

Design Number TRC/BP 120-19
PERIMETER FIRE BARRIERS

Rectorseal Corporation

Biostop 750, Biostop 800, FlameSafe FS 3000, FlameSafe FS 4000, Metacaulk 1200 Spray, and Metacaulk 1500 Spray

ASTM E 2307

T-Rating 1-1/4 hr

F-Rating 2 hr

ASTM E 2307/ASTM E 1399 Cycling

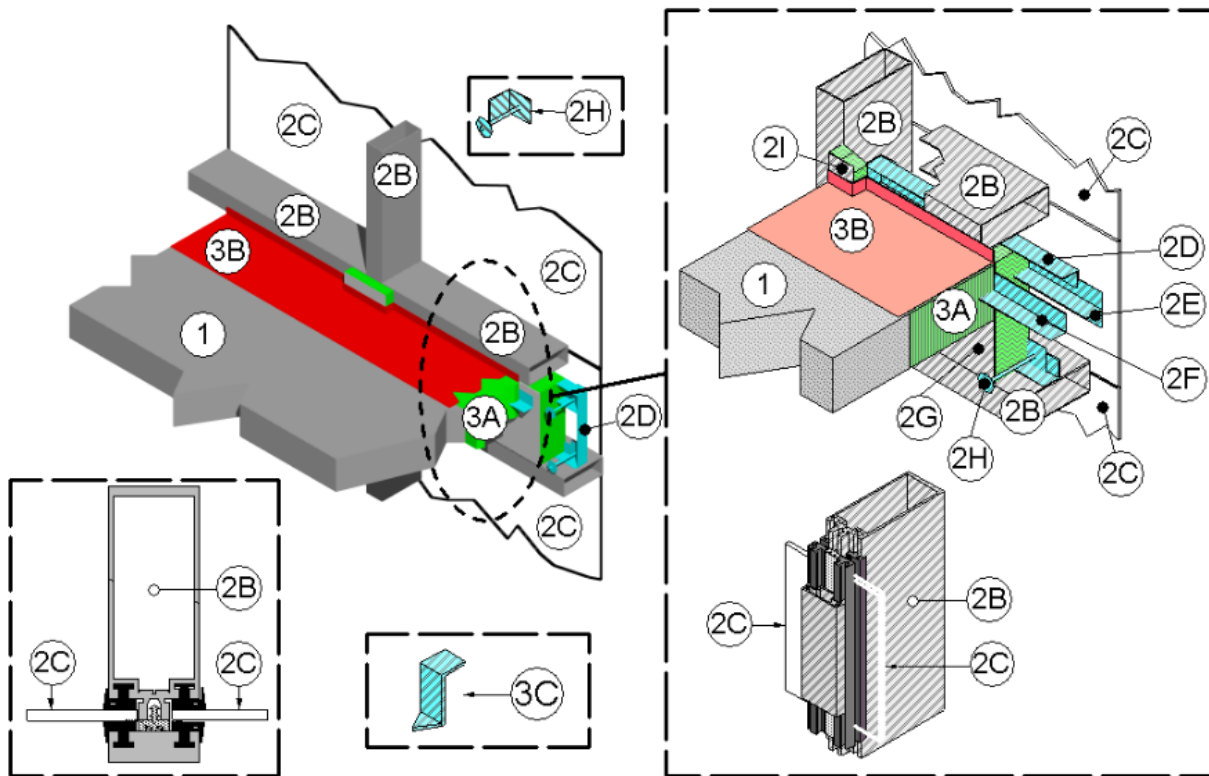
Class IV: 500 cycles @ 30 cpm

± 0.25% horizontal movement

± 6.25% vertical shear movement

UL 2079

L-Rating- <1.0 SCFM/LF



1. CONCRETE FLOOR ASSEMBLY: Two-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 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 4-1/2in. 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 aluminum framing (Item

