

WRG/FCA 240-101

FLOOR CEILING ASSEMBLY

PROTECTED DECK
(TYPE Z-106 and Z-106/HY)

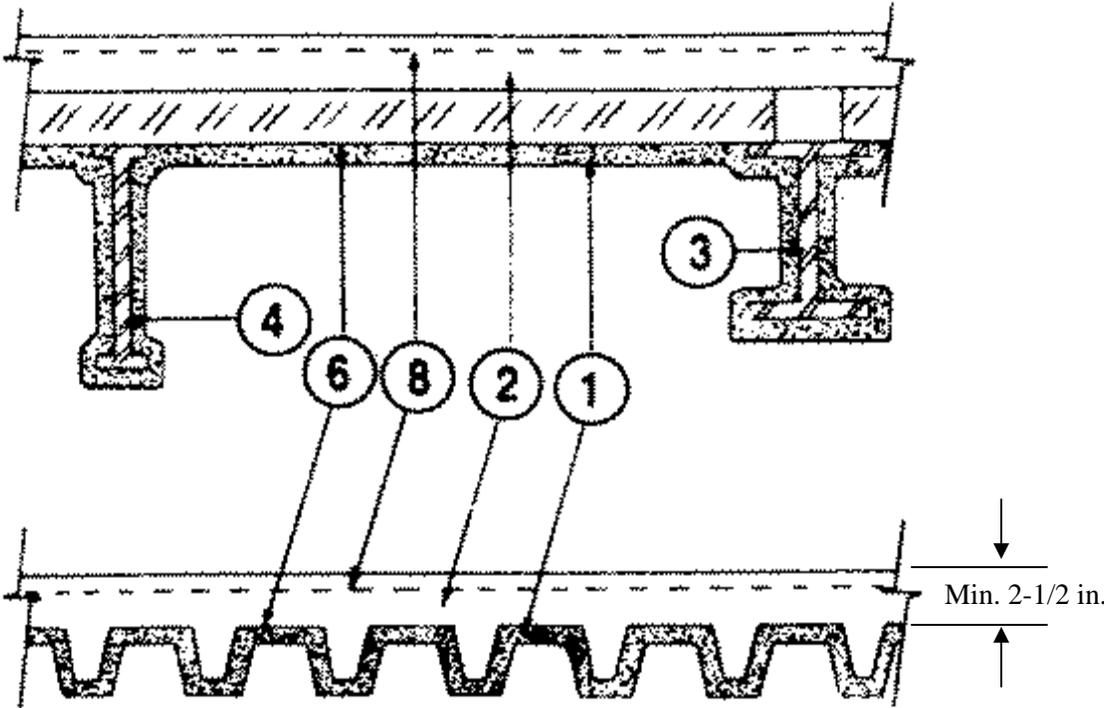


TABLE OF RATINGS							
LOW DENSITY CONCRETE TOPPING							
RATING			MINIMUM THICKNESS OF PROTECTION (INCHES)*				
Restrained Assembly	Unrestrained Assembly	Unrestrained Beam	Crests	Valleys	Beam W8x28 _a	Beam W8x28 _b	Joist / Truss
1	0	1	0	0	1/2	7/16	1-1/16
2	1	1	1/2	1/2	1/2	7/16	1-1/16
3	1	1-1/2	1/2	1/2	7/8	3/4	1-11/16
-	2	2	1/2	1/2	1-1/8	1	2-1/4
-	3	3	11/16	1/2	1-5/8	1-9/16	N/R**
4	2	2	1-1/2	1-1/8	1-1/8	1	2-1/4

TABLE OF RATINGS							
NORMAL DENSITY CONCRETE TOPPING							
RATING			MINIMUM THICKNESS OF PROTECTION (INCHES)*				
Restrained Assembly	Unrestrained Assembly	Unrestrained Beam	Crests	Valleys	Beam W8x28 _a	Beam W8x28 _b	Joist / Truss
1	1	1	1/2	1/2	1/2	7/16	1-1/16
2	1	1	1/2	1/2	1/2	7/16	1-1/16
3	1	1-1/2	1/2	1/2	3/4	3/4	1-11/16
-	2	2	1/2	1/2	7/8	1	2-1/4
-	3	3	11/16	1/2	1-1/4	1-9/16	N/R**
4	2	2	1-7/16	13/16	7/8	1	2-1/4

- a) Protection thickness for beam when protection is applied uniformly around perimeter of beam.
- b) Protection thickness applicable when thickness applied to beam's lower flange edge is reduced to one half that shown in (b). Minimum thickness of 1/4 inch (6mm) is required on beams lower flange edge.

* Inches x 25.4 = 1 mm

** Not rated.

1. Sprayed Fire Protection

Grace Cementitious Mixture, minimum average density 22 pcf (350 kg/m^3), minimum individual density 19 pcf (300 kg/m^3), Type Z-106 and Z-106/HY.

2. Concrete Topping

Normal Density: Minimum compressive strength 2545 psi (17.5 mpa) carbonate or siliceous aggregate $150 \pm 3 \text{ lbs/ft}^3$ ($2400 \pm 50 \text{ kg/m}^3$) density. Minimum thickness 2-1/2 inch (65 mm) above top plane of deck flute.

OR

Low Density: Minimum compressive strength 2545 psi (17.5 mpa) expanded shale, clay or slate aggregate by rotary kiln method, $115 \pm 3 \text{ lbs/ft}^3$ ($1840 \pm 50 \text{ kg/m}^3$) density or expanded blast furnace slag aggregate $122 \pm 3 \text{ lbs/ft}^3$ ($1950 \pm 50 \text{ kg/m}^3$), 3045 psi (21 mpa). Minimum thickness 2-1/2 inch (65 mm) above top plane of deck flute.

3. Beams

W200 x 42 (W8 x 28) M/D = 42.0 (W/D = 0.8) minimum size for protection thickness indicated.

4. Joist/Truss

Steel, 10.7 lbs/ft (16 kg/m) minimum size. Designed in accordance with the relevant provisions of Chapter 4 of the Supplement to the National Building Code of Canada. For composite design use Item 5 below.

5. Shear Connectors (Composite Designs Only)

Studs, headed type. Welded to top flange of joist or beam through the deck.

6. Steel Floor Units

Listed for use as a component in similar fire resistance rated assemblies. Composite or non-composite floor units, 22 ga (1.0 mm) minimum thickness for fluted sections. Units welded to supports on every other trough. Adjacent units crimped along joints at 18-inch (450 mm) O.C. See individual manufacturer's information.

7. Bridging (Optional)

Designed in accordance with the relevant provisions of Chapter 4 of the supplement to the National Building Code of Canada, protected to thickness prescribed in joist/truss protection.

8. Welded Wire Mesh

6 inch x 6 inch (150 mm x 150 mm) P18.7/P18.7 steel wire. Alternate to wire mesh is maximum 3/4 inch diameter steel reinforcing bars placed on a 6 inch by 6 inch grid.