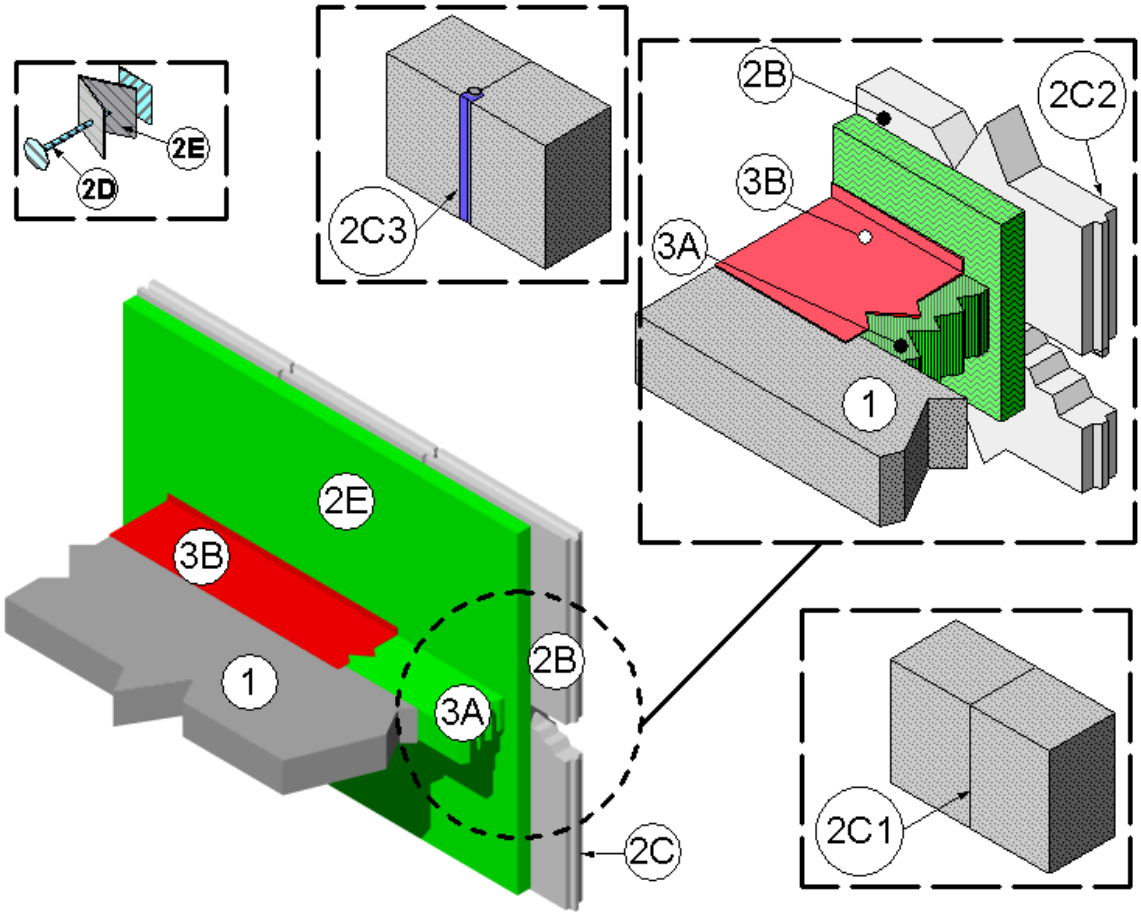
3M Company
Design No. 3MU/BPF 120-01
Perimeter Fire Barriers
ASTM E 2307/ASTM E 1399 Cycling

	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
	33% Compression
F-Rating	2 Hr
T-Rating	0 Hr
L-Rating (UL 2079)	<1.0 SCFM/LF
Cycling (%) **Horizontal** **Vertical**	Class IV: 500 cycles @ 30 cpm ± 10 ± 6.25



1. **CONCRETE FLOOR ASSEMBLY:** 2 hour rated concrete floor assembly made from either lightweight or normal weight concrete with a density of 100 to 150 pound per cubic foot (pcf), having a min. thickness of 4-1/2 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 4-1/2 in. 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 pre-cast concrete panels (Item 2B) to the structural framing according to the curtain wall manufacturer's instructions. When required, connect the mounting attachments to the joint face of the concrete floor assembly (Item 1) according to the curtain wall manufacturer's instructions. Limit distance between mounting attachments to max. 120 in.

