standing seam integrated with the benefits of an insulated metal panel a great alternative to field assembled roofing components. Delete if not required.

* + 1. Standing Seam (SR2) as manufactured by All Weather Insulated Panels.

\*\* NOTE TO SPECIFIER \*\* Delete thickness not required.

* + - 1. Thickness: The insulated metal roof panel shall be 3 inches (76 mm) thick.
      2. Thickness: The insulated metal roof panel shall be 4 inches (102 mm) thick.
      3. Thickness: The insulated metal roof panel shall be 5 inches (127 mm) thick.
      4. Thickness: The insulated metal roof panel shall be 6 inches (152 mm) thick.
      5. Width: 40 inches (1016 mm) wide as detailed on the design drawings.
      6. Joint: The side joint shall be a 2 inches (51 mm) high trapezoidal standing seam rib design utilizing a continuous non-skinning butyloid sealant bead. 1/4x14 hex head fasteners shall be installed through the pre-punched hidden SR series joint clip. The clip assembly shall positively lock the face and liner sheet of the panel to the structural supports and provide positive resistance to negative wind loads. An additional minimum 1/4 inch (6 mm) continuous bead of approved non-skinning butyloid gun grade sealant equivalent to Schnee-Morehead 5430 may be applied at the liner side grooved joint of the roof panel joint prior to engagement.
      7. Exterior Panel Face: The exterior metal substrate shall be 26ga G90 Galvanized or AZ50 Galvalume Steel coated with a 30 year PVDF finish with a total dry film thickness of 1.0 mil (0.0254 mm) including primer.
      8. Color: The exterior color shall be selected from manufacturer's six in-stock standards.
      9. Interior Panel Face: The panel interior shall have lightly planked mesa ribs on 2.22" centers. The interior metal substrate shall be minimum 26ga G60 Galvanized or AZ35 Galvalume Steel coated with a polyester finish with a dry film thickness of 1.0 mil (0.0254 mm) including primer. Interior color shall be Imperial White.
      10. Core: The continuously foamed in-place panel core shall be Class 1 rigid polyisocyanurate (polyurethane) foam meeting the physical properties.
      11. The insulated panel manufacturer shall furnish either the formed metal flashings or the flat stock in the same gauge, color and paint finish system as the panel facings.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. INSULATED ROOF DECKS

\*\* NOTE TO SPECIFIER \*\* Our RD1 Roof Deck panel combines into a single component the steel deck, insulation and substrate necessary for white single ply membrane or non-structural standing seam roof coverings an economical alternative to rigorous and expensive field-assembled roof deck systems. Delete if not required.

* + 1. Roof Deck (RD1) as manufactured by All Weather Insulated Panels.
       1. Thickness: The insulated metal roof panel shall be 2 inches (51 mm) thick.
       2. Thickness: The insulated metal roof panel shall be 2.5 inches (64 mm) thick.
       3. Thickness: The insulated metal roof panel shall be 3 inches (76 mm) thick.
       4. Thickness: The insulated metal roof panel shall be 4 inches (102 mm) thick.
       5. Thickness: The insulated metal roof panel shall be 5 inches (127 mm) thick.
       6. Thickness: The insulated metal roof panel shall be 6 inches (152 mm) thick.
       7. Width: 40 inches (1016 mm) wide as detailed on the design drawings.
       8. Joint: The side joint shall tongue and groove.
       9. Exterior Panel Face: The panel exterior metal substrate shall be 26ga G90 Galvanized Steel primed steel or an approved facer depending on the roof covering attachment requirements.
       10. Interior Panel Face: The interior metal substrate shall be minimum 26ga G60 Galvanized Steel pre-painted 26ga Imperial White embossed reflective interior.
       11. The continuously foamed in-place panel core shall be Class 1 rigid polyisocyanurate (polyurethane) foam meeting the physical properties.
       12. Structural Performance: Meets similar diaphragm shear resistance properties as 1.5 inch (18 mm) deep 22ga B deck @ 60 inches (1524 mm) span between supports.

\*\* NOTE TO SPECIFIER \*\* Our Roof Deck panel combines into a single component the steel deck, insulation and substrate necessary for white single ply membrane or non-structural standing seam roof coverings an economical alternative to rigorous and expensive field assembled roof deck systems. Delete if not required.

* + 1. Roof Deck (RD5) as manufactured by All Weather Insulated Panels.
       1. Thickness: The insulated metal roof panel shall be 2.5 inches (64 mm) thick.
       2. Thickness: The insulated metal roof panel shall be 4 inches (102 mm) thick.
       3. Thickness: The insulated metal roof panel shall be 5 inches (127 mm) thick.
       4. Thickness: The insulated metal roof panel shall be 6 inches (152 mm) thick.
       5. Width: 40 inches (1016 mm) wide as detailed on the design drawings.
       6. Joint: Overlapping.
       7. Exterior Panel Face: Deep ribbed profile. The panel exterior metal substrate shall be 26ga G90 Galvanized Steel primed steel or an approved facer depending on the roof covering attachment requirements.
       8. Interior Panel Face: The interior metal substrate shall be minimum 26ga G60 Galvanized Steel pre-painted 26ga Imperial White embossed reflective interior.
       9. The continuously foamed in-place panel core shall be Class 1 rigid polyisocyanurate (polyurethane) foam meeting the physical properties.
       10. Structural Performance: Meets similar diaphragm shear resistance properties as 1.5 inch (18 mm) deep 22ga B deck @ 60 inches (1524 mm) span between supports.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly prepared.
      2. Secondary Structural Framing: The steel shall be aligned to the tolerances established in the AISC code of standard practice, section 7, and the supplemental modification control section 7.11.3, adjustable items. The maximum deviation of steel alignment shall be limited to -0 = 3/16" from the control with a 1/8 inch (3 mm) maximum change in deviation for any member of any 10 feet-0 inches (3048 mm) run of panel.
         1. The face of all structural members to which the panels are attached shall be in the same vertical plane, flat and free of obstructions such as weld marks, bolts or rivet heads.
         2. Roof panels shall only be mechanically attached to structural or secondary roof framing that is running perpendicular the roof panel lengths.
      3. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. The metal panels shall be erected by an experienced metal panel contractor in accordance with the approved drawings, specifications, and installation instructions.

\*\* NOTE TO SPECIFIER \*\* SR2 Roof Panel only. Delete if not required

* + 1. Seaming Tools: Motorized or crimp style, shall be as specifically recommended by the manufacturer. The seaming tools shall be sourced through a manufacturer approved seaming tool manufacturer/distributor.
  1. PROTECTION
     1. Protect installed products until completion of project.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION