
Specified Technologies, Inc.
Design No. STI/BPF 180-02
Perimeter Fire Barrier System – Curtain Wall Assembly
SpecSeal® AS200 Series Elastomeric Spray
SpecSeal® FastTack® Firestop Spray
ASTM E2307, CAN/ULC-S115
Rating: F-Rating – 2 Hr, 2.5 Hr, or 3 Hr (Items 1 and 3), T-Rating – 1.5 Hr or 2 Hr (Item 3)
UL 2079 L-Rating < 2 SCFM/LF
ASTM E1399 Movement Type = Class IV
Rated for ± 5% Vertical Movement @ 25% Compression (Item 3A)

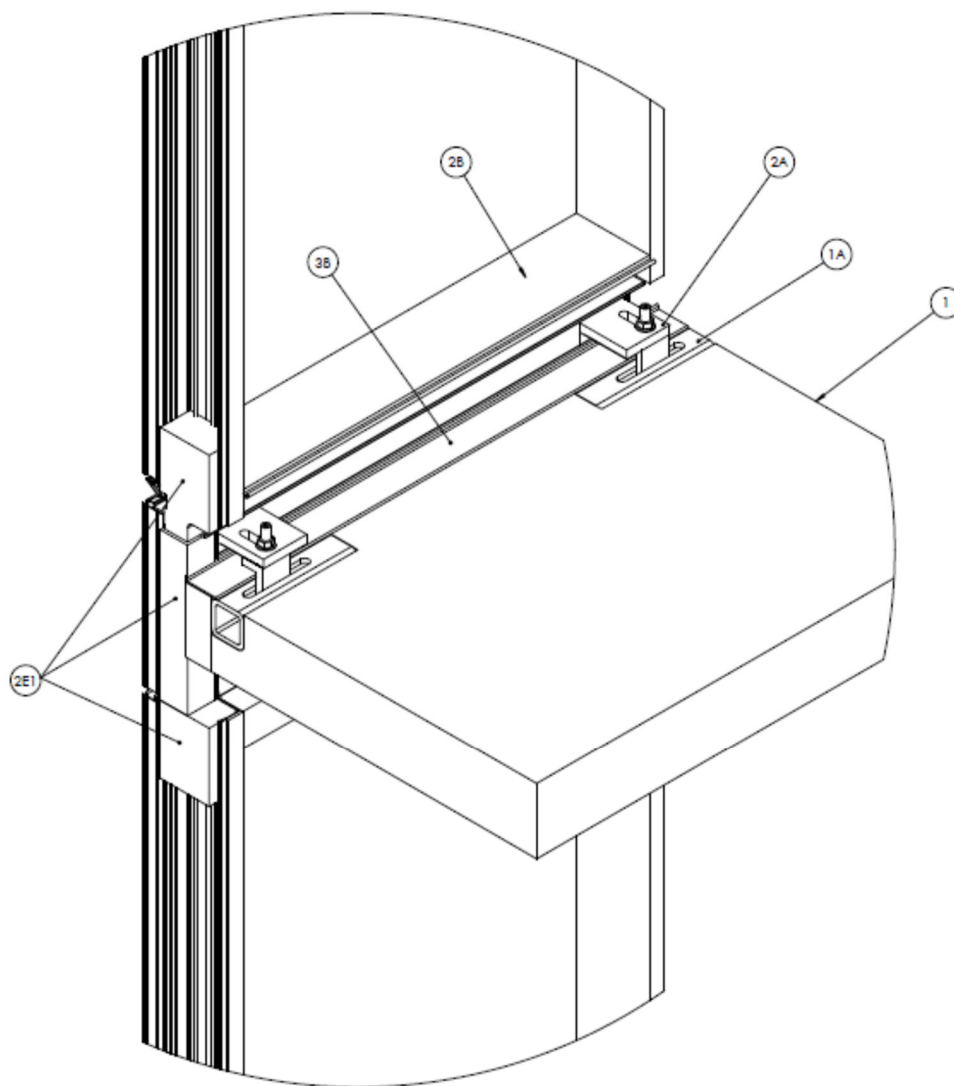