   B. PRE-CAST CONCRETE PANELS – Engineered Structural Panels: Either tilt-up or formed panels. Construct panels from steel-reinforced lightweight or normal weight (100-150 pcf) concrete, a min. of 4 in. thick, 48 in. wide. Equip panels with structural mechanical attachments welded to the steel reinforcement within the panel for mechanical attachment to steel columns and spandrel beams in accordance with structural engineer's requirements. When anchors are located 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. CONCRETE PANEL JOINT – No through joints recommended. When required, seal the surface of the concrete panel joints with gaskets or sealants. Option: Treat the concrete panel joint with any weatherproofing material Listed as a Class 1 material in accordance with ASTM E-84. Use only Intertek certified products meeting these min. requirements. Use one of the following for vertical and horizontal concrete panel joints:

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

      CERTIFIED PRODUCT: Fire Barrier™ Sealant

      MODEL: CP25WB+

      Flush type (butt joint) (Item 2F1), Prefer butted joints but allow a max. 1 in. joint width for vertical and horizontal concrete panel joints. When through void or space exists between panels, the void in the spandrel region must be treated by packing a min. 4 pcf density, mineral wool into the joint to a min. 33% compression (1-1/2 times width of opening), filling the entire void or space. Recess the mineral wool a min. of 1/2 in. from each side of the wall. Install a min. 1/2 in. thickness of 3M CP25WB+ firestop caulk on the internal surface of the wall assembly (Item 2). Use only Intertek certified products meeting these min. requirements.

ii. Keyway type (tongue and groove) (Item 2F2), or

iii. Recessed (Item 2F3).

IMPALING PINS – Use with curtain wall insulation (Item 2F), locate, size, and install impaling pins according to the curtain wall system manufacturer's guidelines, or be a min. 4-1/2 in. long, 12 GA pin attached to one of the following: a nominal 2 in. × 2 in. plate; a nominal 2 in. × 2 in. × 2 in. long angle; or can be directly attached to the pre-cast concrete panels (Item 2B) using mechanical fasteners. Space impaling pins a max. of 12 in. oc. Add additional pins spaced a max. of 16 in. oc at the centerline of the packing material (Item 3A). Install impaling pins around the periphery of the curtain wall insulation (Item 2F). A min. of two impaling pins required located above the floor line per piece of insulation that has been cut from standard size with at least one in each corner.

CLUTCH CLIPS – (Installed over Impaling Pins) Min. 18 GA, steel clutch clips, max. 1-1/4 in. Space clutch clips and impaling pins a max. of 16 in. oc at the centerline of the packing material (Item 3A). Install a clutch clip for each impaling pin. Create an air space between the pre-cast concrete panels (Item 2B) and the CURTAIN wall insulation (Item 2F) using the clutch clips.

D. CURTAIN WALL INSULATION – When required, install the concrete panel joint treatment (Item 2C) before curtain wall insulation (Item 2F). Install either nominal 4 in. thick 4 pcf density, 3 in. thick 6 pcf density, or 2 in. thick 8 pcf density, mineral wool batt insulation faced on one side with aluminum foil scrim (vapor retarder) which is exposed to the room interior. Offset the seams between adjacent sections of curtain wall insulation a min. 3 in. from the edge of any concrete panel joint (Item 2C). Secure with impaling pins (Item 2D). Seal all meeting edges of insulation with nominal 2 in. wide, pressure sensitive, aluminum foil-faced tape. Terminate curtain wall insulation (Item 2F) against non-combustible surfaces above and below the perimeter joint protection (Item 3). Use only Intertek certified products meeting the above min. requirements.

3. PERIMETER JOINT PROTECTION: Do not exceed an 8 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 – Use a min. 4 in. thick, 4 pcf density, mineral wool batt insulation installed with the fibers running parallel to the edge of concrete floor assembly (Item 1) and curtain wall assembly (Item 2). Cut packing material width to achieve required compression, refer below, when installed in the nominal joint width. Compress the packing material into the perimeter joint. Tightly compress together splices (butt joints) in the lengths of packing material by using min. 1/4 in. compression per piece of packing material. When a spray coating or tape is used, locate the top surface of the

packing material flush with the top surface of the concrete floor assembly (Item 1). When the non-sag or self-leveling silicone sealant is used, recess the top surface of the packing material 1/4 in. from the top surface of the concrete floor assembly (Item 1). Use only Intertek certified products meeting the above min requirements.

i. When 33% compression is required cut the width of the packing material 1-1/2 times wider than the nominal joint width.

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)
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. FireDam Spray 200 or 1/10-in. Fire Barrier Watertight Spray 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).