

**Design Number 3MU/JS 180-13****PERIMETER FIRE BARRIERS****3M Company**

FireDam™ Spray 200, Fire Barrier 1000 NS Sealant and  
Fire Barrier 1003 SL Sealant

**ASTM E 2307**

**T Rating – 0 hr.**

**F-Rating – 3 hr.**

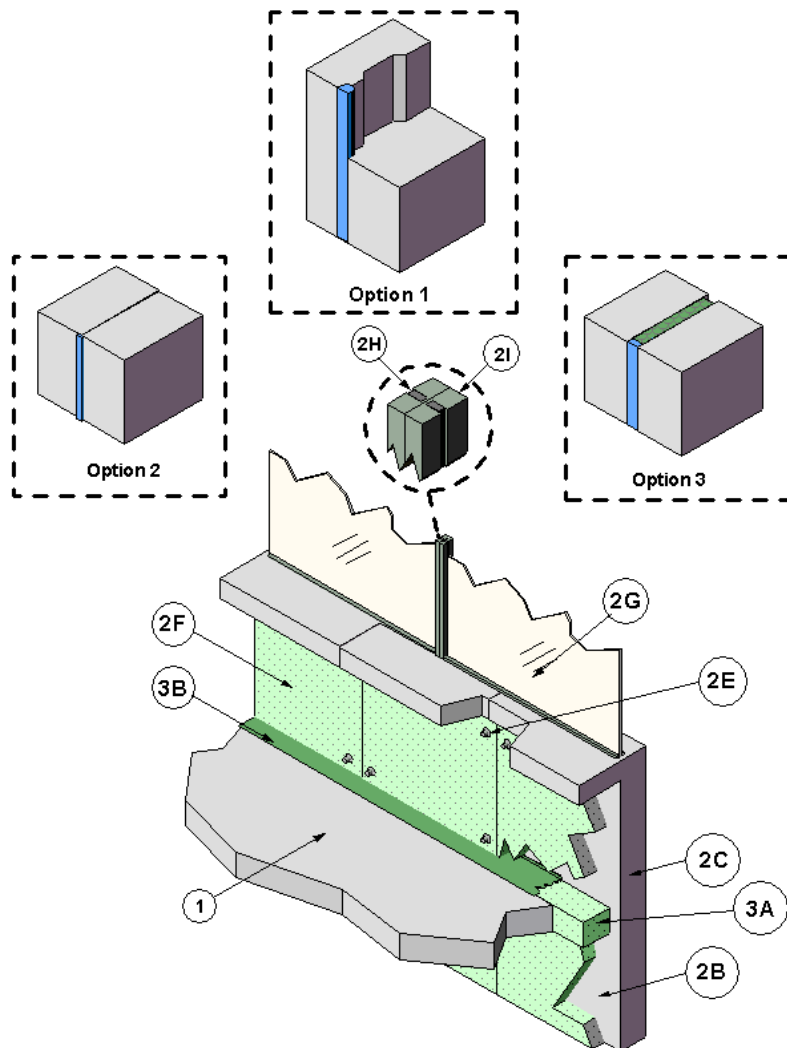
**UL 2079**

**L-Rating < 1 SCFM/LF**

**ASTM E 1399/ASTM E 2307**

**Cycling – Class 4**

**Rated for 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 minimum thickness of 5.7 inches at the joint face. When a longitudinal

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

2. CURTAIN WALL ASSEMBLY: The curtain wall assembly shall incorporate the following construction features:

- A. Mounting Attachments: (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. Maximum distance horizontally between mounting attachments shall be 10 feet.

- B. Pre-Cast Concrete Panels: Use engineered structural pre-cast concrete panels made from steel-reinforced lightweight or normal weight (100-150 pcf) concrete, minimum 4 inches thick and 48 inches 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 minimum recess of 1/2-inch from the top of the concrete floor assembly (Item 1) and maximum spacing of 120 inches on center between anchors.

- C. CERTIFIED MANUFACTURER: 3M

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), butt joint type (flush) (Option 2) or butt joint type with maximum 1-inch gap (Option 3). When using Option 1 or 2, as an option, apply a 1/2-in. bead of joint

sealant along the pre-cast concrete panel joints on the interior side. When using Option 3, tightly pack 4-pcf mineral wool batt insulation in the concrete joint space. Pack the mineral wool insulation 3 inches deep, recessed 1/2 inch from the interior side of the pre-cast concrete panels (Item 2B). Fill the 1/2-inch recess with joint sealant along the concrete panel joints on the interior side. *Use only Intertek certified products meeting the above minimum requirements.* Offset the seams between adjacent sections of curtain wall insulation (Item 2F) a minimum of 3 inches from the edge of any concrete panel joints. Then treat the concrete panel joint with any weatherproofing material Listed as having a flame spread index  $\leq 25$  and a smoke developed index  $\leq 450$  in accordance with ASTM E-84. *Use only Intertek certified products meeting the above minimum requirements.*

- D. Impaling Pins: Install minimum 12 GA steel impaling pins spaced 24 inches on center in all directions on the interior face of the pre-cast concrete panels (Item 2B). Equip each impaling pin with a minimum 1-1/2-inch diameter locking washer. For a piece of curtain wall insulation (Item 2F) having a width equal to or greater than 3 inches, install a minimum 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 less than 3 inches, 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 minimum 18 GA steel, maximum 1-1/4-inch clutch clips placed over impaling pins (Item 2D). When this option is used, install a

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- 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: Use one of the following materials: nominal 4-inch thick 4-pcf, 3-inch thick 6-pcf, or 2-inch thick 8-pcf density mineral wool batt insulation faced on one side with aluminum foil scrim (vapor retarder). When the concrete panel joint (Item 2C) is installed with sealant and mineral wool batt insulation (packed tightly), install the sealant and mineral wool batt insulation before the curtain wall insulation. Install the curtain wall insulation with the aluminum foil scrim side exposed to the room interior. Secure with impaling pins (Item 2D). Seal all mating edges with nominal 2-inch 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 minimum requirements.*
- G. Glass Vision Panels: (Optional) Install glass vision panels outside spandrel area a minimum 20 inches above the top surface of the floor assembly (Item 1) and a minimum of 28 inches 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 minimum 1/4-inch thick, clear heat-strengthened 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 minimum 3-5/8-inch by 1-5/8-inch 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 inches above the top surface of the concrete floor assembly (Item 1) and a minimum of 28 inches below the top surface of the floor assembly (Item 1).
3. PERIMETER JOINT PROTECTION: Do not exceed a 6-inch 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 minimum 4-inch 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 minimum 1/4-inch 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 minimum requirements.*
- B. CERTIFIED MANUFACTURER: 3M
- CERTIFIED PRODUCT: Joint Sealant
- MODEL: FireDam™ Spray 200 (Elastomeric, Spray), Fire Barrier 1000 NS Sealant (Non-sag) or Fire Barrier 1003 SL Sealant (Self Leveling)

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Fill, Void or Cavity Material: Apply joint sealant (sprayed, brushed, or troweled as indicated by the manufacturer's installation instructions) to cover the top exposed surface of the mineral wool installed in the nominal joint width.

When using a spray apply a minimum wet film thickness of 1/8-inch and overlap the spray a minimum 1/2-inch onto the adjacent curtain wall assembly (Item 2) and concrete floor assembly (Item 1). When the application process is stopped and the applied spray has cured to an elastomeric film before the application process is restarted, overlap at least 1/8-inch with the new spray the edge of the cured spray.

When using the non-sag or self leveling joint sealants, apply in a minimum 1/4-inch thick layer.