Firewise Consultants LLC
Design No. FWC/JF 60-03
Joint System
Offset Beam Joint Assembly
ASTM E1966
Rating: 1 hour
Cycling: Type II, Vertical ± 100% of Nominal Joint Width
UL 2079 (Air Leakage Only)
L-Rating: < 1 SCFM/LF
Nominal Joint Width: 5/8 in.

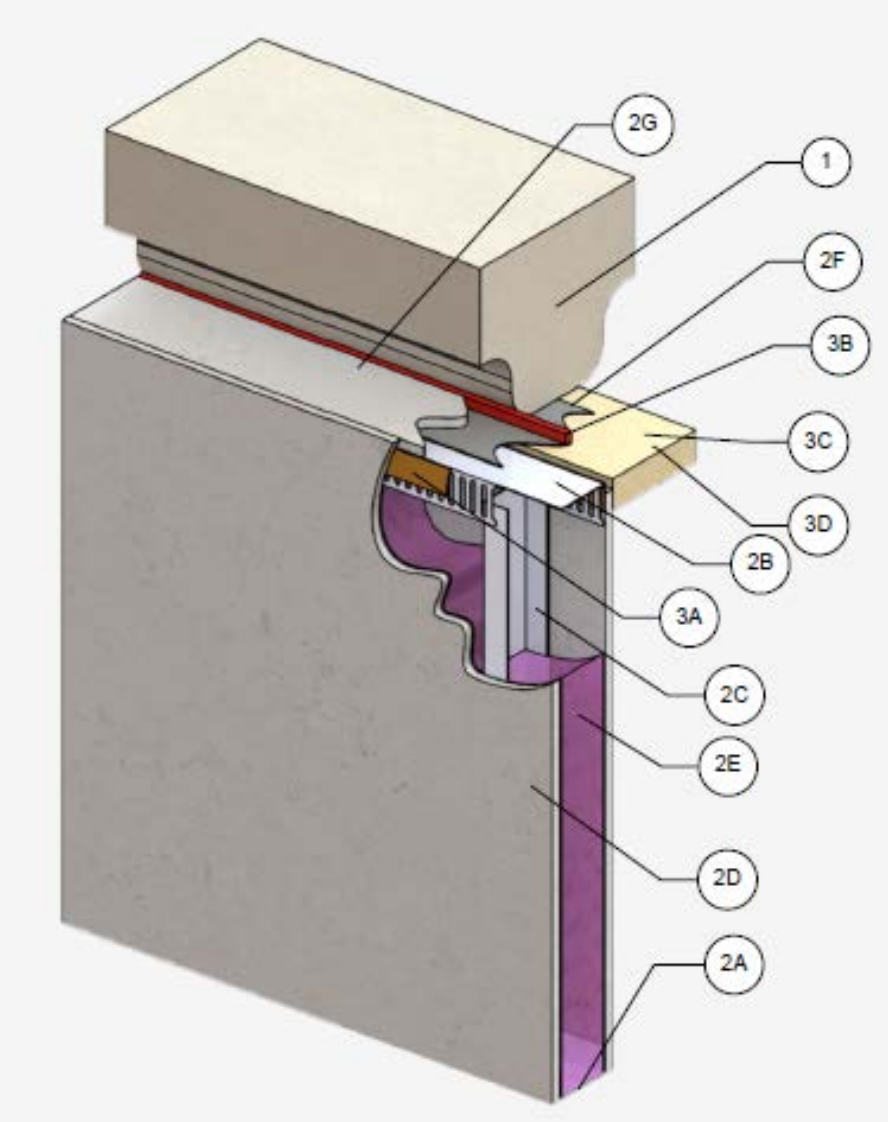

FIGURE 1. Side 1 Isometric View

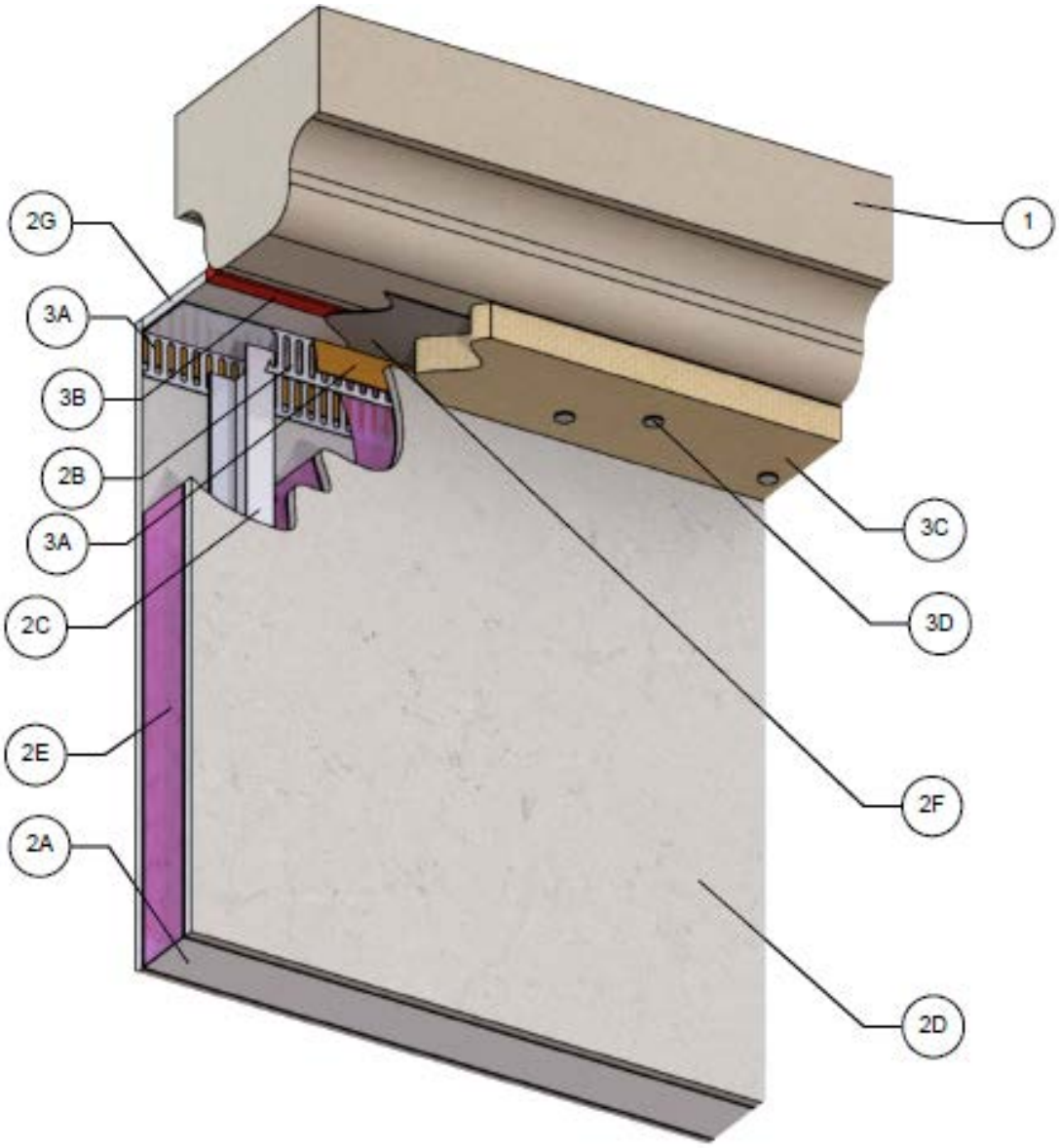

FIGURE 2. Side 2 Isometric View

1. **CONCRETE ASSEMBLY:** Minimum 1-hour fire-resistance rated concrete assembly made from either lightweight or normal weight concrete with a density of 100-150 pcf, with a min. thickness of 8 in. The concrete assembly may consist of a beam or floor assembly. The edges of the concrete assembly may have up to a maximum 2-in. radius or chamfer. The minimum width of the bearing face of the concrete assembly shall be 4-in.

2. **WALL ASSEMBLY:** Use a minimum 1-hour fire-resistance rated wall assembly. The wall assembly may be offset from the concrete assembly (item 1) a max. of 2 in., measured from the vertical face of the concrete assembly to the nearest vertical face of the slotted ceiling runner (Item 2B). The wall assembly shall include the following construction features:

   A. Steel Floor Runners – Floor runners of wall assembly shall consist of min. 25 GA, min. 3-5/8 in. x 1-1/4 in. galvanized steel channels. Floor runner secured with typical steel fasteners a max. of 24 in. on center (oc).

   B. Slotted Ceiling Runner – Slotted ceiling runner to consist of min. 20 GA galvanized steel channel with slotted flanges sized to accommodate steel studs (Item 2C). Slots are spaced a minimum of 1 in. oc.