Figure 1 - Isometric with Interior Vertical Mullion Detail

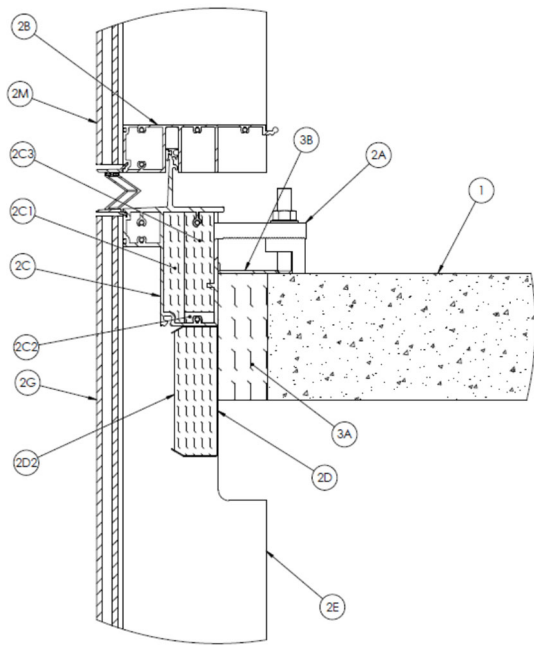


Figure 2 - Base Detail Between Anchors

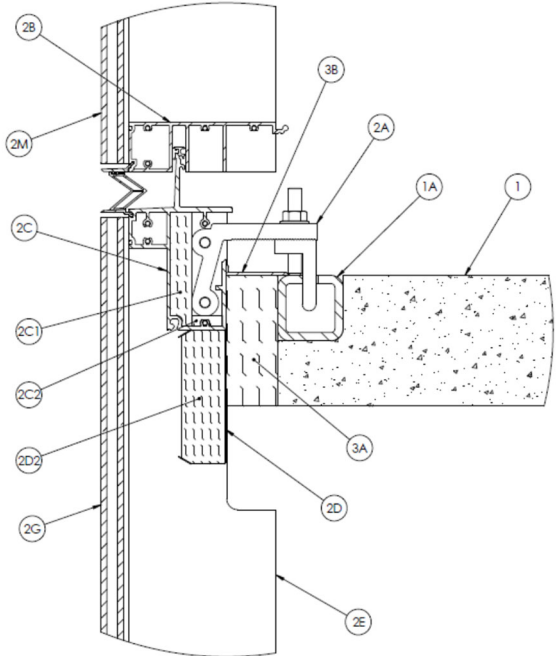


Figure 3 - Base Detail at Anchor

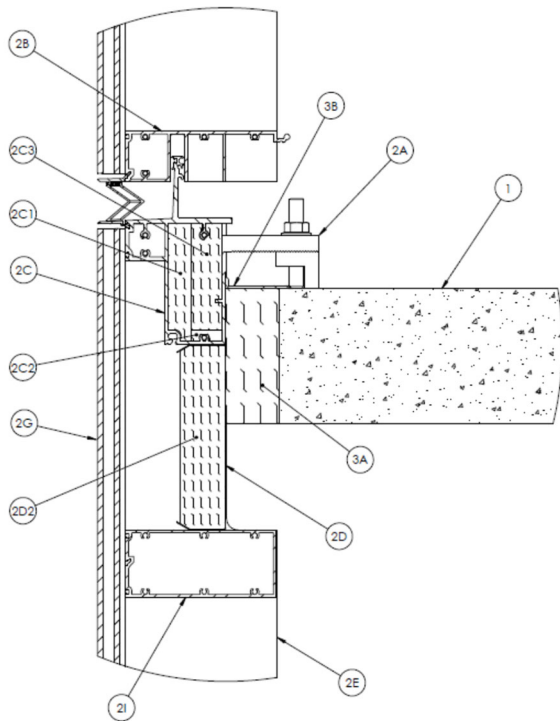


Figure 4 – Kiss Transom Configuration

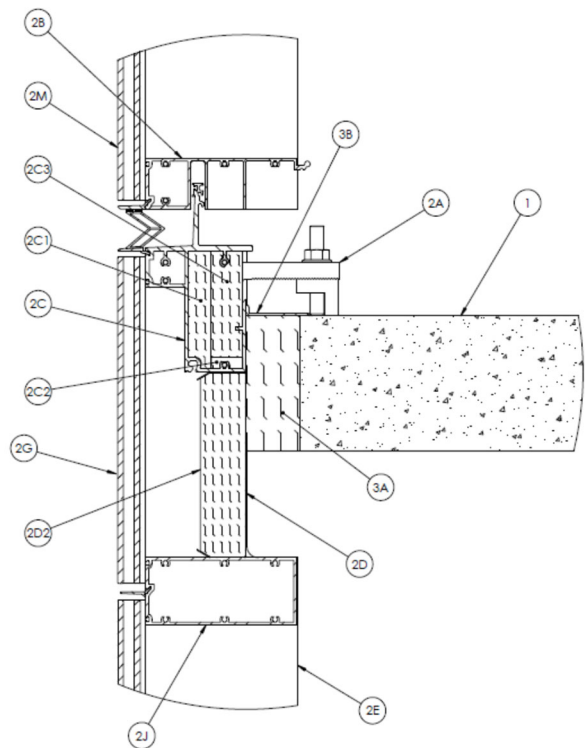


Figure 5 – Captured Transom Configuration

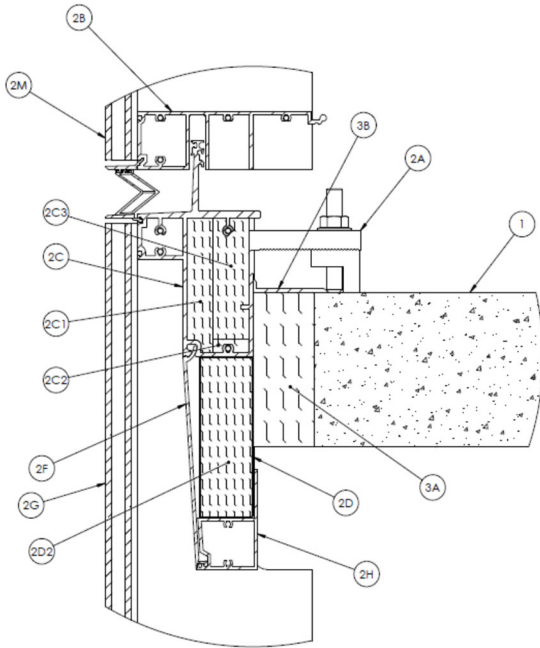


Figure 6 – Intermediate Transom and Shadowbox Configuration

