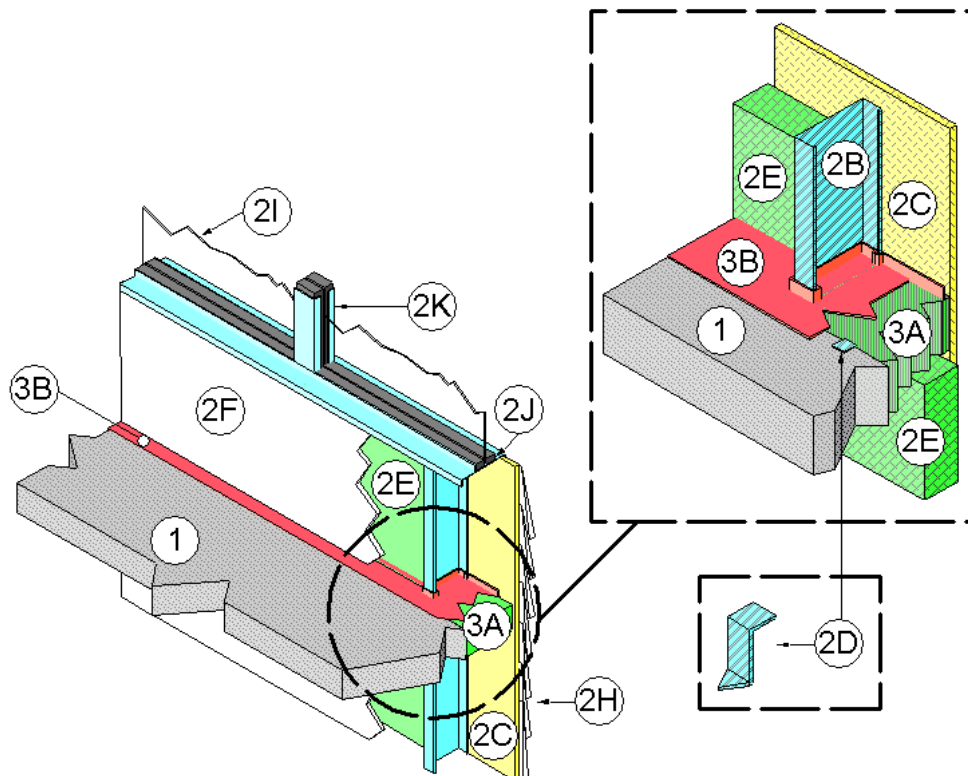


3M Company
Design No. 3MU/JS 120-22
Perimeter Fire Barriers
ASTM E2307/ASTM E1399 Cycling

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	
20% Compression	
F-Rating	2 Hr
T-Rating	1 Hr
L-Rating (UL 2079)	<1.0 SCFM/LF
Cycling (%)	None
Horizontal	± 0
Vertical	± 0





1. **CONCRETE FLOOR ASSEMBLY:** 2 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:** Vertical framing members min. 6 in. × 1-5/8 in., 16 GA, steel C studs secured in 16 GA steel tracks, top and bottom, using min. #6 × 1.25 in., bugle-head, SD, PT screws. Max. vertical framing spacing of 24 in. on center (oc). Secure the steel stud framing to the concrete floor assembly (Item 1) with curtain wall clips.
 - C. **SANDWICHED WALL SURFACE:** Use min. 5/8 in. thick, 48 in. wide × 96 in. long, exterior grade, fiberglass sheathed, gypsum board placed over and secured to steel stud framing (Item 2B) with min. 1-1/4 in. long, Type S, drywall screws placed nominally 8 in. oc.
 - D. **CURTAIN WALL CLIPS:** Affix min. 18 GA, steel, "stair-like", clip measuring min. 1 in. wide to each vertical steel stud framing (Item 2B) using 5/8 in. long sheet metal screws and to the surface of the concrete floor assembly (Item 1) using min. 1/4 in. diameter, 1 in. long, concrete screws. Option: weld clips to the vertical steel stud framing (Item 2B) and to the structural pour stop at the edge of the concrete floor assembly (Item 1) provided that this method does not interfere with the installation of the perimeter joint protection (Item 3).
 - E. **OPTIONAL CURTAIN WALL INSULATION:** When desired, install curtain wall insulation above or below the perimeter joint protection (Item 3). When used, secure the insulation in accordance with the manufacturer's installation instructions. Acceptable materials: mineral wool or glass fiber batt insulation.
 - F. **OPTIONAL INTERIOR CURTAIN WALL SURFACE:** When desired, install an interior curtain wall surface. Install above or below the perimeter joint protection (Item 3). When used, secure the interior curtain wall surface in accordance with the manufacturer's installation instructions. Acceptable material: gypsum board.
 - G. **OPTIONAL KNEE-WALL:** When desired, install a knee-wall above the perimeter joint protection (Item 3). Option: When using a knee-wall with 6 in. steel stud construction, replace the curtain wall clips with the 6 in. wide steel track at the bottom of the knee-wall. Attach the 6 in. steel track to each vertical steel stud framing (Item 2B) using 5/8 in. long, sheet metal screws and to the concrete floor



assembly (Item 1) using min. 1/4 in. diameter × 1 in. long concrete screws.

