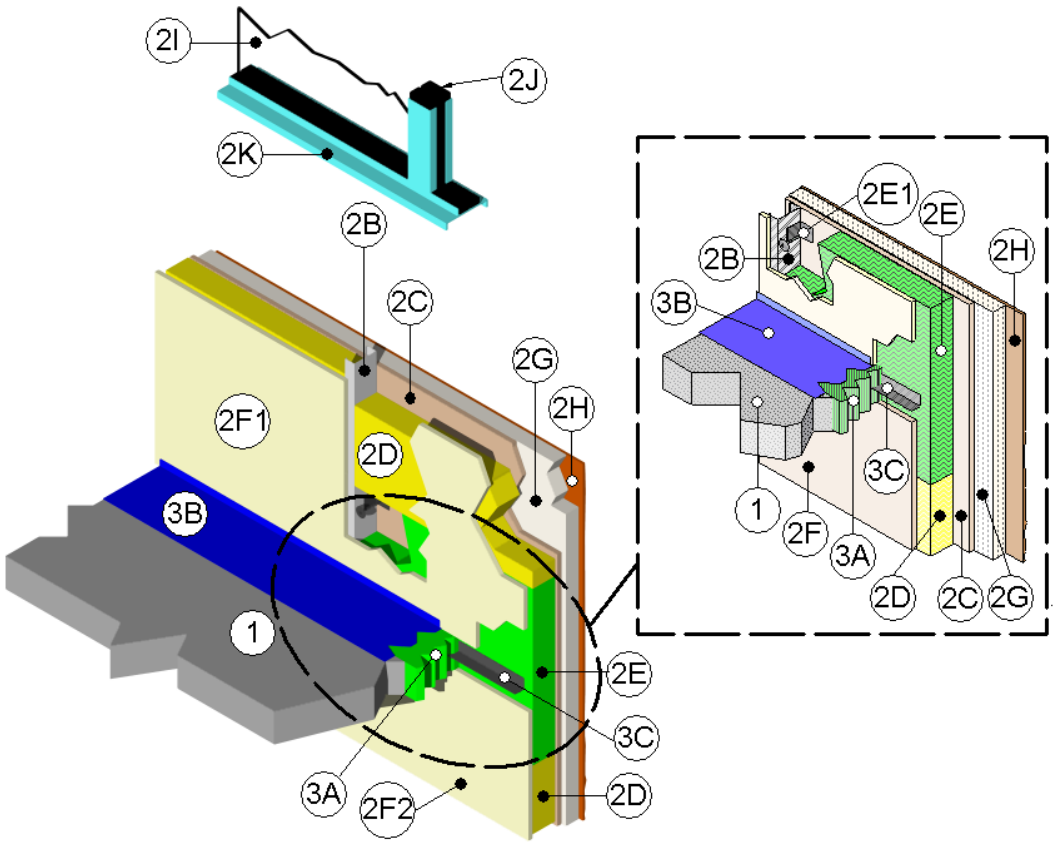
**3M Company**
**Design No. 3MU/JS 180-08**
**Perimeter Fire Barriers**
**ASTM E2307/ASTM E1399/UL2079**

| | **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** |
|---|---|
| | 25% Compression |
| **F-Rating** | 3 Hr |
| **T-Rating** | 1-1/2 Hr |
| **L-Rating (UL 2079)** | <1.0 SCFM/LF |
| **Cycling (%)** | Static |
| **Horizontal** | ± 0 |
| **Vertical** | ± 0 |



1. **CONCRETE FLOOR ASSEMBLY:** 3 hr 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 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 steel-stud framing (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. STEEL-STUD FRAMING – Erect vertical framing members using a min. 3-5/8 in. × 1-5/8 in., 18 GA steel "C" studs. Erect vertical framing and, when required, install horizontal framing members according to the curtain wall system manufacturer's guidelines. Max. 24 in. on center (oc) vertical framing spacing.

   C. SANDWICHED WALL SURFACE – Use a min. 1/2 in. thick, 48 in. wide × 96 in. long, exterior grade gypsum wallboard (ASTM C 79), placed over and secured to framing (Item 2B) with min. 1-1/4 in. long Type S drywall screws spaced 8 in. oc.

   D. CURTAIN WALL INSULATION – Use nominal 24 in. wide, 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 and installed in the stud cavity. Install curtain wall insulation between steel-stud framing (Item 2B). Secure curtain wall insulation with clips, impaling pins, or friction fit using curtain wall insulation, length at least 1/4 in. longer than the distance between steel-stud framing (Item 2B). Seal all meeting edges of curtain wall insulation with nominal 4 in. wide pressure sensitive aluminum foil-faced tape (not shown) centered over the junction so that approximately 2 in. of tape covers each edge of the adjacent curtain wall insulation. Apply pressure sensitive aluminum foil-faced tape over all meeting edges of curtain wall insulation and framing covers (Item 2F) so that approximately 2 in. covers each edge of the adjacent material. Install curtain wall insulation flush with the interior face of the steel-stud framing (Item 2B). Install 24 in. wide curtain wall insulation without vertical seams, spanning the full length between steel-stud framing (Item 2B). Locate horizontal seams in the curtain wall insulation at least 6 in. from the top surface of the perimeter joint protection (Item 3). Maintain 1-1/4 in. air cavity between curtain wall insulation and sandwiched wall surface (Item 2C). Option: In lieu of filling the full depth of the stud cavity with 4 in. thick, 4 pcf density curtain wall insulation, use either min. 3 in. thick 6 pcf density, or 2 in. thick 8 pcf density curtain wall insulation mechanically secured (do not secure by friction fit) and

use additional horizontal support angle (not shown). Install perimeter fire barrier reinforcement (Item 3C). Use only Intertek certified products meeting the above min. requirements.

