Specified Technologies, Inc.
Design No. STI/BPF 120-40
Perimeter Fire Barrier System – Curtain Wall Assembly
SpecSeal® AS200 Series Elastomeric Spray
SpecSeal® Fast Tack® Firestop Spray
ASTM E2307, CAN/ULC-S115
Rating: F-Rating – 2 hr.
UL 2079 L-Rating < 2 SCFM/LF
Movement Type = Class IV
Rated for ± 5% Vertical Movement at 25% Compression (Item 3A)

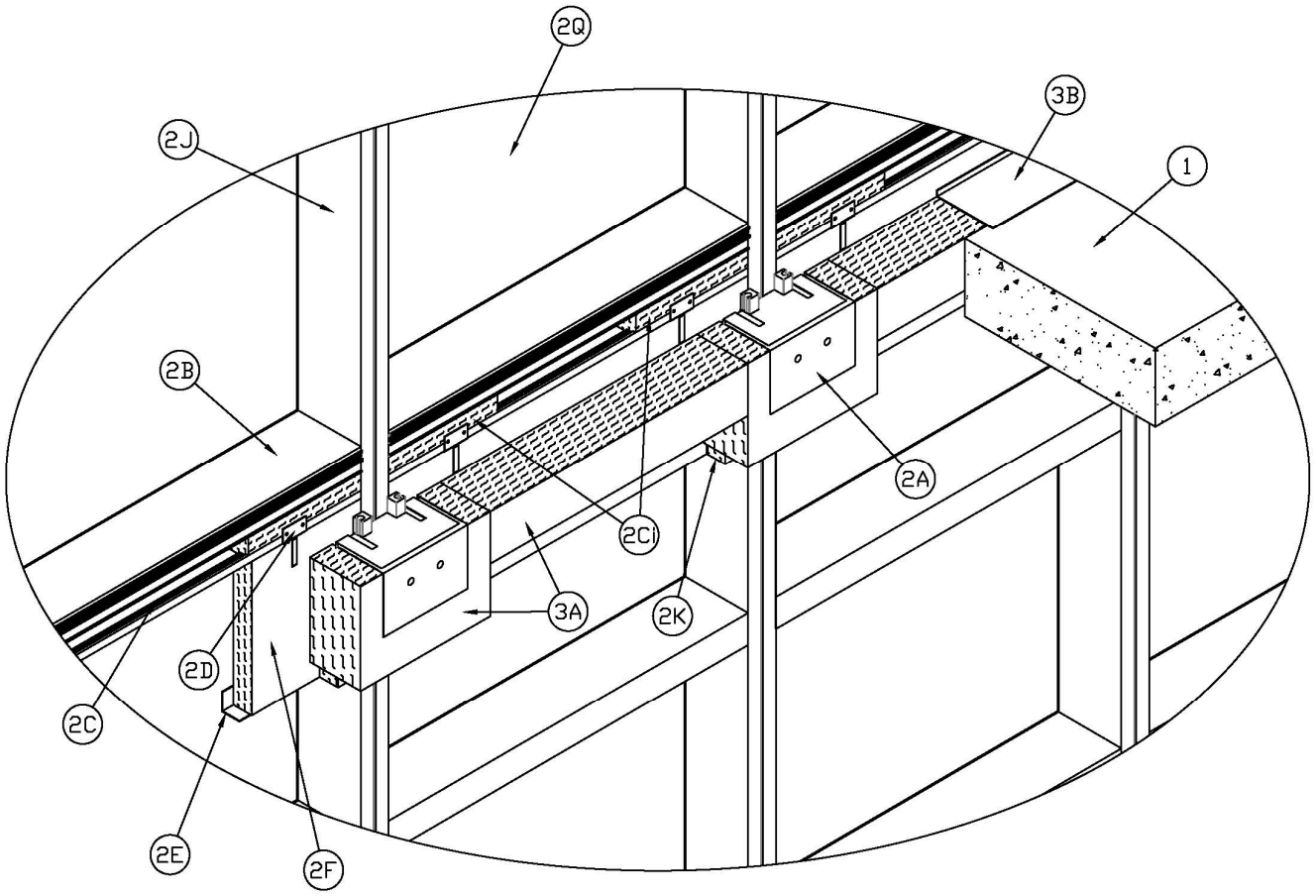

Figure 1 - Isometric with Interior Vertical Mullion Detail

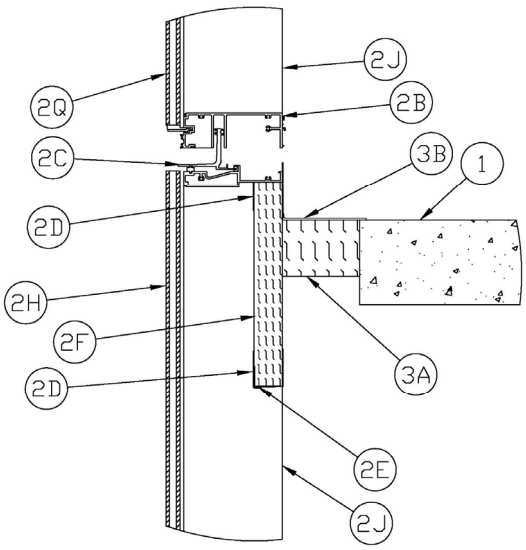

Figure 2 - Base Detail Between Anchors

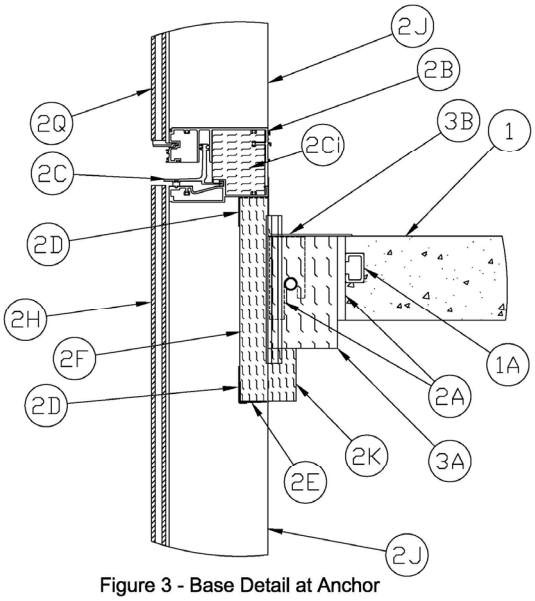

Figure 3 - Base Detail at Anchor

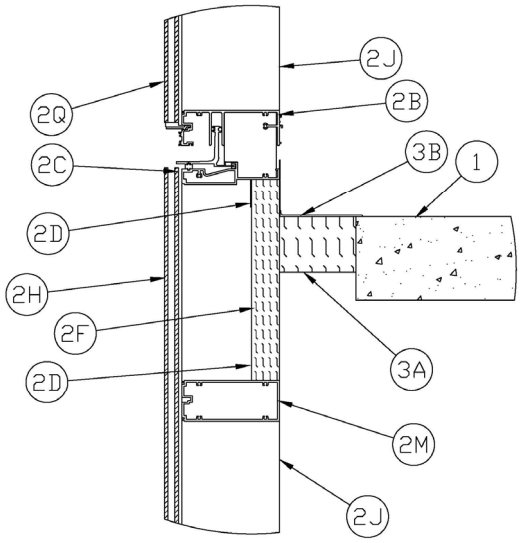