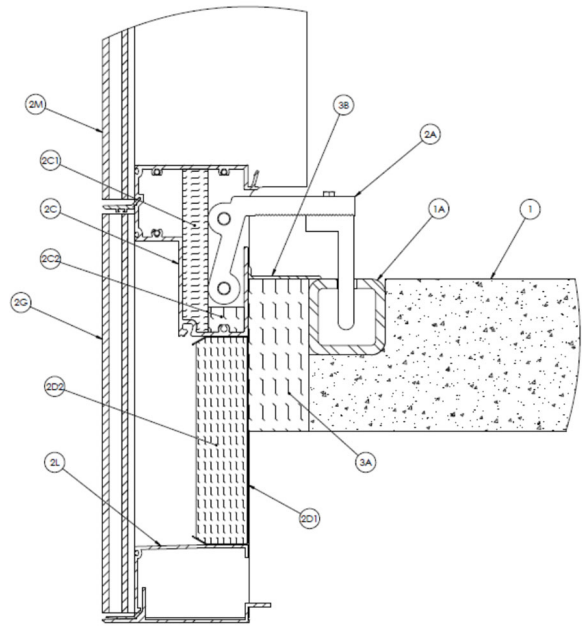


Figure 7 – Windload Anchor Configuration

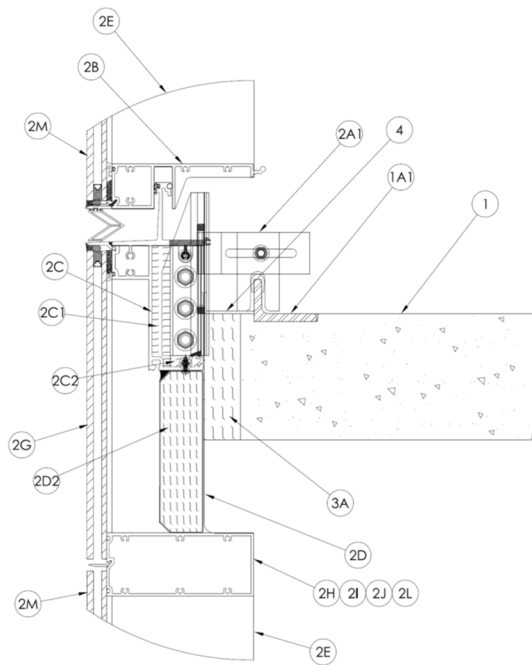


Figure 8 – Alternative Anchor Configuration



1. **CONCRETE FLOOR ASSEMBLY:** Min. two hour rated concrete floor assembly made from either lightweight or normal weight concrete with a density of 100-150 pcf, with a min. thickness of 6 in. (152 mm) at the joint face. F rating will be determined by the rating of the floor system up to a max. three hour F rating.