E. INTERIOR CURTAIN WALL SURFACE – Install perimeter joint treatment (Item 3) before this material. Cover interior face of steel-stud framing (Item 2B) with one layer of min. 1/2 in. thick, Type X gypsum board (ASTM C 36). The joint face of the curtain wall assembly (Item 2) is not covered as shown with the 1/2 in. thick, Type X gypsum board (ASTM C 36). Fasten 1/2 in. thick, Type X gypsum board (ASTM C 36) to steel-stud framing (Item 2B) with min. No. 6, 1-1/8 in. long bugle-head Phillips drywall screws spaced 12 in. oc. Continuously place gypsum wallboard a min. 72 in. above surface of perimeter joint protection (Item 3). Optional gypsum wallboard below the floor assembly (Item 1).

i. Joint Tape and Compound – Apply vinyl or casein, dry or premixed, joint compound to face layer of gypsum board (Item 2E) in two coats to all exposed screw heads and gypsum board steel-stud framing (Item 2B) butt joints. A min. 2 in. wide paper, plastic, or fiberglass tape embedded in first layer of compound over joints in gypsum board (Item 2E).

ii. Create a min. 3-5/8 in. cavity between unexposed side of sandwiched wall surface (Item 2C) to unexposed side of interior curtain wall surface (Item 2E).

F. EXTERIOR CURTAIN WALL INSULATION – Create an Exterior Insulation Finish System (EIFS) composed of expanded polystyrene foam (EPS) insulation and an exterior curtain wall finish (Item 2H). Use a monolithic assembly without expansion or control joints as the EIFS system. Use EPS foam boards measuring nominal 24 in. wide × 48 in. long × 4 in. thick, with a nominal density of 1 pcf. Attach the EPS foam to the sandwiched wall surface (Item 2C) using mechanical fasteners or an adhesive in accordance with manufacturer's recommendations. Install the EPS boards in a running bond (brick-like) pattern and staggered over sandwiched wall surface (Item 2C) joints. Apply pressure to the EPS boards to assist in the bonding process. Butt all EPS boards together with no gaps or voids between them. Allow a min. of 12 hours before continuing the application process when using adhesive. Rasp the EPS boards to remove all irregular seams and establish a continuous flat surface.

G. EXTERIOR CURTAIN WALL FINISH – Apply the plaster base coat and reinforcing mesh over the exterior curtain wall insulation (Item 2G). Precut the mesh, which is a woven fiberglass reinforcement fabric that is compatible with the plaster base coat and finish coat materials. Apply 1/16 to 1/8 in. thick plaster base coat to the exposed surface of the EPS foam. Apply the mesh; embed the mesh into the plaster base coat using a trowel. Start at the middle and work outwards towards edges. Establish a final thickness of approximately 1/16 in. of the plaster base coat with the mesh embedded. Let the plaster base coat dry completely before applying the plaster finish coat, which is a plaster-based wall coating which may contain silica sand or marble aggregates. Apply the plaster finish

coat using a trowel in the same manner as the plaster base coat.

H. GLASS VISION PANELS – When required, use optional glass vision panels above the top surface of the floor assembly (Item 1). Install glass vision panels to curtain wall framing according to the curtain wall system manufacturer's guidelines. Use a min.
1/4 in. thick, clear tempered glass with a nominal width and height as determined by the framing.

I. WINDOW GASKETS – When optional glass vision panels are used, secure glass vision panels with a thermal break (thermal-set rubber extrusion).

J. WINDOW FRAMING – Use tubing mullions and transoms, sized according to the curtain wall system manufacturer's guidelines. Min. required framing dimensions, use 0.100 in. thick walls with min. 6-1/2 in. depth and min. 2-1/2 in. width, and window framing must be compatible with steel framing (2B). Locate window framing flush with the top surface of the floor assembly (Item 1).

**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. Use only Intertek certified products meeting the above min. requirements. 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).

i. When 25% compression is required, cut the width of the packing material 1-1/3 times wider than the nominal joint width.

B. **CERTIFIED MANUFACTURER** – 3M Company

**CERTIFIED PRODUCT** – FireDam™ or Fire Barrier™
**MODEL** – FD Spray 200 (Elastomeric, Sprayable) or 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. 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).

PERIMETER FIRE BARRIER REINFORCEMENT – Use when either min. 3 in. thick 6 pcf density or 2 in. thick 8 pcf density curtain wall insulation installed. Use min. 20 GA steel angle having a 1-1/2 in. high vertical leg and a 1-1/2 in. wide horizontal leg. Fully embed horizontal leg into the curtain wall insulation (Item 2E) at the centerline of the packing material (Item 3A). Secure the vertical leg at each mullion interior face (aluminum framing – Item 2B) using at least two min. 1/2 in. long, No. 10, sheet metal screws spaced nominally 1 in. oc. Install perimeter fire barrier reinforcement continuous along the length of the perimeter joint protection (Item 3). Overlap joints in the perimeter fire barrier reinforcement a min. 12 in. and secure the overlap using at least three min. 1/4 in. long, No. 10, sheet metal screws spaced nominally 4 in. oc, placed in both the vertical and horizontal legs of the angles.