Firewise Consultants LLC
Design No. FWC/BPF 120-01
Perimeter Fire Barriers
Stud Wall Assembly
ASTM E2307, UL 2079 (Air Leakage)
F-Rating: 2 hours
T-Rating: 59 minutes
L-Rating: <3.0 SCFM/LF

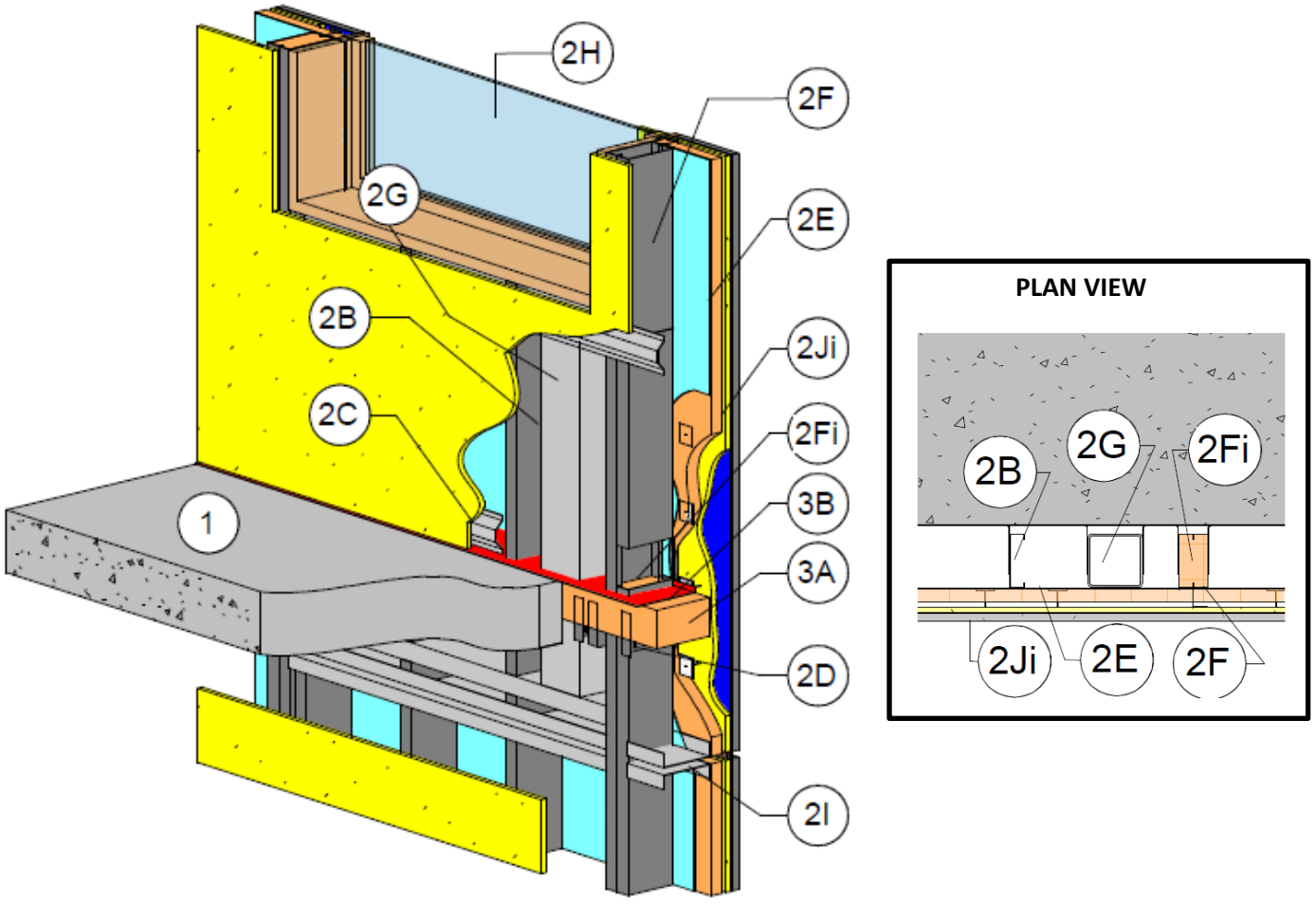

FIGURE 1. Option 1 (as detailed in Item 2Ji)

