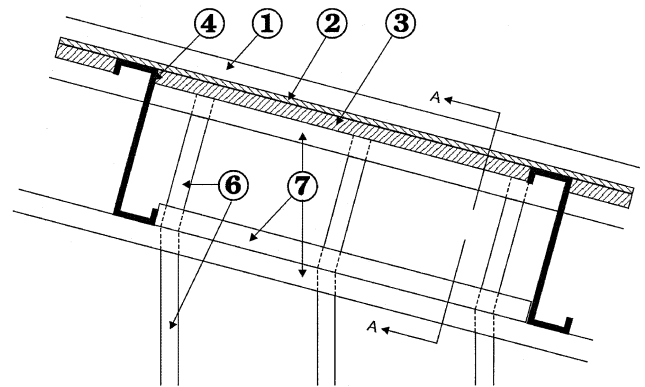


Fire Testing of Interior Separation Wall Joint

This test program was undertaken by the Metal Building Manufacturers Association and tested at Omega Point Laboratories to evaluate the fire performance of the junction between a one-hour fire rated wall assembly and the non-combustible metal roof panels. (Ref. Omega Point Project No. 16343-108145).

The fire exposure used to evaluate the joint was the time-temperature curve in ASTM E 119 for fire rated walls. There is no test method for evaluating the fire integrity of the joint where a fire rated wall meets the roof insulation under non-combustible metal roof panels. Also, building codes do not require this joint to be fire rated. This bulletin serves to answer questions raised by building and fire code officials concerning fire spread over the top of the fire rated wall via the vinyl vapor retarder.

The test was performed in the worst-case orientation, with purlins framed perpendicular to the wall framing of the one-hour wall. Therefore, the same performance can be expected with the wall framed in any orientation with respect to the purlins. The test also showed there is no need to cut the vapor retarder, so it can be continuous over the top of the wall.



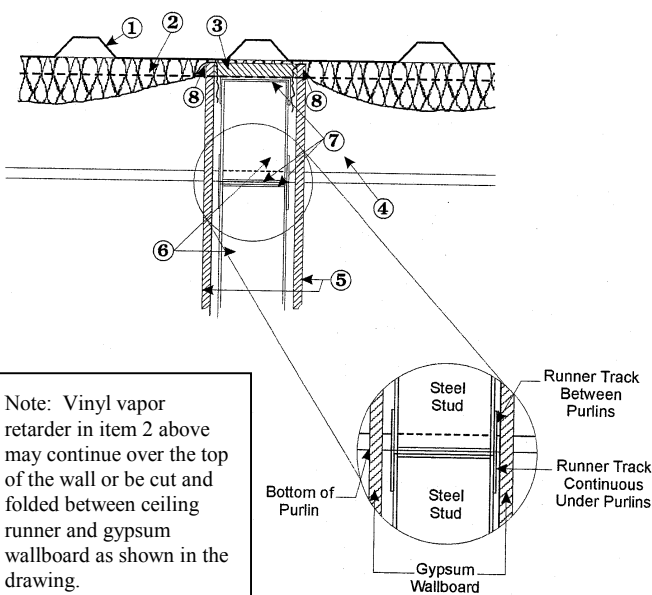
FRAMING ELEVATION

Note: Gypsum Wallboard not shown. Fire caulking shall fill all openings where gypsum wallboard fits around purlin penetrations.

The fire test was terminated at 1 hour and forty-one minutes, during which time no flaming occurred on the unexposed surface of the wall or roof at the joint. The construction details that successfully prevented flaming over the top of the wall in the test are shown below.

1. Metal Roof Panels – No. 26 MSG min. galvanized, Galvalume®, or painted steel.
2. Batts or Blankets – Vinyl faced compressible glass fiber insulation weighing between 0.6 and 0.7 pcf. Installed at the bottom side of roof deck panels over top of purlins. Note: Fiberglass insulation with alternate facing materials can be used, if flame spread is less than or equal to 25, and has a smoke developed rating of less than or equal to 50 per ASTM E84.
3. Mineral Wool Batts – 2 inches thick, 8-9 pcf density, fire stop across top of wall.
4. Steel Roof Purlin - C or Z-shaped, minimum 8 inches deep, No. 16 MSG min. galvanized or painted steel.
5. Wallboard, gypsum – 5/8 inch thick, Type X gypsum wallboard.
6. Steel Studs – Channel shaped min. 2 ½ inch wide, 1 ¼ inch flanges, and ¼ inch return steel studs of No. 25 MSG min. steel, spaced 24 inches O.C. max. (Ref. UL Design No. U425).
7. Floor and Ceiling Runners – Channel shaped of 25 MSG min. steel with min. 1-inch long legs to accommodate main

SECTION A-A



Note: Vinyl vapor retarder in item 2 above may continue over the top of the wall or be cut and folded between ceiling runner and gypsum wallboard as shown in the drawing.

wall studs. Runner at the top of the wall attached to the bottom of the purlins. Inverted runner attached to the top of the wall runner between purlins in order to support the short length of steel studs capped with a runner to compress the mineral wool batts and the glass fiber insulation under the roof panels.

8. Fire Caulking – Bead of fire caulk along the joint formed by the gypsum wallboard and the glass fiber insulation applied along the top of the wall and on both sides of the wall in accordance with the manufacturer's specifications. Fire caulking of all openings between the gypsum wallboard and the purlins on both sides of the wall.