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- 2B) to min. 1/4 in. structural steel framing according to the curtain wall manufacturer's instructions to allow vertical shear movement only. Connect mounting attachments to the joint face of the concrete floor assembly (Item 1) in accordance with the curtain wall manufacturer's instructions. Secure mounting attachments to each mullion of aluminum framing (Item 2B) in the perimeter joint protection (Item 3) region at a max. spacing of 60 in. on center.
- B. Aluminum Framing: Use hollow rectangular aluminum extruded tubing with min. overall dimensions of 0.100-inch thick, 3-3/4 in. high (total 5-5/16 in. high with mullion and transom covers) and 2-1/2 in. wide. Locate mullions min. 60 in. on center (oc) and locate transoms a min. 10 in. oc. For the spandrel region, locate the lower transom min. 5-1/2 in. below the concrete floor assembly (Item 1) as measured from the underside of the floor to the top side of the transom and locate the upper transom as a min. at the floor line as measured from the top surface of the concrete floor assembly (Item 1) to the underside of the transom.
- C. Glass Panels: Sized and installed into aluminum framing (Item 2B) according to the curtain wall system manufacturer's guidelines. Use min. 1/4 in. thick clear, heat strengthened (HS) glass or tempered glass with a max. width and height less than the aluminum framing (Item 2B) on center spacing, which allows the glass to be secured between the notched shoulder of the aluminum framing (Item 2B) and pressure bar. Secure glass panels with a thermal break (rubber extrusion), pressure bar (aluminum extrusion), min. 1/4-20 x 5/8 in. long screws, and a snap face (aluminum extrusion).
- D. Perimeter Spandrel Angles: Use min. 20 GA, galvanized steel angle with 1-1/2 in. x 1-1/2in. legs and place around the entire inside perimeter of the aluminum framing (Item 2B) in spandrel area. Secure perimeter spandrel angles to the aluminum framing (Item 2B) using No. 10 sheet metal screws spaced max. 8 in. oc.
- E. Reinforcing Angle: At the horizontal butt joints of the curtain wall insulation (Item 2G) in the field of the glass panels (Item 2C) in the spandrel area, place two 1-1/2 in. by 1-1/2 in., 20 GA steel angles "back to back" to form a T-shape reinforcing angle. Locate the T-shape reinforcing angle at the horizontal centerline of the packing material (Item 3A) and secure the T-shape reinforcing angle to the perimeter spandrel angles (Item 2D).
- F. Perimeter Fire Barrier Reinforcement: Use min. 20 GA, steel angle having a 1-1/2in. high vertical leg and a 1-1/2in. wide horizontal leg. Fully embed horizontal leg into the packing material (Item 3A) at the centerline. 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. 1/4in. long, No. 10, sheet metal screws spaced nominally 4 in.oc, placed in both the vertical and horizontal legs.
- G. Curtain Wall Insulation: Use nominal 2 in. thick, 8 pcf, mineral wool batt insulation faced on one side with aluminum foil scrim (vapor retarder), which is exposed to the room interior and installed between and flush with interior face of aluminum framing (Item 2B). Use only Intertek certified products meeting the above min. requirements. Secure the curtain wall insulation using impaling pins (Item 2H), which are attached to perimeter spandrel angles (Item 2D). Seal all meeting edges of curtain wall insulation with

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nominal 4 in. wide pressure sensitive aluminum foil faced tape 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 aluminum framing (Item 2B) so that approximately 2 in. covers each edge of the adjacent material.

- H. Impaling Pins: Attach curtain wall insulation (Item 2G) to the perimeter spandrel angle (Item 2D) using min. 12 GA steel cup-head pins spaced max. 8 in. oc at the centerline of the vertical leg. Size impaling pins to the curtain wall insulation (Item 2G) thickness to maintain a firm attachment to the perimeter spandrel angle (Item 2D). Install impaling pins so that the interior face of the curtain wall insulation (Item 2G) is flush with the interior face of the aluminum framing (Item 2B).
 - I. Framing Covers: Make from strips of 1 in. thick by 4 in. wide, 8 pcf density, mineral wool batt insulation faced on one side with aluminum foil scrim (vapor retarder), which is exposed to the room interior. Use only Intertek certified products meeting the above min. requirements. Center framing covers over all aluminum framing (Item 2B) and secure using impaling pins (Item 2H). Do not pass framing covers through the perimeter joint protection (Item 3). Allow framing covers to abut top and bottom surfaces of the perimeter joint protection (Item 3) provided that no deformation occurs.
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 25% 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. Use only Intertek certified products meeting the above minimum requirements. 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).

- B. CERTIFIED MANUFACTURER: Rectorseal Corporation

CERTIFIED PRODUCT: Biostop, FlameSafe, Metacaulk

MODEL: Biostop 750, Biostop 800, FlameSafe FS 3000, FlameSafe FS 4000, Metacaulk 1200 Spray, or Metacaulk 1500 Spray

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.

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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).

- C. Support Clips: (Optional)
Recommended for installations subject to vertical shear movement. Use standard 20 GA galvanized steel Z-shaped clips having the following nominal dimensions: 1-in. wide by 3 in. high with a 2 in. upper leg and a 3 in. lower leg.