   C. Steel Studs – Steel studs to be a min. 25 GA, min. 3-5/8 in. x 1-1/4 in. Stud length cut to minimum of 1/2 in. less than wall assembly height. Steel studs secured to slotted ceiling runner with min. No. 8 by 1/2 in. long wafer head steel screws at mid-height of exposed slot on each side of the wall. Stud spacing not to exceed 16 in. oc.

   D. Gypsum Board – Use min. one layer of min. 5/8 in. Type X gypsum board complying with ASTM C1396 on each side of the wall assembly. On the side of the wall closest to the concrete assembly (Item 1), a max 5/8 in. gap shall be maintained between the top edge of the gypsum board and the bottom of the concrete assembly. On the side of the wall that is furthest away from the concrete assembly, the top edge of the gypsum board shall extend above the slotted ceiling runner (Item 2B) by a min. 5/8 in.

      The gypsum board shall be fastened to the steel studs (Item 2C) at a max. of 8 in. oc around the perimeter and 12 in. oc in the field using min. #6 x 1 in. steel bugle head drywall screws. The screws attaching gypsum board to the studs along top of wall shall be located max. 2-1/2 in. below the bottom of the ceiling runner legs. No gypsum board attachment screws shall be driven into the slotted ceiling runner (Item 2B).

   E. Wall Insulation – Fill the stud cavities of the wall assembly (Item 2) with min. R-11, min. 3-1/2 in. thick fiberglass batt insulation.

   F. Steel Plate – Min 18 GA steel plate fastened to the concrete assembly (Item 1) with either powder actuated fastener or concrete screws. The fasteners were spaced max. 12 in. oc in two staggered rows spaced min. 2 in. apart. Same steel plate is fastened to top web of the slotted ceiling runner (Item 2B) using min. no. 8 by 1/2 in. wafer head steel screws spaced max. 10 in.

oc. Steel plate shall overlap slotted ceiling runner (Item 2B) a max. of 2-in.

G. Gypsum Board Runner– Min. one layer of min. 5/8 in. Type X gypsum board complying with ASTM C1396, shall be fastened to top of the steel plate (Item 2F) and the top of slotted ceiling runner (Item 2B) using min. #8 x 1 in. steel fasteners. The fasteners shall be spaced max. 8 in. oc in two staggered rows spaced min. 2 in. apart. On the side that is furthest away from the concrete assembly (Item 1), the gypsum board may be cut up to max. 1/8 in. short of the vertical gypsum board (Item 2D). On the side that is closest to the concrete assembly, the gypsum board may be cut up to max. 5/8 in. short from the closest face of the concrete assembly.

3. JOINT SYSTEM: Max separation between bottom of concrete assembly (Item 1) and top of gypsum board (Item 2D) (at time of installation) is 5/8 in. The joint system is designed to accommodate 100 percent compression or extension from its installed width of nom. 5/8 in.

A. Fill, Void or Cavity Material – SaftiSeal™ FRG-150, certified in accordance with UL 2079. Apply a min. 1-3/4 in. wide composite thermal gasket to both sides of ceiling runner with upper edge of gasket in continuous firm contact with overhead substrate. Gypsum board to overlap a min. of 7/8 in. over the gasket.

B. Fill, Void or Cavity Material – Use Rectorseal, LLC, Metacaulk 150+ Sealant certified in accordance with ASTM E814 and ASTM E1966. Apply a min. 5/8 in. depth bead of sealant between the gypsum board runner (Item 2G) and the concrete assembly (Item 1). The bead shall be tooled to a smooth finish ensuring contact with both the gypsum board runner and the concrete assembly.

C. Insulation – Use only Intertek Certified, 8 pcf mineral wool insulation. Install unfaced min. 2 in. thick, min. 8 pcf mineral wool on the underside of the steel plate (Item 2F) using impaling pins (Item 3D). Butt one edge of mineral wool up to the wall assembly (Item 2) and the other edge shall be cut to extend a min. 2 inches longer than the steel plate (Item 2F).

D. Impaling Pins – Attach 8 pcf mineral wool (Item 3C) to the steel plate (Item 2F) with min. 12 GA x 2 in. weld pins and washers. Weld the impaling pins spaced max. 12 in. oc in two staggered rows. Each row shall be min. 2 in. from the nearest edge of mineral wool.

Consult the listing report on the Directory of Building Products (https://bpdirectory.intertek.com) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.