**Note: Both Fig. 1 and Fig. 2 assemblies are the same except as it pertains to the options as detailed in Item 2J).*

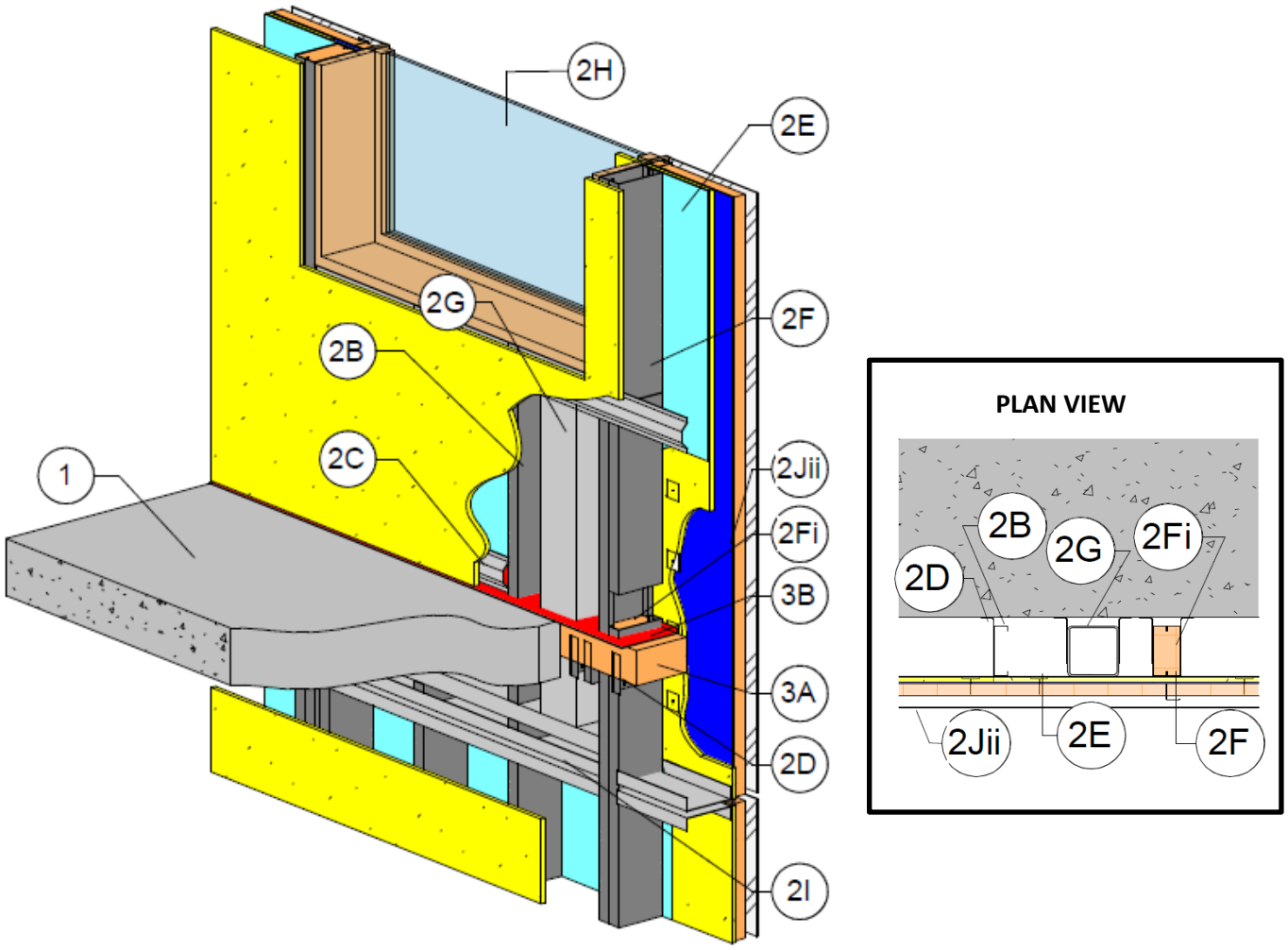

FIGURE 2. Option 2 (as detailed in Item 2Jii)

1. **CONCRETE FLOOR ASSEMBLY:** Minimum 2-hour rated concrete floor assembly made from either lightweight of normal weight concrete with a density of 100-150 pounds per cubic foot (pcf), with a min. thickness of 6-1/2 in. at the joint face. The joint face of the concrete floor assembly may be lined with a maximum 18 GA steel stay-in-place form.

