
Design No. CEJ 289 P

PERIMETER FIRE BARRIER SYSTEM

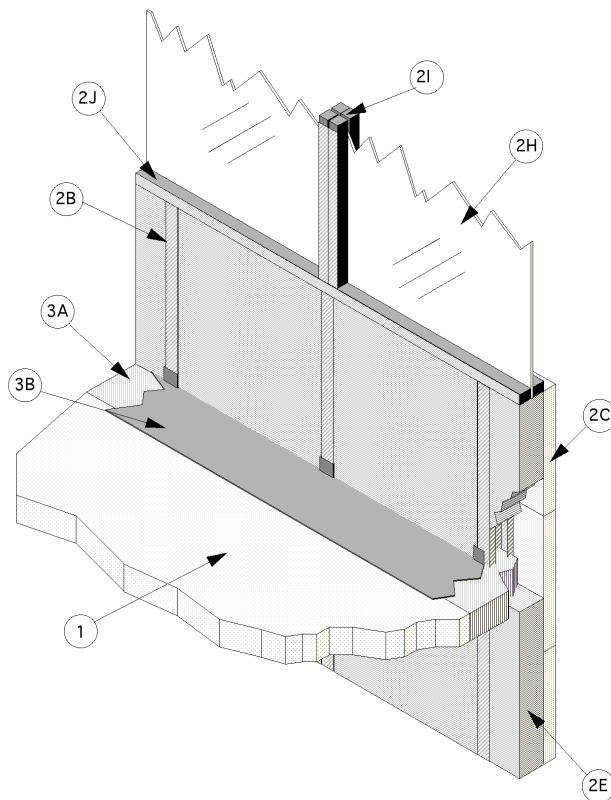
T Rating - 1/4 hr.

F-Rating - 2 hr

L-Rating <1 SCFM

Rated for $\pm 16.7\%$ horizontal movement

Rated for $\pm 6.25\%$ vertical shear movement



1. **CONCRETE FLOOR ASSEMBLY:** 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 4-1/2-in. at the joint face. Overall slab thickness may vary to accommodate various blockout depths (longitudinal recesses) formed in the concrete, to house the architectural cover plate. The blockout width may also vary without restriction.
2. **CURTAIN WALL ASSEMBLY:** The curtain wall assembly shall incorporate the following construction features:
 - A. **Mounting Attachments:** (Not shown) Attachment of the curtain wall framing to the structural framing shall be according to the curtain wall manufacturer's instructions. When required, the mounting attachments to the floor slab shall be connected to the joint face of the floor slab,

Fire-Resistant Joint Systems

according to the curtain wall manufacturer's instructions. Maximum distance horizontally between mounting attachments shall be 10 feet.

- B. Steel-Stud Framing: Vertical framing members shall be a min. 3-5/8 in. by 1-5/8 in., 18 GA steel "C" studs. Attachment shall be according to the curtain wall system manufacturer's guidelines. Vertical framing is spaced a minimum 60 in. o.c. and shall be completely covered by the concrete panels. Horizontal framing members shall be installed according to the curtain wall system manufacturer's guidelines and, in the spandrel area, are required to be installed to a minimum of 33 in. above the top surface of the floor.
- C. Pre-Cast Concrete Panels: Any non-combustible exterior concrete based panel. Panels shall not be less than 2-1/2 in. thick, 12 in. high or 12 in. long. Attachment to the framing shall be according to the curtain wall system manufacturer's guidelines.
- D. Concrete Panel Joint: Vertical and horizontal concrete panel-butt joints can be up to 1 in. in width. If the joint is butted with no space, the joint can be either Flush type (butt joint) or key way type (tongue and groove) and does not require any further joint treatment unless required for weatherproofing purposes. When joint space exists between panels, the void must be treated min. 4 in. thick, 4pcf curtain wall insulation** (2E) applied to the interior surface of the wall. The seams between adjacent sections of curtain wall insulation must be offset a min. of 3 in. from the edge of any joint in the panel wall. The wall joint can then be treated with any weatherproofing material Listed as a Class 1 material in accordance with ASTM E-84 (** Listed with Omega Point Laboratories).
- E. Curtain Wall Insulation: Perimeter joint protection (3) and Panel joint treatment (2D) shall be installed before curtain wall insulation. Install nom. 4 in. thick 4pcf density mineral wool batt insulation** faced on one side with aluminum foil scrim (vapor retarder) which is exposed to the room interior. Secure with angle clips and impaling pins (2F). All meeting edges of