H. EXTERIOR CURTAIN WALL FINISH: Create no voids or openings in the exterior curtain wall finish or in the sandwiched wall surface (Item 2C) and extend exterior curtain wall finish at least flush with the top surface and at least 5 in. below the surface of the concrete floor assembly (Item 1). Acceptable finishes are:

i. EXTERIOR INSULATION FINISH SYSTEM: Use any Listed and Labeled EIFS composed of expanded polystyrene foam (EPS) insulation, and an Exterior Curtain Wall Finish consisting of the following. Apply a plaster base coat and reinforcing mesh over the sandwiched wall surface. Precut, as needed, the mesh, which is a woven fiberglass reinforcement fabric that is compatible with the plaster base coat and finish coat materials. Apply 1/16 in. to 1/8 in. thick plaster base coat to the exposed surface of the EPS foam boards, which nominally measure 24 in. wide × 48 in. long × a max. of 4 in. thick with a nominal 1 pcf density. 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 together all EPS boards with no gaps or voids between them. When using adhesive, allow 12 hours min. before continuing the application process. When needed, rasp the EPS boards to remove all irregular seams and establish a

continuous flat surface. Apply the mesh over the EPS; 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 the plaster base coat with the mesh embedded of approximately 1/16 in. Let the base coat dry completely before applying the plaster finish coat. Plaster finish coat is a gypsum-based material, 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. Other installation techniques are acceptable when detailed by the manufacturer. The EIFS system is a monolithic assembly without expansion or control joints.

ii. GLASS PANELS: Size and install glass panels into steel stud framing (Item 2B) according to the curtain wall system manufacturer's guidelines. Use a min. 1/4 in. thick, clear, heat-strengthened (HS), glass or tempered glass with a max. width and height less than the steel stud framing (Item 2B) oc spacing, which allows the glass to be secured between the notched shoulder of the steel stud framing (Item 2B) and pressure bar. Secure panels with a thermal break (thermo-set rubber extrusion), pressure bar (extrusion), min. 1/4-20 × 5/8 in. long screws, and a snap face (extrusion) or other manner as detailed by the manufacturer. The system is a monolithic assembly without expansion or control joints.

iii. ALUMINUM PANELS: Secure min. 1/8 in. thick, aluminum panels to the steel stud framing (Item 2B) in accordance with the manufacturer's installation instructions.



When framing for the aluminum panels is required, it is to be compatible with the steel stud framing (Item 2B) and installed with the manufacturer's installation instructions. The system is a monolithic assembly without expansion or control joints.

- iv. **BRICK:** Use any conventional brick, mortar type, and pattern. Do not exceed 7/8 in. wide mortar joints. Secure bricks to wall assembly (Item 2) using conventional acceptable masonry construction techniques. The system is a monolithic assembly without expansion or control joints.
- v. **STUCCO:** Use any Listed and Labeled stucco system provided that the following is met: When EPS is used, measure and verify EPS foam boards are 4 in. thick max. with a nominal 1 pcf density. Confirm stucco is compatible with the sandwiched wall surface (Item 2C) with the stucco manufacturer. The system is a monolithic assembly without expansion or control joints.
- vi. **STONE:** Use any conventional stone or stone panel measuring at least 1 in. thick, mortar type, and pattern. Do not exceed 7/8 in. wide mortar joints. Secure stone or stone panel to wall assembly (Item 2) using conventional acceptable masonry construction techniques. The system is a monolithic assembly without expansion or control joints.
- vii. **SIDING:** Use any Listed and Labeled siding system provided that the following is met: Verify that the siding is classified as non-combustible. The system is a

monolithic assembly without expansion or control joints.

- viii. **GFRC Panels:** Use glass fiber reinforced concrete panels at least 1 in. thick and attached in accordance with the manufacturer's installation instructions. The system is a monolithic assembly without expansion or control joints.
- I. **GLASS VISION PANELS:** When required, use optional glass vision panels. Install glass vision panels to curtain wall framing according to the curtain wall system manufacturer's guidelines. Horizontal framing member to be flush with top surface of floor assembly (Item 1) as measured between top surface of floor assembly and bottom surface of horizontal framing member. Use a min. 1/4 in. thick, clear, tempered glass with a nominal width and height as determined by the window framing (Item 2K).
- J. **WINDOW GASKETS:** When optional glass vision panels used, secure glass vision panels with a thermal break (thermo-set rubber extrusion).
- K. **WINDOW FRAMING:** When glass vision panels used, use steel framing members a min. 6 in. × 1-5/8 in., 16 GA steel, U-shaped channel or similar construction compatible with structural framing (Item 2B). Locate window framing flush with the top surface of the floor assembly (Item 1).

- 3. **PERIMETER JOINT PROTECTION:** Do not exceed an 8-1/2 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 in the following two step process. (1) Cut and install the mineral wool batt insulation with the fibers running perpendicular to the slab edge and the curtain wall. Cut the mineral wool batt insulation at least 1/4 in. longer than the length between the vertical framing members and 1/8 in. greater than the depth of the steel studs. There shall be no voids. (2) Install pieces of mineral wool batt insulation in the longitudinal void created between the vertical face of the concrete floor assembly and the mineral wool batt insulation. Cut and install the mineral wool batt insulation with the fibers running parallel to the slab edge and the curtain wall. Install the packing material as specified below to achieve required compression 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 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 20% compression is required cut the width of the packing material 1.25 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) 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).