

System No. CW-D-1035

F Rating - 2 Hr

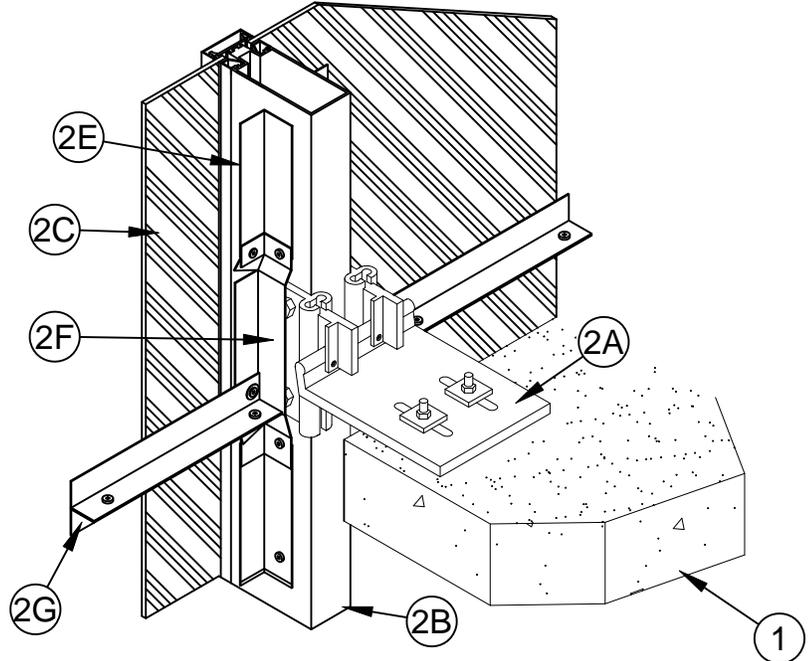
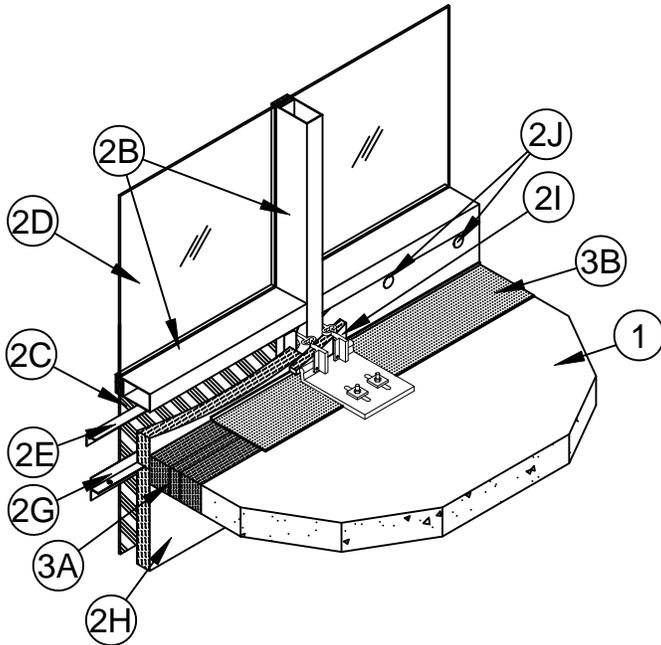
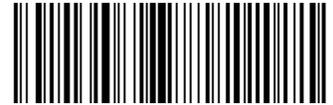
T Rating - 1/4 Hr

Linear Opening Width - 4 In. Max

L Rating At Ambient - Less Than 1 CFM/Lin Ft

L Rating At 400°F - Less Than 1 CFM/Lin Ft

Class II Movement Capabilities - 5% Vertical Shear (See Item 3)