A. **STEEL EMBED:** For the mounting attachment (Item 2A) min. 3 in. x 3 in. (76 mm x 76 mm) square tube steel embeds with lateral anchor adjustment slots in the top center are to be laterally centered at each mullion location and cast in place flush with the top surface of the concrete floor assembly. Weld embeds to rebar frame.

1. **ALTERNATIVE STEEL EMBED:** (Not Shown) For the alternative mounting attachment (Item 2A-1), as shown in Figure 8, install min. 2 in. x 3 in. x 3/8 in. (50 mm x 76 mm) steel angle embeds set above the slab which allows for lateral adjustment when interfacing a slotted "tomahawk" anchor that is set atop the vertical terminal end of the steel angle. Each "tomahawk" anchor is centered at each mullion location and the opposite horizontal leg of the steel angle is cast in place flush with the top surface of the floor. Embeds shall be secured with included 1/2 in. studs or weld rods of embeds to rebar frame.

2. **CURTAIN WALL ASSEMBLY:** Construct the exterior wall assembly in compliance with applicable building code and regulatory requirements. The core of the spandrel, comprised of all components noted in Items 2B, 2C, and 2D below, span from a min. 7 in. (178 mm) above the floor to a min. 2-1/2 in. (64 mm) below the floor.

- A. **MOUNTING ATTACHMENT:** The mounting attachments to the floor slab include min. 11/16 in. (17.5 mm) thick extruded aluminum "tomahawk" anchors that have one end inserted into the slot on the interior side of the anchor head (Item 2C) on both sides of each mullion. The anchor is attached to the mullion with steel bolts per the manufacturer's design. The width of each anchor is min. 4 in. (102 mm). Each anchor is extruded with a serrated surface that is mated to a serrated surface of an 11/16 in. (17.5 mm) extruded aluminum angle having a min. width of 2-1/2 in. (64 mm). The anchor and angle are secured together using a nominal 5/8 in. (16 mm) steel jackbolt and nut. The vertical leg of the angle is inserted into the slot of the steel embed (Item 1A).

1. **ALTERNATIVE MOUNTING ATTACHMENT:** As shown in Figure 8, the mounting attachments to the floor slab include min. 11/16 in. (17.5 mm) thick extruded serrated aluminum "tomahawk" anchors that have one slotted end resting atop the vertical leg of the steel embed (Item 1A-1) on both sides of each mullion. The anchor is attached to the mullion with steel bolts per the manufacturer's design. The width of each anchor is min. 2-1/2 in. (64 mm). Each anchor is extruded with a serrated surface that is mated to a serrated surface of an 11/16 in. (17.5 mm) extruded aluminum slotted bar having a min. width of 2 in. (50 mm). The "tomahawk" components described above are secured together using a nominal 3/8 in. (10 mm) steel bolt and two jackscrews. The vertical leg of the 11/16 in. serrated bar into the channel slot of the mullion receiver bolted to the side of each mullion.



B. **UPPER TRANSOM:** The top of the upper transom is positioned a min. 7 in. (178 mm) above the floor. The transom consists of nominal 1/8 in. (3 mm) extruded aluminum with an exterior wet chamber and interior geometry that receives the "chicken head" from the anchor head extrusion (Item 2C), forming the stack joint. The front-to-back width of the upper transom is min. 6-3/4 in. (171 mm).

C. **ANCHOR HEAD:** The anchor head consists of nominal 1/8 in. (3 mm) thick extruded aluminum having a complex shape and a 2-1/8 in. (54 mm) slot on the interior side where the anchor from the mounting attachment (Item 2A) is inserted. The height of the anchor head extrusion, from the bottom to the top of the "chicken head" is nominally 8-3/8 in. (213 mm) and the width from front-to-back varies from 2-1/2 in. (64 mm) to 4-3/4 in. (121 mm). The anchor head contains a wet chamber on the exterior side and on the interior may be constructed with a single or double "chicken head" per the design of the manufacturer. The upper transom (Item 2B) and the anchor head engage at the stack joint, and the bottom of the anchor head extrusion is positioned 2-1/2 in. (64 mm) below the top of the floor surface. The exterior face of the anchor head wet chamber is flush with the exterior face of the aluminum framing. The Anchor Head cavity shall incorporate the following construction features:

1. **CERTIFIED PRODUCT:** Thermafiber Firespan 90

PACKING MATERIAL (EXTERIOR FACE INSULATION): Inside the anchor head cavity, install min. 1 in. (25 mm) thick 8 pcf (128 kg/m³) density mineral wool batt insulation against the most exterior

face of the cavity space. The insulation is to be friction fitted into place extending the full height of the anchor head cavity.