Figure 4 - Kiss Transom Configuration

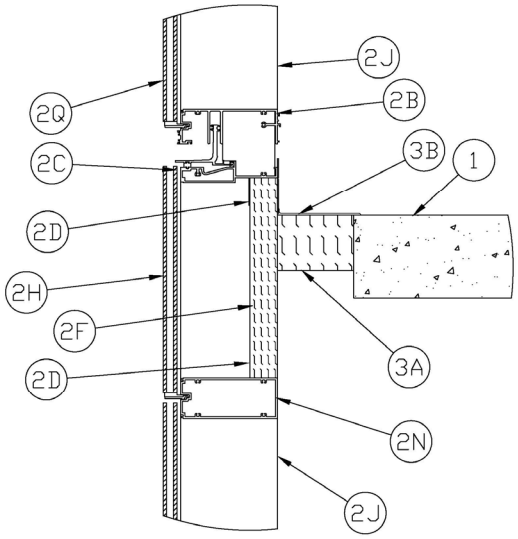

Figure 5 - Captured Transom Configuration

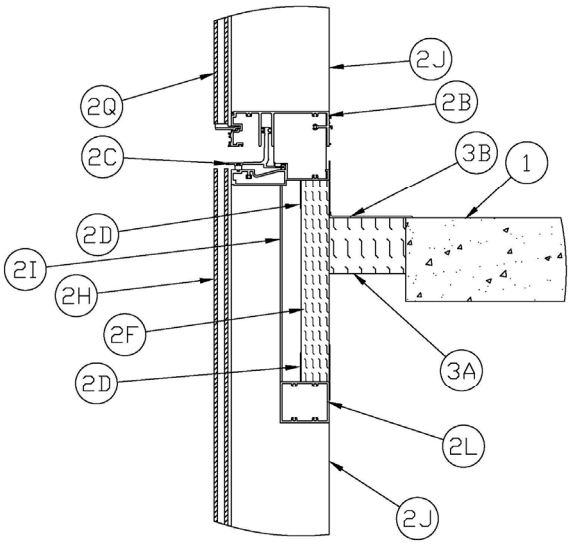

Figure 6 - Intermediate Transom with Shadowbox Configuration

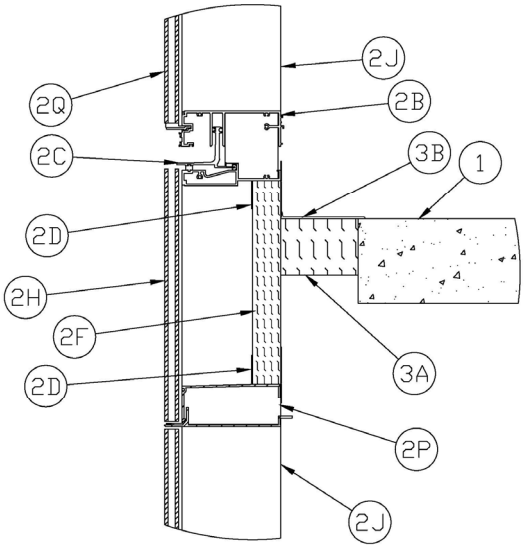

Figure 7 - Windload Anchor Configuration

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. 2-hr F-rating.

   A. **STEEL EMBED:** For the mounting attachment (Item 2A) min. 1-3/8 in. × 2 in. (35 mm × 51 mm) steel tube embeds with 7/8 in. (22 mm) slots on the front face are to be laterally centered at each mullion location and cast in place flush with the edge of the concrete floor assembly in accordance with the anchor manufacturer's installation instructions.

2. **CURTAIN WALL ASSEMBLY:** Construct the exterior wall assembly in compliance with applicable building codes and regulatory requirements. The core of the spandrel, comprised of all components noted in Items 2B through 2I below, spans from a min. 7-3/4 in. (197mm) above the concrete floor assembly (Item 1) to a min. 5-3/4 in. (146mm) below the concrete floor assembly. Other elements that exist within the spandrel and are marked optional are complimentary to the design and shall be installed per the curtain wall manufacturer's design specifications.