2. **CURTAIN WALL ASSEMBLY:** Incorporate the following construction features:

   A. MOUNTING ATTACHMENT (Not shown) – Attach the steel-stud framing or HSS framing to the structural framing according to the curtain wall manufacturer's instructions. Connect the mounting attachments to the concrete floor assembly (Item 1) by welding to the steel form at the joint face according to the curtain wall manufacturer's engineered design.

   B. STEEL-STUD FRAMING – Use min. 16 GA x min. 6 in. x 1-5/8 in., steel C-studs as vertical framing members with a maximum spacing of 16 in. on center (oc) secured in 16 GA steel tracks, top and bottom, using min. #10-14 x 1/2 in. pan or hex head SD PT screws. Secure the steel-stud framing to the concrete floor assembly with curtain wall clips (Item 2D).

   C. INTERIOR GYPSUM WALLBOARD – Use a minimum, one layer of 5/8 in. thick, Type X gypsum wallboard, complying with ASTM C1396. The interior gypsum wallboard shall be installed over the interior of the steel-stud framing (Item 2B) such that the wallboard covers the perimeter joint completely. If necessary, secure appropriately sized horizontal hat channel to the steel-stud framing, spaced maximum 24 in. oc, vertically. Then secure the 5/8 in. thick, Type X gypsum wallboard to the horizontal hat channel using min. 1-1/4 in. long Type S drywall screws spaced 12 in. on center oc in the field and 8 in. oc around the perimeter. A maximum space of 3/4-in. measured from the top of the concrete floor assembly (Item 1) to the bottom edge of gypsum wallboard is allowed. The upper edge of gypsum may stop at ceiling height, which may land below the expansion joint (Item I).

   D. CURTAIN WALL CLIPS – Install min. 10 GA x 2 in. x 5 in. steel angles using min. #10 x 5/8 in. long screws to the vertical framing and weld the 2 in. leg to the min. 18 GA steel form of the concrete floor assembly (Item 1). When required, use steel shims between the concrete floor assembly joint face and curtain wall clip.

   E. BLAST BARRIER - Use min. 12 GA sheet steel placed over and secured to the exterior of the steel-stud framing (Item 2B) with min. #10 x 1-1/4 in. long screws, spaced 6 in. oc in the field and perimeter.

   F. KING STUD FRAMING (Optional) – King studs may be used as wall framing. To form a king stud, face two min. 16 GA x min. 6 in. x 1-5/8 in., steel C-studs to create a box C section. The king studs shall be secured in 16 GA steel tracks, top and bottom.

      i. At locations of floor lines, install two pieces of min. 3-1/2 in. thick, 4 pcf, mineral wool insulation, bearing an Intertek Certified Label, tightly packed (min. 50% compression) within both opposing webs of the king studs. The length of the mineral wool in the king studs shall be, at minimum, equal to the

thickness of concrete floor assembly (Item 1).

G. TUBE STEEL FRAMING (Optional) – Use maximum 6 in. x 6 in. x 5/8 in. thick HSS installed within the stud cavity. Tube Steel Framing may be used to frame windows in lieu of king studs (Item 2F) as shown in Figures 1 and 2.

H. VISION GLASS PANELS (Optional) – Glass panels shall be sized and installed to curtain wall system manufacturer's guidelines. Use a minimum 1/4 in. thick, clear, heat strengthened (HS) or tempered glass framed in aluminum mullions of minimum 0.15 in. thickness. Install the sill of the glass panel opening a minimum of 28-3/4 in. above the top of the concrete floor assembly (Item 1).

I. EXPANSION JOINT (Optional) – A maximum 3/4-in. wide expansion joint can be installed a minimum of 9 inches below the concrete floor assembly (Item 1), measured from the center of the expansion joint to the bottom of concrete floor assembly. The joint shall be formed with steel horizontal framing members. Install 1-in. thick backer rod into the joint opening, with the backer rod flush with the exterior sheathing. Roll- apply 15 mils (WFT) of R-Guard Cat 5 Rain Screen to seal the expansion joint.