1. **Floor Assembly** - Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) structural concrete.
2. **Curtain Wall Assembly** - The curtain wall assembly shall incorporate the following construction features:
 - A. **Mullion Mounting Brackets** - Min 8 in. (203 mm) wide by 3/4 in. (19 mm) thick extruded aluminum Halfen mounting brackets with one nom 2 in. (51 mm) high leg for support and attachment of mullion and with one leg at least 6 in. (152 mm) longer than width of linear opening between floor assembly and mullion. Mounting bracket attached to top of floor with two min 1/2 in. (13 mm) diam steel masonry anchors in conjunction with washer plates supplied with mounting bracket.
 - B. **Framing** - The two-piece rectangular tubing mullions (vertical members) and transoms (horizontal members) shall be min 2-1/2 in. (64 mm) wide by 5 in. (127 mm) deep and shall be formed from min 0.100 in. (2.5 mm) thick aluminum. Mullions spaced max 60 in. (1.52 m) OC and secured to mullion mounting anchors (Item 2A) at each floor level in conjunction with extruded aluminum clips bolted to the sides of the mullions and designed to engage the vertical leg of the Halfen mullion mounting bracket in conjunction with an extruded aluminum hook/leveling connector. Interior face of mullions to be max 4 in. (102 mm) from edge of floor assembly. Transoms to be spaced min 36 in. (0.91 m) OC. The minimum height from the top of the floor to the bottom of the vision panel sill is 6 in. (152 mm).
 - C. **Spandrel Panels** - The spandrel panels shall consist of one of the following types:
 - a. **Glass Panels** - Nom 1/4 in. (6 mm) thick transparent or opaque heat-strengthened glass. Each panel secured in position with aluminum pressure plates in conjunction with glazing gaskets and steel screws.
 - b. **Aluminum Panels** - Nom 1/8 in. (3 mm) thick aluminum panels with 1/4 in. (6 mm) thick edges. Each panel secured in position with aluminum pressure plates in conjunction with gaskets and steel screws.
 - c. **Stone Panels** - Nom 1-3/16 in. (46 mm) thick polished granite spandrel panels with 1 in. (25 mm) thick gauged edges. Each panel secured in position with aluminum pressure plates in conjunction with gaskets and steel screws.
 - D. **Vision Panels** - Nom 1/4 in. (6 mm) thick transparent heat-strengthened glass or nom 1 in. (25 mm) thick insulated glass units with two layers of nom 1/4 in. (6 mm) thick transparent heat-strengthened glass separated by a 1/2 in. (25 mm) air space. Each panel secured in position with aluminum pressure plates in conjunction with glazing gaskets and steel screws.