   A. **MOUNTING ATTACHMENT:** The face-mounted attachment consists of a one or two-piece, 1/2 in. (13 mm) thick, extruded aluminum faceplate with min 3/8 in. (9.5 mm) arms that form a "U" shape with corrugated surfaces serving as locking mechanisms for the horizontal adjustment feature. Corresponding washer plates with matching corrugations are used to house a steel cross bar where the mullion anchor hooks on to support the wall system vertically and horizontally. The height of the anchor plate is nominally 6 in. (152 mm) and may be positioned vertically on the edge of

the concrete floor assembly (Item 1) from flush with the bottom to flush with the top of the concrete floor assembly. The mullion anchor plates are secured to the sides of the mullion, with interior edges flush with the interior face of the mullion, with steel bolts and nuts that engage with hardware internal to the mullion. The mullion anchor hook plate consists of a nominal 2 in. (51 mm) wide × 10.5 in. (267 mm) tall × 1/4 in. (6.4 mm) thick extruded aluminum plate with fist sliders that sit proud of the mullion face within the safing slot of the perimeter fire protection (Item 3). The fist sliders receive min. 1/2 in. (12.7 mm) diameter jack bolts that are used to adjust the vertical position of the wall. The fist sliders may extend above the floor and up to 3 in. (76mm) below the floor assembly (Item 1). The fist sliders may extend up to 1 in. (25 mm) below the packing material (Item 3A).

B. **UPPER TRANSOM:** The top of the upper transom is positioned directly above the anchor head transom (Item 2C) with mating connection points. The bottom of the upper transom is min. 7-3/4 in. (197 mm) above the top of the concrete floor assembly (Item 1). The upper transom consists of nominal 1/8 in. (3 mm) extruded aluminum with an exterior wet chamber and interior profile 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. 7 in. (178 mm).

C. **ANCHOR HEAD**: The anchor head consists of nominal 1/8 in. (3 mm) thick extruded aluminum having a complex shape and a nominal 1-11/16 in. (43 mm) horizontal slot on the interior side of the transom, which may be left open or, when a double chicken head design is used, may be enclosed. The height of the anchor head extrusion, from the bottom to the top of the “chicken head,” is nominally 4-3/16 in. (106 mm) and the width from front to back is 7 in. (178 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 a min 2-5/8 in. (67mm) above the top of the concrete floor assembly (Item 1) surface. The Anchor Head cavity shall incorporate the following construction features:

i. **CERTIFIED PRODUCT:** Thermafiber Safing

PACKING MATERIAL (EXTERIOR FACE INSULATION): Inside the anchor head cavity, install min. 4 pcf (64 kg/m^3) density mineral wool batt insulation in the cavity space, compressed at min. 25% compression, for a min. distance of 12 in. (305 mm) on each side of every mullion. The insulation is to be friction fitted into place extending the full height of the anchor head cavity and flush with the interior of the anchor head slot.

D. CURTAINWALL INSULATION RETAINING SYSTEM: A steel retaining clip system is used to secure the curtainwall insulation (Item 2F) to the spandrel. The clip system may consist of any combination of the following styles:

i. **U-SHAPED STEEL BRACKET (Not Shown):** When U-shaped brackets

are used, a min. of two brackets, made from 20 GA steel, are required for each mullion in the spandrel, one above and one below the concrete floor assembly (Item 1). U-shaped brackets serve to support curtainwall insulation (Item 2F) in spandrels on both sides of the mullion simultaneously. U-shaped brackets can be used in tandem with another U-shaped bracket or Z-shaped brackets (Item 2D-2) above or below the concrete floor assembly interchangeably. U-shaped brackets are secured to the interior face of mullions (Item 2J) and are used to secure spandrel insulation within framed openings by means of a staple-shaped fastener that penetrates the insulation and interlocks with the bracket. A single 1/2 in. (12.7 mm) No. 10 self-tapping screw is required to secure the bracket on the interior side of the mullion. The bottom of the brackets, below the floor, are to be located a max. of 5-3/4 in. (146 mm) under the floor. When U-shaped brackets are used above the floor, they are to be located on the mullion a max. 2 in. (51 mm) below the transom. U-shaped brackets cannot be used on the transom. Brackets below the floor are to engage with and support steel stiffener angles (Item 2E), to support the bottom edge of the curtainwall insulation (Item 2F). Brackets are to be installed onto mullions per the manufacturer's instructions.

