

***All Weather fiRe One Hour  
Fire Rated Wall Panel Specifications***  
***(DM40-F, HE40-F, HE40A-F, ST40-F, FL40-F)***

Pre-Insulated Metal Panels  
Division 7, Section 07400

**Part 1 – General**

1.01 Description

Furnish and install all steel faced factory insulated 1 hour fire rated wall panels forming the exterior cladding or interior partition walls and the related accessories and trims required for a complete weathertight wall installation.

1.02 Design

The metal faced foam and fire core composite wall panels shall be produced on a continuous process manufacturing line and post-assembled under strict quality control and must be independently audited quarterly by a recognized audit facility/testing lab. Panel spans between supports and overall lengths shall be as required to contribute to the combined action of the wall in resisting the specified design loads with a deflection not to exceed L/180.

1.03 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.

1.04 Acceptable Manufacturers

Insulated wall panels shall be manufactured by All Weather Insulated Panels, 929 Aldridge Rd, Vacaville, CA 95688, 888-970-AWIP, [www.awipanel.com](http://www.awipanel.com)

1.05 Substitutions

This specification is written with the DM40-F wall panel as the basis of acceptable design, quality and performance. Requests for substitutions must be submitted in writing no less than 14 days prior to bid.

**Part 2 – Products**

2.01 Material

A. The insulated metal wall panel shall be 4 1/2 inches thick, 40 inch wide as detailed on the design drawings. The side joint shall be a double tongue and groove off set design,

permitting exterior side installation and fasteners completely concealed within the side joint. The concealed fasteners shall positively lock the face sheet of the panel to the structural supports and provide positive resistance to negative wind loads. A single minimum 3/8 inch continuous bead of approved gun grade sealant equivalent to Rutland 500°F RTV High Heat Silicone shall be applied in the female side at one or both exterior panel joints prior to engagement as shown on the panel shop/erection drawings .

- B. The panel exterior profile shall be lightly planked mesa ribs on 2.22” centers. The 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 including primer. The exterior color shall be selected from manufacturer’s six in-stock standards. 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 including primer. Interior color shall be Imperial White.
- C. Panel fire core composite shall be comprised of ½ inch Type X gypsum board encased with minimum .014 inch thick continuous steel sheet.
- D. The continuously foamed in-place panel insulation shall be Class 1 rigid polyisocyanurate (polyurethane) foam meeting the physical properties listed under section 2.02 G.
- E. 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.

#### 2.02 Performance Tests

- A. 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/180.
- B. 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 .14 @ 75° F mean temperature or .13 @ 40° F mean temperature.
- C. The weather tightness of the installed panels system shall be tested and verified by the ASTM E 283 Air Infiltration method and the ASTM E 331 Water Penetration method. Air leakage shall not exceed .01 CFM psf of wall area at a pressure differential of 12.0 psf. Water leakage shall not be observed at the panel joint at a pressure differential less than 6.27 psf.
- D. 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.
- E. The panels shall meet ASTM E 119 (CAN/ULC S-101) as a 1 hour wall assembly from either side.
- F. The polyisocyanurate foam core shall meet or exceed the following physical properties:
  - i. Compressive Strength: 25 psi
  - ii. Density (in-place): 2.1-2.5 pcf
  - iii. Shear Strength: 28-32 psi
  - iv. Closed Cell Content: 95%
  - v. Dimensional Stability: 14 day aged (ASTM D 2126) -20 degree F < 1% chg, dry heat 158 degree F < 1% chg, Humid Heat 158 degree F
- H. Panels not meeting these testing and performance criteria are not permitted for use as exterior walls or interior partitions.

### **Part 3 – Execution**

- 3.01 For quality panel installation, the contractor/installer shall examine the alignment of the structural steel before installing the metal wall panels. 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  $1/8''$  maximum change in deviation for any member of any  $10'-0''$  run of panel. The erector shall not proceed with installation if the structural steel is not within the specified tolerances. The face of all structural members to which the panels are attached must be in the same vertical plane, flat and free of obstructions such as weld marks, bolts or rivet heads. In no case shall vertically installed wall panels be fastened directly to structural columns or vertical framing members. In no case shall horizontally installed wall panels be fastened directly to structural beams or horizontal framing members.
- 3.02 The metal wall panels shall be erected by an experienced metal panel contractor in accordance with the approved drawings, specifications, and installation instructions.
- 3.03 Manufacturer shall provide panel contractor with written instructions for recommended product storage and handling.
- 3.04 Repair or replace any damaged or defective panels after determination of responsibility.
- 3.05 Manufacturer shall warrant the panels as free from defects in material and workmanship for 2 years from the date of production.
- 3.06 Manufacturer shall warrant that the exterior paint finish will not:
- A. Chip, crack, check, or peel for a period of (30) thirty years from date of installation (except for such crazing that may occur on tightly roll-formed edges and brake bends).
  - B. Chalk in excess of a numerical rating of (8) for a period of (30) thirty years from date of installation when measured in accordance with the standard procedures outlined in ASTM D-659.
  - C. Fade or change color in excess of (5) E units for a period of (30) 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.