

Design Number 3MU/JS 180-12
PERIMETER FIRE BARRIERS

3M Company
FireDam™ Spray 200, Fire Barrier Watertight Spray, Fire and Water Barrier Tape FWBT,
Fire Barrier 1000 NS Silicone Sealant, and Fire Barrier 1003 SL Silicone Sealant

ASTM E 2307

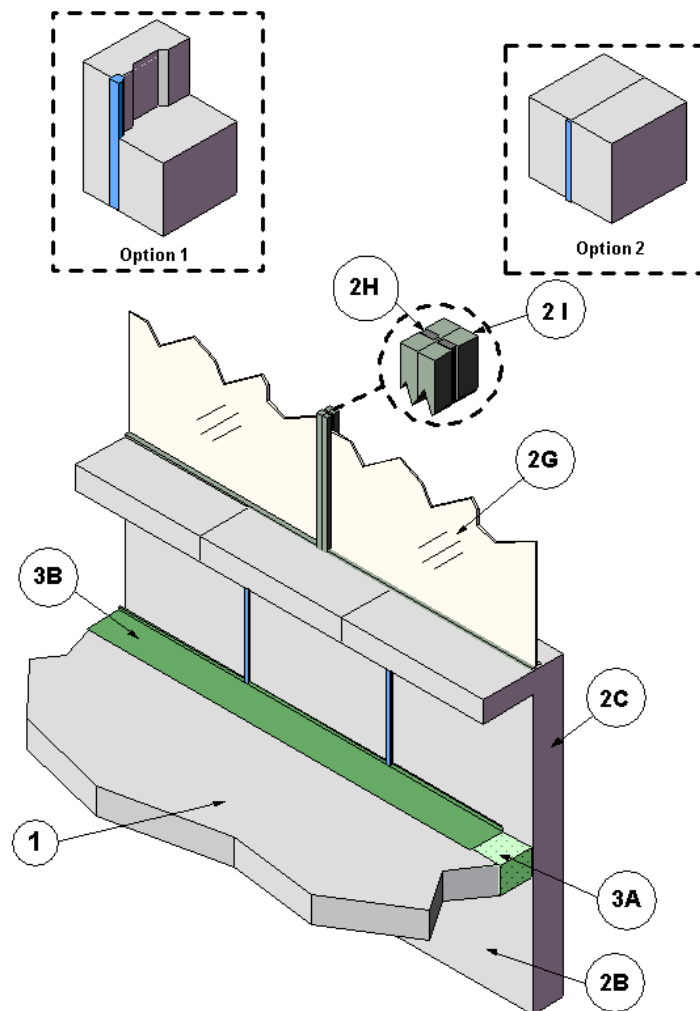
T-Rating: 0 Hour

F-Rating: 3 Hour

ASTM E 2307/ASTM E 1399 Cycling

Class 4 Movement Cycling

Rated for $\pm 5\%$ Horizontal Movement @ 33% Compression



- 1. CONCRETE FLOOR ASSEMBLY:** Three-hour rated concrete floor assembly made from either lightweight or normal weight concrete with a density of 100 to 150 pcf, having a min. thickness of 5.7 in. at the joint face. When a longitudinal recess (blockout)

is required to contain an architectural joint system, increase concrete floor assembly thickness to maintain a min thickness of 5.7 in. at the joint face and accommodate depth of blockout formed in the concrete: blockout width unrestricted.

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

A. **MOUNTING ATTACHMENT** (Not Shown): Attach the pre-cast concrete panels (Item 2B) to the joint face or top of the concrete floor assembly (Item 1), according to the curtain wall manufacturer's instructions. Max. distance horizontally between mounting attachments shall be 10 ft.

B. **PRE-CAST CONCRETE PANELS:** Use engineered structural pre-cast concrete panels made from steel reinforced lightweight or normal weight (100 to 150 pcf) concrete min. 4 in. thick and 48 in. high. Equip panels with structural mounting attachments (Item 2A). When anchors are located at the joint face within the perimeter joint protection (Item 3), maintain a min. recess of 1/2 in. from the top of the concrete floor assembly (Item 1) and max. spacing of 120 in. on center (oc) between anchors.

C. **CERTIFIED MANUFACTURER:** 3M Company

CERTIFIED PRODUCT: Joint Sealant

MODEL: Fire Barrier™ 2000 Silicone Joint Sealant

CONCRETE PANEL JOINT: Use the following concrete panel joints: either key way type (tongue and groove, option 1) or butt joint type (flush, option 2). Apply a 1/2 in. bead of joint sealant along the pre-cast concrete panel joints on the interior side. When curtain wall insulation (Item 2F) is used, the joint sealant may be omitted provided that the seams between adjacent sections of curtain wall insulation (Item 2F) are offset a min. of 3 in. from the edge of any joint in the pre-cast concrete panels. Then treat the concrete panel joint with any weatherproofing material Listed as having a flame spread index (FSI) less than or equal to 25 and a smoke developed index (SI) of less than or equal to 450 in accordance with ASTM E84. Use only Intertek certified

products meeting the above requirements.