insulation are sealed with nom. 4-in. wide pressure sensitive aluminum foil faced tape centered over the junction so that approx. 2 in. of tape covers each edge of the adjacent insulation.

- F. Impaling Pins: (Not Shown) Minimum 12 GA steel impaling pins shall be located, sized and installed according to the curtain wall system manufacturer's guidelines.
- G. Framing Covers: (Not Shown) Framing covers used over the mullions and transoms are optional. When used, the framing covers shall be located, sized and installed according to the curtain wall system manufacturer's guidelines. Framing covers do not pass through the perimeter joint treatment. They are butted to the top and bottom surfaces of the perimeter joint treatment without deforming it.

The following vision glass panel detail is included as an optional installation detail outside the spandrel area:

- H. Glass Vision Panels: Glass vision panels shall be a min. 33 in. above the top surface of the floor assembly. Glass vision panels shall be installed to curtain wall framing according to the curtain wall system manufacturer's guidelines. Use a min. 1/4 in. thick, clear tempered glass with a nom. width and height as determined by the framing.
 - I. Window Gaskets: Secure glass vision panels with a thermal break (thermal-set rubber extrusion).
 - J. Window Framing: Steel framing members shall be a min. 3-5/8-in. by 1-5/8-in. 18 GA steel "U" channel or similar construction that is compatible with steel-stud framing (2b). Locate window framing at least 33 in. above the top surface of the floor assembly.
3. PERIMETER JOINT PROTECTION: The perimeter joint (linear opening) shall not exceed 8 in. (joint width measured between deck edge and interior face of curtain wall framing) and the perimeter joint treatment shall incorporate the following construction features:
- A. Packing Material: Cut 4" thick, 4 pcf mineral wool batt insulation** into

Fire-Resistant Joint Systems

minimum 4" widths. Rotate the cut pieces to align the fibers parallel to the slab edge. The packing material shall be compressed 25% in the nominal joint. Mechanically attach with #6 1/2 in. long screws at each vertical framing member, a nominal 1-1/2 in. by 1-1/2 in., 20 GA steel angle (not shown) installed at mid depth of the packing material and running perpendicular to the vertical framing. Compress the batt insulation into the perimeter joint with the top surface of the batt insulation flush with the top of the concrete floor slab and its mid depth is compressed against the 20 GA steel angle. Splices (butt joints) in the lengths of mineral wool batt insulation are to be tightly compressed together. Reference the Introduction to Fire Resistive Joint section of this directory for more details on how to determine the cut width of the insulation to be installed in the joint width and how to determine the compressed percentage of a known insulation width installed in a known nominal joint. (** Listed with Omega Point Laboratories)

- B. Fill, Void or Cavity Material: Liquid is to be spray applied to cover the exposed surface of the mineral wool installed in

the perimeter joint. Apply a min. wet film thickness of 1/8 in. and overlap the material a min. 1/2 in. onto the adjacent curtain wall assembly and concrete floor slab assembly. If the spraying process is stopped and the applied liquid cures to an elastomeric film before process is restarted, then overlap the edge of the cured material at least 1/8 in. with the spray. Reference Product Section of this Directory for more details about the Listed product.

Listed Manufacturer:

3M --

Joint Sealant

FireDam™ Spray 100

Before testing, the spliced, test specimen was cycled 500 times at 30 cpm according to ASTM E 1399 and ICBO ES AC 30 (Jan. 1997).

***The joint application as detailed in Item 2 is considered part of the wall system.

This Design Listing was created using the information outlined in the Introduction to the Fire-Resistant Joint Systems Section. Please refer to that Introduction to complement the Design Listing.