2. **CERTIFIED PRODUCT:** Thermafiber Safing

PACKING MATERIAL (BOTTOM FACE INSULATION): Inside the anchor head cavity, install min. 1 in. (25 mm) thick 4 pcf (64 kg/m³) density mineral wool batt insulation placed at the bottom of the cavity space to fill the area from the interior side of the Exterior Face Insulation (Item 2C1) to the interior face of the cavity. This insulation will be compressed by the "tomahawk" anchor during installation.

3. **CERTIFIED PRODUCT:** Thermafiber Firespan 40

PACKING MATERIAL (INTERIOR FACE INSULATION): Inside the anchor head cavity, install min. 1-1/2 in. (25 mm) thick 4 pcf (64 kg/m³) density mineral wool batt insulation friction fitted between the "tomahawk" anchors to fill the remaining cavity space in the anchor head.

- D. **STEEL VALANCE BACKPAN:** The valance backpan is constructed with 22 GA galvanized sheet steel. The backpan extends horizontally from vertical mullion to vertical mullion (Item 2E) and is secured to the mullions and the anchor head with No. 10 steel sheet metal screws spaced 12 in. (305 mm) on center (oc). Each screw head may be covered with silicone sealant. The pan shall measure a min. 6 in. (152 mm) vertical height and a min. 2 in. (51 mm) depth. The top of the pan must be located



at or below the top surface of the perimeter joint protection (Item 3). Silicone sealant may be installed around the perimeter of backpan. The back, or interior side of the backpan is to be mounted flush with the interior of the anchor head. The valance backpan shall incorporate the following construction features:

1. **INSULATION PINS:** (Not Shown) Weld steel impaling pins or steel cup-head pins to the vertical centerline of the pan. Ensure the length of the pin is sufficient to hold the insulation snugly to the pan without compression. When impaling pins are used, secure insulation with speed washers. Pins are to be spaced a max. 12 in. (305 mm) from the perimeter of the backpan and max. 13-1/2 in. (343 mm) spacing oc. When vertical splices are incorporated, pins are to be placed at a max 6 in. (152 mm) spacing from the splice on both sides. A min. of 2 pins are required for each individual section of backpan insulation (Item 2D2).

2. **CERTIFIED PRODUCT:** Thermafiber Firespan 90

BACKPAN INSULATION: Install min. 2 in. (51 mm) thick 8 pcf (128 kg/m³) density mineral wool into the backpan. The insulation is to be fitted tightly to the perimeter of the pan and secured with steel impaling pins or steel cuphead pins (Item 2D1). Insulation may be installed with vertical splices as required. Use no less than 2 pins for each uninterrupted section of mineral wool, and follow the pin spacing guidelines in Item 2D1.

- E. **VERTICAL MULLIONS:** Vertical mullions are constructed of nominal 1/8 in. (3 mm) extruded aluminum. Mullions can be constructed as solid members, or as joining members that are split vertically. Mullions are designed with a wet chamber on the exterior side and a dry chamber on the interior side. Mullions have a min. depth of 6-3/4 in. (171 mm) and a min. width of 3 in. (76 mm). Spacing of the mullions is min. 40-1/2 in. (103 cm) oc. The dry chamber on the interior side of each mullion may be notched to fit around the floor with a max. 2-1/4 in. (57 mm) deep notch that is positioned vertically from a max. 4-3/4 in. (121 mm) below the floor to the underside of the upper transom (Item 2B). The vertical mullions shall incorporate the following construction features:

1. **CERTIFIED PRODUCT:** Thermafiber Safing

PACKING MATERIAL: Inside the dry chamber of the exposed mullion cavity, install min. 4 in. (102 mm) wide 4 pcf (64 kg/m³) density mineral wool batt insulation so that it fills the dry cavity and is compressed horizontally with a 30% compression inside the mullion. Insulation is to be installed in the cavity to provide continuous protection for a min distance of 8-3/4 in. (222 mm) below the bottom of the floor, to a min. distance of 4 in. (102 mm) above the sill of the upper transom (Item 2B). The insulation is to be cut to the contour of the notch on the interior side to accommodate the perimeter fire barrier (Item 3).