ii. **Z-SHAPED STEEL BRACKET (Not Shown):** When Z-shaped brackets are used, a minimum of four brackets, made from 20 GA steel, are required for each mullion in the spandrel, two above and two below the concrete floor assembly (Item 1). Z-shaped brackets can be used in tandem with other Z-shaped brackets or a single U-shaped bracket (Item 2D-1) above or below the concrete floor assembly interchangeably. Z-shaped brackets may be secured to the internal side, or cavity side of the mullion (Item 2J) and/or underside of the anchor head transom (Item 2C) and are used to secure spandrel insulation within framed openings by means of a staple-shaped fastener that penetrates the insulation and interlocks with the bracket. A single 1/2 in. (12.7 mm) No. 10 self-tapping screw is required to secure the bracket on the interior side of the mullion, the side face of the mullion, or the underside of the transom. The bottom of the brackets, below the concrete floor assembly, are to be located a max. of 5-3/4 in. (146 mm) below the concrete floor assembly. When Z-shaped brackets are used above the concrete floor assembly, they are to be located on the mullion a max. of 2 in. (51 mm) below the transom, or if placed on the transom, a max. 6 in. (152 mm) from the mullion. Brackets below the concrete floor assembly are to engage with and support the steel

stiffener angles (Item 2E), to support the bottom edge of the curtainwall insulation (Item 2F). Brackets are to be installed onto mullions or transoms per the manufacturer's installation instructions.

iii. **L-SHAPED STEEL BRACKET (Not Shown):** When L-shaped brackets are used, a min. of four brackets, made from 20 ga steel, are required for each mullion in the spandrel, two above and two below the floor. L-shaped brackets are designed for factory installation and cannot be used in tandem with another Z-shaped (Item 2D-2) or U-shaped bracket (Item 2D-1). L brackets are installed onto the side face of mullions (Item 2J) or underside of the anchor head transom (Item 2C) to secure spandrel insulation within framed openings by means of a staple-shaped fastener that penetrates the insulation and interlocks with the bracket. A single 1/2 in. (12.7 mm) No. 10 self-tapping screw is required to secure the bracket on the side face of the mullion or underside of the transom. The bottom of brackets, below the floor, are to be located a max. of 5-3/4 in. (146 mm) below the concrete floor assembly. When L-Shaped brackets are used above the floor, they are to be located on the mullion a max. of 2 in. (51 mm) below the transom, or if placed on the transom a max. 6 in. (152 mm) from the mullion. Brackets below the concrete floor assembly are to engage with and support the steel stiffener angles (Item 2E), to support the bottom edge of the curtainwall insulation (Item 2F). When L-Brackets are used, additional L brackets are to be secured with a single 1/2 in. (12.7 mm) No. 10 self-tapping screw to the steel stiffener (Item 2E) at a max spacing of 20 in. (508 mm) on center (oc) with the back of the L bracket on the opposite side of the vertical flange of the stiffener angle to provide additional back-bracing for the curtainwall insulation (Item 2F) on the exterior side of the curtainwall insulation. As an option to the L bracket being secured to the stiffener angle, cup-head or impaling, min. 12 GA, min. 2-3/16 in., steel weld pins with speed washers may be welded to the horizontal centerline of the steel stiffener angle (Item 2E) at a maximum spacing of 20 in (508 mm) to secure the support to the curtainwall insulation (Item 2F). Brackets are to be installed onto mullions or transoms per the manufacturer's installation instructions.

E. **STEEL STIFFENER ANGLES:** Install min. 16 GA 1-1/2 in. × 1-1/2 in. (38 mm × 38 mm) steel angles to support the underside of the curtainwall insulation (Item 2F). The steel angle is to engage with the curtainwall insulation retention system (Item 2D) per the manufacturer's installation instructions. When U-shaped (Item 2D-1) or Z-shaped (Item 2D-2) brackets are used, the vertical leg of the stiffener angle is on the exterior

side of the curtainwall insulation (Item 2F). When L-shaped (Item 2D-3) angles are used the vertical leg of the stiffener angle is on the interior side of the curtainwall insulation.

