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**Design Number TFI/BPF 120-14  
PERIMETER FIRE BARRIERS**

**Thermafiber, Inc.**

**FireSpan® 90 and FireSpan® 40 and Safing™**

**ASTM E 2307**

T-Rating 3/4 hr

F-Rating 2 hr

**ASTM E 2307/ASTM E 1399 Cycling**

Class IV: 500 cycles @ 30 cpm

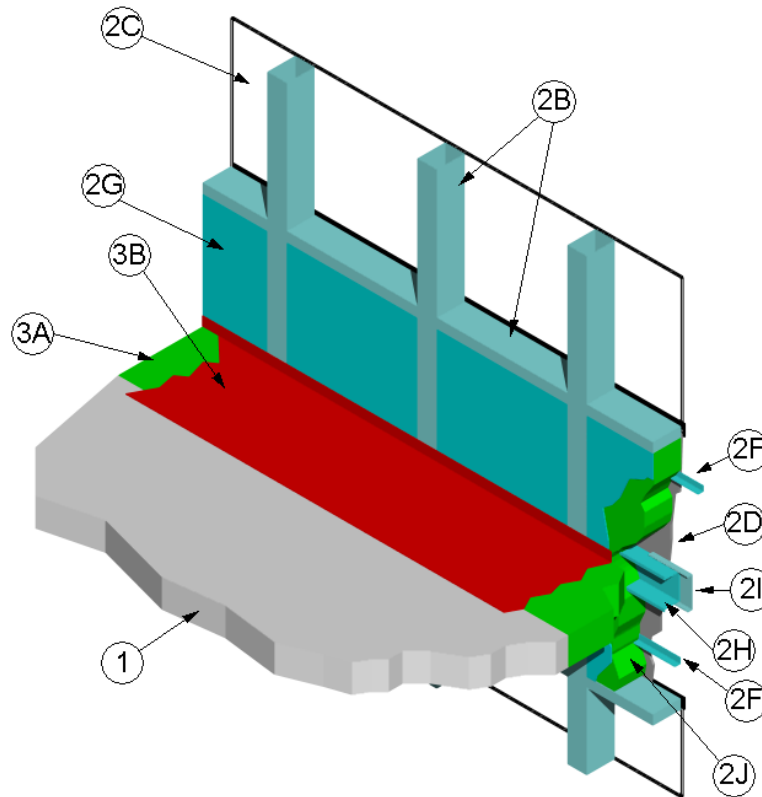
Rated for ± 10% horizontal movement @ 33% Compression (Reference Item 3A): T-Rating 3/4 hr

Rated for ± 6.25% vertical shear movement @ 33% Compression (Reference Item 3A) : T-Rating 3/4 hr

**UL 2079**

L-Rating ambient and elevated (400°F): <1.0 SCFM/LF

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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 minimum 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 minimum 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 aluminum 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 maximum 60 in. on center (oc).
- B. Aluminum Framing: Use hollow rectangular aluminum extruded tubing with minimum overall dimensions of 0.100 in. thick, 4 in. high and 2-1/2 in. wide. Locate mullions (vertical aluminum framing) minimum 48 in. oc and locate transoms (horizontal aluminum framing) a minimum 48-1/2 in. oc. For the spandrel region, locate the upper transom (horizontal aluminum framing) a minimum 20 in. above the concrete floor assembly (Item 1) as measured from the top surface of the concrete floor assembly (Item 1) to the underside of the transom (horizontal aluminum framing).
- C. Glass Panels: Sized and installed into aluminum framing (Item 2B) according to the curtain wall system manufacturer's guidelines. Use minimum 1/4 in. thick clear, heat strengthened (HS) glass or tempered glass with a maximum width and height less than the aluminum framing (Item 2B) oc 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), minimum 1/4-20 x 5/8 in. long screws, and a snap face (aluminum extrusion).
- D. Aluminum Spandrel Panel: Use minimum 1/8 in. thick, aluminum spandrel panel, having a minimum height of 48-1/2 in. and a minimum width of 60 in. as determined by the mullion and transom spacing. Span the aluminum spandrel panel across the spandrel area and mechanically secure it to the aluminum framing members (Item 2B), in accordance with the manufacturer's instructions.
- E. Aluminum Anchor Brackets: (not shown) Use minimum 9/16 in. thick aluminum anchor brackets to serve as part of the mounting attachment (2A) and are rigidly secured to the aluminum framing (2B) with 1/2 in. diameter, 2-1/4 in. long, Grade 5, anchor bolts.
- F. Steel Retainer Angle – Place a minimum 22 gauge (GA), 1-1/2 x 1-1/2 in. angle horizontally 12 in. above and below the floor line in the spandrel area, and is secured to the aluminum framing (2B) with No. 10 sheet metal screws. Orient the angle so that the horizontal flange is below the vertical flange and situate the horizontal flange to fully embed into the curtain wall insulation of the steel back pan.
- G. Steel Backpan: Install minimum 22 GA, galvanized steel backpan filled with curtain wall insulation (2I) adhered to the back pan with latex adhesive and steel face facing the interior face of the aluminum framing in the spandrel region. Secure the backpan to the aluminum framing (2B) with 1 in. long, hex-head, sheet steel screws.
- H. Backpan Stiffener: Secure minimum 18 GA, galvanized, hat-shaped, stiffener placed horizontally and measuring 4 in. wide x 3 in. deep and having 1 in. flanges to the backpan with No.10, sheet steel screws. Position the lower flange of the stiffener within the plane of the packing material (3A), and space the screw holding the top flange of the stiffener to the backpan (2F) a minimum of 2-7/32 in. above the top surface of the concrete floor assembly (Item 1).

- I. Steel Patches: Where required, horizontally place 6 in. wide, 22 GA, galvanized steel C-shaped patches measuring 6 in. wide and 1-1/2 in. deep, centered on the outside of the backpan stiffener (2G) and secure patches to the stiffener with No. 10, sheet steel screws.

- J. CERTIFIED COMPANY:  
Thermafiber, Inc.

CERTIFIED PRODUCT: Insulation  
Mineral Wool

MODEL: Thermafiber, Inc.  
FireSpan® 90

Curtain Wall Insulation: Fill the cavity of the steel backpan (Item 2F) with nominal 3 in. thick, 8 pcf density, mineral wool batt insulation faced on one side with aluminum foil scrim (vapor retarder), which faces the room interior. Tightly fit, compress at least 1/4 in. in all directions, the mineral wool batt insulation within the backpan (Item 2F) and adhere to the backpan with latex adhesive.

- 3. PERIMETER JOINT PROTECTION: Do not exceed a 6 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. CERTIFIED COMPANY:  
Thermafiber, Inc.

CERTIFIED PRODUCT: Insulation  
Mineral Wool

MODEL: Thermafiber, Inc. Safing™

Packing Material: Use a minimum 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 minimum 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).

- i. When 33% compression is required cut the width of the packing material 1.5 times wider than the nominal joint width.

- B. Fill, Void or Cavity Material: Apply 3M FireDam™ Spray 200 (Elastomeric, Sprayable) or Fire Barrier™ 1000 N/S Silicone Sealant (Non-sag) or FB 1003 S/L (Self Leveling) Sealant (bearing the Intertek Certification Mark) 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 minimum wet film thickness of 1/8 in. and overlap the spray coating a minimum 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.

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 minimum 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. Install 3 in. horizontal leg impaled into packing material (Item 3A) mid-depth and the 2 in. horizontal leg on top of the concrete floor assembly (Item 1). Install clips adjacent to mounting bracket (Item 2A) and spaced maximum 12 in. oc.