- F. **SHADOW BOX:** (Optional) – A shadow box installed on the exterior side of the valance backpan may be formed of any material that



complies with applicable building code and regulatory requirements. Install in accordance with the exterior curtain wall assembly manufacturer's instructions and the design specifications.

G. EXTERIOR SPANDREL CLADDING:

(Optional) Install glazing or an exterior cladding system that complies with applicable building code and regulatory requirements. Install in accordance with the exterior curtain wall assembly manufacturer's instructions and the design specifications. Glazing panels or other specified cladding may be secured in position with aluminum pressure plates in conjunction with glazing gaskets and steel screws or with structural silicone installed in accordance with the manufacturer's instructions.

H. INTERMEDIATE TRANSOM: (Optional) An intermediate transom may be installed on the underside of the valence backpan and may be formed of any material that complies with applicable building code and regulatory requirements. Install in accordance with the exterior curtain wall assembly manufacturer's instructions and the design specifications.

I. CONTINUOUS GLAZING FRAME (KISS TRANSOM): (Optional) A continuous glazing frame (Kiss Transom) may be installed below the valence backpan and may be formed of any material that complies with applicable building code and regulatory requirements. Install in accordance with the exterior curtain wall assembly manufacturer's instructions and the design specifications.

J. CAPTURED TRANSOM: (Optional) A captured transom that utilizes either

aluminum pressure plates in conjunction with glazing gaskets and steel screws or with structural silicone installed in accordance with the manufacturer's instructions may be installed below the valence backpan and may be formed of any material that complies with applicable building code and regulatory requirements. Install in accordance with the exterior curtain wall assembly manufacturer's instructions and the design specifications.

K. ARCHITECTURAL COVER PLATE: (Optional, Not Shown) An architectural cover plate that covers the perimeter joint protection (Item 3) may be installed in accordance with the exterior curtain wall assembly manufacturer's instructions and the design specifications.

L. WINDLOAD ANCHOR: (Optional) A windload anchor may be installed on the underside of the valence backpan and may be formed of any material that complies with applicable building code and regulatory requirements. Install in accordance with the exterior curtain wall assembly manufacturer's instructions and the design specifications.

M. VISION PANELS: Vision panels to comply with exterior curtain wall assembly (Item 3) design specifications. Glazing panels may be secured in position with aluminum pressure plates in conjunction with glazing gaskets and steel screws or with structural silicone installed in accordance with the manufacturer's instructions.

3. PERIMETER JOINT PROTECTION: The perimeter joint (linear opening) is not to exceed 2-3/8 in. (60 mm) nominal joint width (joint width at installation) for conditions exceeding a 2 hour fire-resistance rating. For a 2 hour fire-



resistance rating, the perimeter joint (linear opening) is not to exceed 4 in. (102 mm) nominal joint width (joint width at installation). The perimeter joint treatment shall incorporate the following construction features:

A. **CERTIFIED PRODUCT:** Thermafiber Safing

PACKING MATERIAL: Install a min. 6 in. (152 mm) depth of 4 pcf (64 kg/m³) density mineral wool batt insulation installed with the fibers running parallel to the slab edge and curtainwall. Cut and stack additional batt sections as needed so that the total thickness is min. 33% greater than the linear opening to produce a min. 25% compression in the nominal joint width. Install the batt insulation into the perimeter joint flush with the top surface of the concrete floor slab (Item 1). Splices (butt joints) in the lengths of mineral wool batt insulation are to be tightly compressed together.

4. **CERTIFIED PRODUCT:** Specified Technologies, Inc. SpecSeal® AS200 Series Elastomeric Firestop Spray, or SpecSeal® FastTack® Firestop Spray (*Note: A max. F-rating of 2.5 hour and T-rating of 1.5 hour may be achieved if using SpecSeal® FastTack® Firestop Spray.)

FILL VOID OR CAVITY MATERIAL: Apply a min. wet film thickness of 1/8 in. (3.2 mm) over the packing material (Item 4A) and overlap the liquid spray material a min. 1/2 in. (13 mm) onto the interior surface of the adjacent curtain wall assembly (Item 2) and the concrete floor slab assembly (Item 1). If the spraying process is stopped and the applied liquid spray material cures to an elastomeric film before process is restarted, then overlap the edge of the cured spray material at least 1/8 in. (3.2 mm) with the liquid spray material.

Consult the listing report on the Directory of Building Products (<https://bpdirectory.intertek.com>) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.