D. **IMPALING PINS** (Optional, Not Shown): Use only when curtain wall insulation (Item 2F) is installed. Install min. 12 GA steel impaling pins spaced 24 in. oc in all directions on the interior face of the pre-cast concrete panels (Item 2B). Equip each impaling pin with a min. 1-1/2 in. diameter locking washer. For a piece of curtain wall insulation (Item 2F) having a width equal to or greater than 3 in., install a min. of two impaling pins located above the floor line with at least one in each bottom corner of the piece of curtain wall insulation (Item 2F). For a piece of curtain wall insulation (Item 2F) having a width of less than 3 in., install one impaling pin located above the floor line at the bottom center of the piece of curtain wall insulation (Item 2F).

E. **CLUTCH CLIPS** (Optional, Not Shown): Install min. 18 GA steel, max. 1-1/4 in. clutch clips placed over impaling pins (Item 2D). When this option is used, install a clutch clip with each impaling pin. When clutch clips are installed, create an air space between the pre-cast concrete panels (Item 2B) and the curtain wall insulation (Item 2F).

F. **CURTAIN WALL INSULATION** (Optional, Not Shown): Install one of the following: nominal 4 in. thick 4 pcf, 3 in. thick 6 pcf, or 2 in. 8 pcf density mineral wool batt insulation faced on one side with aluminum foil scrim (vapor retarder), which is exposed to the room interior. Secure the curtain wall insulation with impaling pins (Item 2D). Seal all meeting edges of curtain wall insulation with nominal 2 in. wide pressure sensitive aluminum foil faced tape. Install curtain wall insulation tightly above and below the perimeter joint protection (Item 3) and terminate at the concrete panel return above the perimeter joint protection (Item 3). Use only Intertek certified products meeting the above min. requirements.

G. GLASS VISION PANELS (Optional): Install glass vision panels outside spandrel area a min. 20 in. above the top surface of the floor assembly (Item 1) and a min. of 28 in. below the top surface of the floor assembly (Item 1). Install glass vision panels in window framing (Item 2I) according to the curtain wall system manufacturer's guidelines. Use a min. 1/4 in. thick, clear heat strengthened (HS) glass with a nominal width and height as determined by the window framing (Item 2I).

H. WINDOW GASKETS (Optional): Secure glass vision panels (Item 2G) with a thermal break (thermal-set rubber extrusion).

I. WINDOW FRAMING (Optional): Use steel or aluminum framing members with a min. 3-5/8 in. × 1-5/8 in. 18 GA steel "U" channel or similar construction that is compatible with the pre-cast concrete panels (Item 2B) and concrete panel joints (Item 2C). Locate window framing at least 20 in. above the top surface of the concrete floor assembly (Item 1) and a min. of 28 in. below the top surface of the floor assembly (Item 1).

3. PERIMETER JOINT PROTECTION: Do not exceed a 6 in. nominal joint width (joint width at installation). Incorporate the following construction features for the perimeter joint protection (also known as perimeter fire barrier system):

A. PACKING MATERIAL: Install min. 4 in. thick, 4 pcf, mineral wool batt insulation with the fibers parallel to the edge of the concrete floor assembly (Item 1) and the curtain wall assembly (Item 2). Compress the packing material 33% in the nominal joint width. Compress the splices (butt joints) in the lengths of mineral wool batt insulation tightly together. When using non-sag or self-leveling joint sealants (Item 3B), recess the mineral wool packing material a min. 1/4 in. from the top surface of the concrete floor assembly (Item 1) to accommodate the required installation

depth of the non-sag or self-leveling joint sealants (Item 3B). Use only Intertek certified products meeting the above min. requirements.

B. CERTIFIED MANUFACTURER: 3M Company

CERTIFIED PRODUCT: FireDam™ or Fire Barrier™

MODEL: FD Spray 200 (Elastomeric, Sprayable) Fire Barrier Watertight Spray (Elastomeric, Sprayable) or Fire and Water Barrier Tape FWBT (Tape) or FB 1000 N/S Silicone Sealant (Non-sag) or FB 1003 S/L (Self Leveling) Sealant

FILL, VOID OR CAVITY MATERIAL: Apply either spray coating or sealant over the packing material (Item 3A) as follows:

Spray Coating – Spray apply the liquid to cover the exposed top surface of the packing material (Item 3A) compressed and installed in the perimeter joint. Apply a min. wet film thickness of 1/8 in. and overlap the spray coating a min. 1/2 in. onto the adjacent curtain wall assembly (Item 2) and concrete floor assembly (Item 1). When the spraying process is stopped and the applied spray coating cures to an elastomeric film before installation process is restarted, then overlap the edge of the cured spray coating at least 1/8 in. with the liquid spray coating.

Tape – Apply the tape such that there is a min. 1 in. overlap onto the adjacent curtain wall assembly (Item 2) and the concrete floor assembly (Item 1). Overlap joints in the tape system by 1/2 in.

Sealant – Apply non-sag or self-leveling sealant to cover the exposed surface of the packing material (Item 3A) compressed and installed in the perimeter joint. Apply min. 1/4 in. thickness non-sag or self-leveling sealant over the packing material (Item 3A) and finish flush with the top surface of the concrete floor assembly (Item 1).