J. EXTERIOR CURTAIN WALL FINISH – The following exterior finishes are acceptable:

i. OPTION 1: Install min. 16 GA, min. 1-1/2 in x 2 x 1-1/2 in. z-girts vertically over the blast barrier (Item 2E) and spaced max. 16 in. oc. Within the cavity of the z-girts, install min. 4.5 pcf, 1-1/2 in. thick, Thermafiber RainBarrier 45 mineral wool using 2 in. metal pins with square backs and washers. Secure pins to the blast barrier (Item 2E) with a min. #8 x 1/2 in. self-tapping screws or by welding. Use minimum of 1 pin per 16 in. space between z-girts and space them max. 42 in. apart vertically, centered horizontally in z-girt cavity. Maintain max. 3-in. edge distance measured vertically from edge of mineral wool to pin. Over the z-girts and mineral wool, install 5/8-in. thick, Type X, glass mat sheathing complying with ASTM C1177. Secure the sheathing to the vertical z-girts using min. #10 x min. 1-1/4 in. long Type S drywall screws spaced 12 in. (oc) in the field and 8 in. (oc) at perimeter. Seal the sheathing joints and exposed fasteners using Prosoco R-Guard Joint and Seam Filler or FastFlash (Gun-Grade) sealer. Apply maximum 15 mil (WFT) thick layer of R-Guard Cat 5 Rain Screen over the sheathing. Apply 7/8 in. thick plaster finish consisting of a plaster, base coat, and steel reinforcing mesh over the sheathing.

ii. OPTION 2: Install 5/8-in. thick, Type X, glass mat sheathing complying with ASTM C1177 over the blast barrier (Item 2E) using min. #10 x min. 1-1/4 in. long Type S drywall screws spaced 12 in. oc in the field and 8 in. oc around the perimeter. Seal the sheathing joints and exposed fasteners using Prosoco R-Guard Joint and Seam Filler or FastFlash (Gun-Grade) sealer. Apply maximum 15 mil (WFT) thick layer of R-Guard Cat 5 Rain Screen over the sheathing. Install min. 16 GA, min. 1-1/2 in x 2 x 1-1/2 in. z-girts

vertically over the blast barrier and spaced 16 in. oc. Within the cavity of the z-girts, install min. 4.5 pcf, 1-1/2 in. thick, Thermafiber RainBarrier 45 mineral wool using 2 in. metal pins with square backs and washers. Secure pins to the blast barrier with a min. #8 x min. 1/2 in. self-tapping screw. Use minimum of 1 pin per 16 in. space between z-girts and space them max. 42 in. apart vertically, centered horizontally in z-girt cavity. Maintain max. 3-in. edge distance measured vertically from edge of mineral wool to pin. An aluminum panel and clip system can be installed to finish the exterior.

3. **PERIMETER JOINT PROTECTION:** The perimeter joint (linear opening) shall not exceed 8 in. nom. joint width (joint width at installation) measured between the interior face of the blast barrier (Item 2E) and the vertical face of the concrete floor assembly (Item 1). The perimeter joint treatment shall incorporate the following construction features:

   A. PACKING MATERIAL – Use only mineral wool bearing an Intertek Certified Label and meeting the following minimum requirements:

      Use a min. 4 in. thick, 4 pcf density, mineral wool batt insulation. Install the top surface of the packing material flush with the top surface of the concrete floor assembly (Item 1). Install packing material using the following three-step installation process:

      Install a min. 2-1/2 in. thick x 4 in. high piece of packing material tightly packed (min. 50% compression) into the web of each of the C-stud steel-stud framing (Item 2B) members, with the fibers running parallel to the web.

      In the nominal joint width, install the packing material compressed 33% into the perimeter joint, with the fibers running parallel to the concrete floor assembly (Item 1) face and interior face of the blast barrier (Item 2E). The packing material shall be compressed against the packing material pieces installed in the C-stud web cavities. The packing material shall also extend and compress over the flanges of the adjacent steel-stud framing (Item 2B).

      At tube steel framing (Item 2G) locations and where steel-stud framing is spaced less than 4-in. apart, tightly pack (min. 50% compression) the packing material between framing members and between face of tube steel and edge of concrete floor assembly.

   B. FILL, VOID, OR CAVITY MATERIAL

      CERTIFIED PRODUCT: Specified Technologies, Inc., Joint Sealant Spray; SpecSeal® AS200 Elastomeric Firestop Spray.

      Apply a min. wet film thickness of 1/8 in. over the packing material (Item 3A) and overlap the spray material a min. 1/2 in. onto the interior surface of the adjacent blast barrier (Item 2E), steel-stud framing members (Item 2B), king stud framing (Item 2F), tube steel framing (Item 2G), and concrete floor assembly (Item 1). If the spraying process is stopped and the applied liquid spray material cures to an elastomeric film before the process is restarted, then overlap the edge of the cured spray material at least 1/8 in. with the liquid spray material.

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.