F. CERTIFIED PRODUCT: Thermafiber Firespan 90

CURTAINWALL INSULATION: Install min. 2 in. (51 mm) thick 8 pcf (128 kg/m^3) density mineral wool with foil-scrim facing on the interior side into the spandrel, flush with the interior side of the mullions. Insulation batt is to be butted up to the underside of the anchor head transom and friction fit between the mullions with a min. 1/8 in. (3 mm) over-cut on the spandrel width. The insulation is to extend from the underside of the anchor head transom downward in the spandrel cavity a min. 14-3/8 in. (365 mm). The curtainwall insulation is to be secured with the Curtainwall Insulation Retention System (Item 2D). The curtainwall insulation is not required to terminate at a lower transom. Space below the curtainwall insulation between the bottom of the insulation and the next lower transom may be left void or filled with alternative insulative materials (Item 2G).

G. **ALTERNATIVE INSULATIVE MATERIALS:** In any space that exists below the curtainwall insulation (Item 2F), where insulation is required for energy conservation requirements or other purposes, the space may be filled with any material that complies with applicable building code and regulatory requirements.

H. **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.

I. SHADOW BOX: (Optional) – A shadow box installed on the exterior side of the curtainwall insulation (Item 2F) 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. **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 7 in. (178 mm) and a min width of 3 in. (76 mm). Spacing of the mullions is min. 40-1/2 in (103 cm) oc.

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

MULLION COVERS: Install min. 2 in. (51 mm) thick 8 pcf (128 kg/m^3) density mineral wool with foil-scrim facing on the interior side over the vertical mullion on the interior side of the wall below the concrete floor assembly (Item 1). The mullion cover is to be

centered on the mullion and extend a min. 3-1/2 in. (89 mm) on each side of the mullion and vertically extend from below the packing material (Item 3A) to min. 5-3/4 in. (146 mm) below the concrete floor assembly. Secure the mullion cover to the curtainwall insulation with steel spiral anchors that extend a min. 1 in. (25 mm) into the curtainwall insulation. Aluminum foil tape may be used to seal the mullion cover edges to the curtainwall insulation but is not required.

L. **INTERMEDIATE TRANSOM:** (Optional) An intermediate transom may be installed on the underside of the curtainwall insulation (Item 2F) 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. **CONTINUOUS GLAZING FRAME (KISS TRANSOM): (**Optional) A continuous glazing frame (Kiss Transom) may be installed below the curtainwall insulation (Item 2F) 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.

N. **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 curtainwall insulation (Item 2F) 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.

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

P. **WINDLOAD ANCHOR:** (Optional) A windload anchor may be installed on the underside of the curtainwall insulation (Item 2F) 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.

Q. **VISION PANELS:** Vision panels are to be in compliance with exterior curtain wall assembly (Item 2) 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 5-3/4 in. (146 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. 4 in. (102 mm) depth, as measured vertically

from the top of the floor, of 4 pcf (64 kg/m^3) density mineral wool batt insulation installed with the fibers running parallel to the floor assembly edge and curtainwall. Divide the nominal joint width by 0.75 to provide the width of mineral wool to be cut and installed to produce the required 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 assembly (Item 1). Splices (butt joints) in the lengths of mineral wool batt insulation are to be tightly compressed together. In locations around every mounting attachment (Item 2A) increase the depth of mineral wool to a min. 8 in. (203 mm) to provide a min. 2 in. (51 mm) protective layer under the mounting attachment. This increased depth is to be applied for a min. horizontal distance of 2 in. (51 mm) on both sides of the mounting attachment.

B. **CERTIFIED PRODUCT:** Specified Technologies, Inc. SpecSeal® AS200 Series Elastomeric Firestop Spray, or SpecSeal® Fast Tack® Firestop Spray

FILL VOID OR CAVITY MATERIAL: Apply a minimum wet film thickness of 1/8 in. (3.2 mm) over the packing material (Item 3A) and overlap the liquid spray material a min. 1/2 in (12.7 mm) onto the interior surface of the adjacent curtain wall assembly (Item 2) and the concrete floor assembly (Item 1). If the spraying process is stopped and the applied liquid spray material cures to an elastomeric film before the 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.