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- E. **Spandrel Panel Perimeter Angles** - Nom 1-1/2 by 1-1/2 in. (38 by 38 mm) No. 20 gauge (0.038 in. or 0.97 mm thick) galvanized steel angles installed around entire perimeter of each spandrel panel. Angles recessed 2 in. (51 mm) from interior face of framing to accommodate curtain wall insulation (Item 2H). One leg of angles screw-attached to mullions and transom along sides and top of each spandrel panel with No. 8 by 1 in. (25 mm) long self-drilling, self-tapping steel screws spaced max 12 in. (305 mm) OC. Angle along bottom of each spandrel panel to be screw-attached to 1-1/2 in. (38 mm) wide leg of angle on mullion at each end without any direct attachment to transom. Angles to abut to top and bottom of side leg of mullion mounting bracket (Item 2A).
- F. **Bridge Angle** - Nom 1-1/2 (38 mm) by 1-1/2 in. (38 mm) No. 20 gauge (0.038 in. or 0.97 mm thick) galvanized steel bridge angle fabricated to bridge across side leg of mullion mounting bracket (Item 2A) and secure steel perimeter angles (Item 2E). Where steel perimeter angles intersect the side legs of the aluminum mounting brackets, steel bridge to be formed by cutting min 3/4 in. (19 mm) wide tabs in a nom 1-1/2 by 1-1/2 in. (38 by 38 mm) steel angle at both edges of the bracket. Tabs bent away from section of steel angle at an angle sufficient to permit the uncut leg of the angle to lay flat over the face of the mullion mounting bracket. Tabs secured to the adjacent portion of the angle using one No. 8 by 1/2 in. (13 mm) self-tapping steel screw. Bridge installed over side leg of mullion mounting bracket (Item 2A) such that ends project 2 in. (51 mm) beyond steel perimeter angle on both sides. Fasten bridge into steel angles and mullion using No. 10 by 1/2 in. (13 mm) self-tapping steel screws spaced 1 in. (25 mm) from end of bridge angle. Gap between bridge angle and mullion to be tightly-packed with 2 in. depth of mineral wool batt insulation (Item 3A).
- G. **Stiffener Tee** - Two nom 2 by 2 in. (51 by 51 mm) No. 20 gauge (0.038 in. or 0.97 mm thick) galv steel angles secured together, back-to-back, to form stiffener tee for installation in each horizontal seam of the curtain wall insulation (Item 2H). The angle legs forming the stem of the tee shall be secured together using No. 8 by 1/2 in. (13 mm) long self-drilling, self-tapping steel screws spaced max 8 in. (204 mm) OC. The tee shall be installed with a clearance of 1/8 to 1/4 in. (3.2 to 6 mm) at each end and shall be screw-attached to either the spandrel panel perimeter angles (Item 2E) or the steel bridge angle (Item 2F) with No. 10 by 3/4 in. (19 mm) long self-drilling, self-tapping steel screws, with steel washers, through two predrilled 1/4 in. (6 mm) diam holes at each end. One stiffener tee shall be located with its stem at an elevation 2 in. (51 mm) below the top plane of the floor at each floor level.
- H. **Curtain Wall Insulation*** - Min 2 in. (51 mm) thick mineral wool batt insulation faced on one side with aluminum foil/scrim vapor retarder, supplied in min 36 in. (0.91 m) wide batts. Insulation batts to be installed with no vertical seams. Insulation panels tightly-fitted between vertical mullions and between the stem of the stiffener tee (Item 2G) and the transom, flush with the interior surface of framing. Insulation panels secured to spandrel panel perimeter angles with cup head weld pins (Item 2J) or 2-1/2 in. (64 mm) long steel screws with min 1-1/2 in. (38 mm) diameter galv steel clinch shields spaced max 12 in. (305 mm) OC. The horizontal seam between insulation panels shall be located 2 in. (51 mm) below the top plane of the floor at each floor level.
- ROCKWOOL MALAYSIA SDN BHD** - CurtainRock 80
- ROCKWOOL** - CurtainRock 80
- I. **Framing Covers* - Curtain Wall Insulation** - Min 8 in. (203 mm) wide strips cut from the same min 2 in. (51 mm) thick mineral wool batt insulation used for the curtain wall insulation (Item 2H). Framing covers to be centered over mullions and secured to the spandrel panel perimeter angles with cup head weld pins (Item 2J) or 4-1/2 in. (114 mm) long steel screws with min 1-1/2 in. (38 mm) diameter galv steel clinch shields spaced max 12 in. (305 mm) OC. Where more than one spandrel panel (Item 2C) occurs between vertically separated vision panels, the horizontal transom between spandrel panels shall also be covered with an 8 in. (203 mm) wide framing cover in the same manner as on the vertical mullions. Framing covers on mullions to abut the mineral wool batt safin material (Item 3A) above and below floor.
- ROCKWOOL MALAYSIA SDN BHD** - CurtainRock 80
- ROCKWOOL** - CurtainRock 80
- J. **Weld Pin** - In lieu of steel screws, No. 12 gauge (2 mm diam) galv steel weld pin with nom 1-3/16 in. (30 mm) diam galv steel cup head. Cup head weld pins provided in two lengths. One length to be equal to thickness of curtain wall insulation (Item 2H) and second length to be equal to thickness of curtain wall insulation plus thickness of framing cover (Item 2I). Cup head weld pins inserted through curtain wall insulation and mullion covers and welded to spandrel panel perimeter angles max 12 in. (305 mm) OC.
- K. **Aluminum Sandwich Panel** - (Optional, Not Shown) - Min 1/8 in. (3.2 mm) solid aluminum panel or aluminum composite panel installed on exterior surface of curtain wall insulation (Item 2H).



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3. **Safing System** - Max separation between edge of floor assembly and face of framing members is 4 in. (102 mm). The safing system is designed to accommodate vertical shear movement up to a max of 5 percent of its installed width. The safing system shall incorporate the following construction features:

A. **Forming Material*** - Nom 4 pcf (64 kg/m³) density mineral wool batt insulation. Batt sections cut to a min 4 in. (102 mm) width and stacked to a thickness which is min 25 percent greater than the width of linear gap between the curtain wall insulation and the edge of the concrete floor slab. The stacked forming material is compressed 20 percent in the thickness direction and inserted cut-edge-first into the linear gap such that its top surface is flush with the top surface of the floor assembly. A max of one tightly-butted seam is permitted between mullions.

ROCKWOOL MALAYSIA SDN BHD - SAFE

ROCKWOOL - SAFE

B. **Fill, Void or Cavity Material*** - Min 1/8 in. (3 mm) wet thickness (min 1/16 in. or 1.6 mm dry thickness) of fill material spray-applied over top of forming material and lapping min 1/2 in. (13 mm) onto the top surface of the floor and onto the curtain wall insulation and framing covers. When SpecSeal Fast Tack Spray is used, wet and dry thickness of spray is min 5/64 in. (2 mm).

SPECIFIED TECHNOLOGIES INC - SpecSeal AS200 Elastomeric Spray, SpecSeal Safing Spray or SpecSeal Fast Tack Spray

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



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