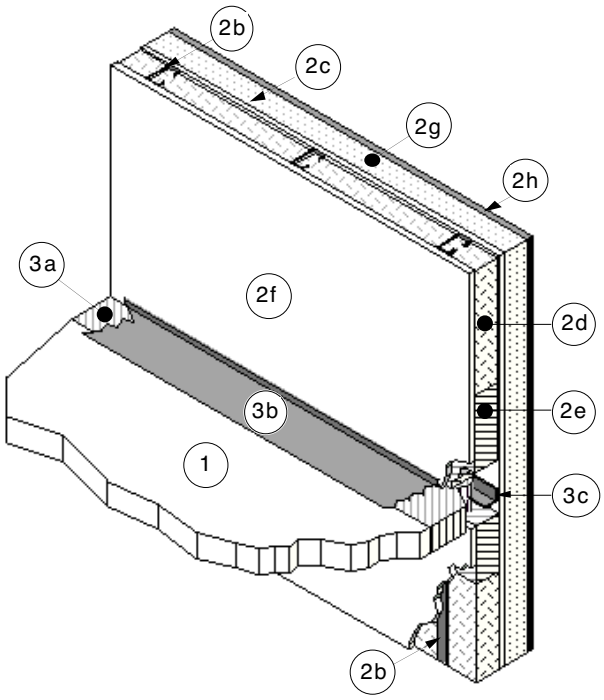
Design No. CEJ 239 P

PERIMETER FIRE BARRIER SYSTEM

T-Rating - 1 hr.

F-Rating - 2 hr

Rated for ± 16.7% 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-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 Attachment: (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, according to the curtain wall manufacturer's instructions. Max. distance 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 secured in an 18 GA steel track top and bottom using #6 x 1.25-inch Bugle head SD PT screws. Vertical framing shall not exceed a spacing of 24 in. o.c.

   C. Sandwiched Wall Surface: Use a min. 1/2 in. thick, 48 in. wide by 96 in. long,

exterior grade gypsum wallboard (ASTM C 79), placed over and secured to framing with min. 1-1/4 in. long Type S drywall screws 8 in. o.c.

D. Curtain Wall Insulation: A nom. 24-in wide by 48-in. tall by 4 in. thick faced or un-faced fiberglass** batt insulation is installed in each stud cavity. The curtain wall insulation shall completely fill the recess of the min. 3-5/8 in. by 1-5/8 in., 18 GA steel "C" studs, except where the barrier insulation in the curtain wall is installed. (** Listed with Omega Point Laboratories)

E. Barrier Insulation: A nom. 24-in wide by 24-in. tall by 4 in. thick min. 4 pcf un-faced mineral wool** batt insulation is installed in each stud cavity so that nom. 12-inches of insulation is above the surface of the perimeter joint protection. Batt length is at least 24-inches and fitted tightly between vertical framing members. Mechanically fasten the insulation with min. 2 in. x 2 in., 20 gauge steel clips with a min. 5 in. copper coated steel pin extending from the center of the side of the clip that was installed parallel with the gypsum wall board. Locate the steel clips within each stud cavity. Locate one pin within 1-in. of each corner of each piece of insulation and not less than 12-in. on center. The curtain wall insulation shall completely fill the recess of the min. 3-5/8 in. by 1-5/8 in., 18 GA steel "C" studs. (** Listed with Omega Point Laboratories)

F. Interior Curtain Wall Surface: Use a min. 1/2 in. thick, 48 in. wide by 96 in. long, Type X gypsum wallboard (ASTM C 36), placed over and secured to framing with #6 by 1-1/4-in. long Type S drywall screws 8 in. o.c. on the periphery and 12 in. o.c. in the field. Screw heads are covered with joint compound. Joints created between gypsum wallboard are taped and floated with joint compound. Gypsum wallboard only required to be continuously placed a min. 72 in. above surface of perimeter joint protection. Gypsum wallboard below the slab is optional.

G. Exterior Curtain Wall Insulation: An Exterior Insulation Finish System (EIFS) is composed of an expanded polystryrene foam (EPS) insulation, and a Exterior Curtain Wall Finish (2H). The EIFS system is a monolithic assembly without expansion or control joints. The EPS foam boards measure 24 inches wide by 48 inches long by 4 inches thick with a nominal density of 1 pcf. The EPS foam is attached to the sandwiched wall surface using mechanical fasteners or an adhesive in accordance with manufacturer's recommendations. Install the EPS boards in a running bond (brick-like) pattern and staggered over sandwiched wall surface (2C) joints. Apply pressure to the EPS boards to assist in the bonding process. All EPS boards must be butted together with no gaps or voids between them. Allow a minimum of 12 hours before continuing the application process when using adhesive. The EPS boards must be rasped to remove all irregular seams and establish a continuous flat surface.

H. Exterior Curtain Wall Finish: The cementious base coat and reinforcing mesh is applied over the Exterior Curtain Wall Insulation (2G). Precut the mesh as needed. The mesh is a woven fiberglass reinforcement fabric that is compatible with the cementious base coat and finish coat materials. Apply 1/16 to 1/8-inch thick cementious base coat to the exposed surface of the EPS foam. Apply the mesh; embed the mesh into the cementious base coat using a trowel. Start at the middle and work outwards towards edges. The final thickness of the cementious base coat with the mesh embedded should be approximately1/16-inches. Let the cementious base coat dry completely before applying the cementious finish coat. The cementious finish coat is a cement based wall coating which may contain silica sand or marble aggregates. Apply the cementious finish coat using a trowel in the same manner as the cementious base coat.

3. PERIMETER JOINT PROTECTION: The perimeter joint (linear opening) shall not exceed an 8- in. nom. joint width (joint width at installation) and the perimeter joint treatment shall incorporate the following construction features:

A. Packing Material: Use a min. 4 in. thick, 4 pcf density, mineral wool** batt insulation installed with the fibers running parallel to the slab edge and curtain wall. The packing material shall be compressed 33% in the nominal joint width. Compress the batt insulation into the perimeter joint such that the top surface of the batt insulation is flush with the top surface of the concrete floor slab. Splices (butt joints) in the lengths of mineral wool batt insulation are to be tightly compressed together, min. compression 0.25-in. per piece. Notch packing material to receive support angle (3C) so that packing material is in contact with Sandwiched Wall Surface (2C). Reference the Introduction to Fire Resistive Joint Systems Section of this Directory for more details on how to determine the cut width of the insulation to be installed in the nominal joint width, and how to determine the compressed percentage of a known insulation width installed in a known nominal joint width. (** Listed with Omega Point Laboratories)

B. Fill, Void or Cavity Material: Liquid is to be applied (sprayed, Brushed, or painted) to cover the exposed surface of the mineral wool installed in the perimeter joint. Apply a min. 1/16-in. dry film thickness 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:

Johns Manville -

Joint Sealant

Spray

Johns Manville Firetemp SE

Johns Manville Firetemp SI

C. Support Angle: Standard 2 x 2-in. min. 20 GA galvanized steel angle attached between all studs with self tapping self drilling screws. Set angle at mid height of packing material (3A).

D. Support Clips: (Not Shown) Support clips are optional but recommended for installations subject to vertical shear movement. Standard Z-shaped clips are 20 GA galvanized steel with the following dimensions: 1 in. wide by 3 in. high with a 2 in. upper leg and 3 in. lower leg.

** Before testing, the spliced, test specimen was cycled 500 times according to ICBO ES AC 30 (Jan. 1997).