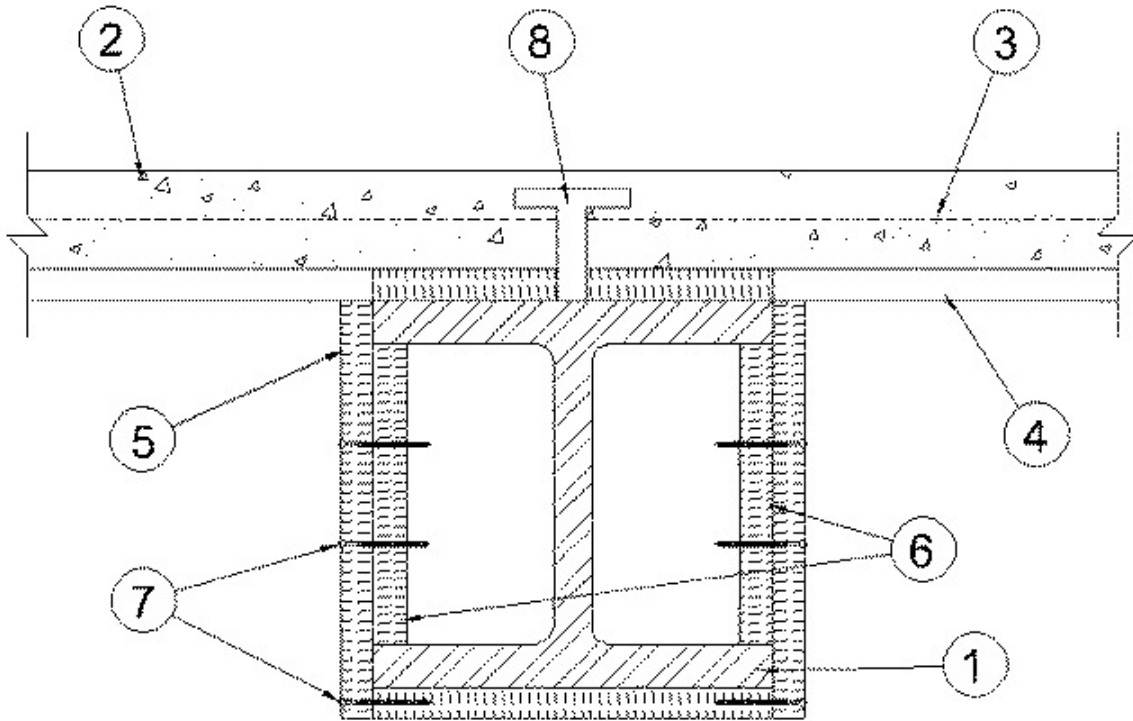


Restrained Assembly Rating — 1, 1-1/2, 2, or 3 Hr

(See Items 1, 5, 9, 10, 14)

Unrestrained Assembly Ratings — 0 Hr (See Item 4 & 5)

Unrestrained Beam Ratings — 1, 1-1/2 or 2 Hr (See Items 5, 10 & 14)



1. **Supports** — W8x28 min size steel beams.

2. **Normal Weight or Lightweight Concrete** — Normal weight concrete carbonate or siliceous aggregate, 3500 psi compressive strength, vibrated. Lightweight concrete, expanded shale, or slate aggregate by rotary-kiln method, or expanded clay aggregate by rotary-kiln or sintered-grate method, 3000 psi compressive strength, vibrated, 4 to 7 percent entrained air.

| Restrained Assembly Rating Hr | Concrete (Type) | Concrete Unit Weight pcf | Concrete Thkns In. |
|-------------------------------|-----------------|--------------------------|--------------------|
| 1 | Normal Weight | 147-153 | 3-1/2 |
| 1-1/2 | Normal Weight | 147-153 | 4 |
| 2 | Normal Weight | 147-153 | 4-1/2 |
| 3 | Normal Weight | 147-153 | 5-1/4 |
| 3/4 or 1 | Lightweight | 107-113 | 2-1/2 |
| 3 | Normal Weight | 147-153 | 5-1/4 |

| | | | |
|--------------|-------------|---------|--------|
| (See Item 6) | | | |
| 1 | Lightweight | 107-120 | 2-5/8 |
| 1-1/2 | Lightweight | 107-113 | 3 |
| 2 | Lightweight | 107-113 | 3-1/4 |
| 2 | Lightweight | 107-116 | 3-1/4* |
| 2 | Lightweight | 114-120 | 3-1/2 |
| 3 | Lightweight | 107-113 | 4-3/16 |
| 3 | Lightweight | 114-120 | 4-7/16 |

*For use with 2 or 3 in. steel floor and form units only.

3. Welded Wire Fabric — 6 x 6, 10 x 10 SWG.

4. Steel Floor And Form Units* — Composite 1-1/2, 2 or 3 in. deep galv units. Fluted units may be uncoated or phosphatized/painted. Min gauges are 22 MSG for fluted and 20/20 MSG for cellular units. The following combinations of units may be used:

- (1) all 24 or 36 in. wide cellular.
- (2) all fluted.
- (3) one or two 3 in. deep, 12 in. wide, 18/18 MSG min cellular units, alternating with 3 in. deep fluted or other cellular.
- (4) any blend of fluted and 24 or 36 in. wide cellular.
- (5) 3 in. deep, 30 in. wide cellular with 8-1/8 in. wide valley along side joints may be used when 3/8 in. diam reinforcing bars are placed 1-1/2 in. to each side of side joints and 1 in. above bottom of unit.
- (6) Corrugated, 1-5/16 in. deep, 30 in. wide, 24 MSG min galv units that shear wires factory welded to deck corrugations. Welded to supports 12 in. OC. through welding washers. For shear wire spacing of 8 in. or less the steel deck stress shall not exceed 20 KSI. For shear wire spacing greater than 8 in. OC. but less than or equal to 2 in. OC. steel deck stress shall not exceed 12 KSI.

CONSOLIDATED SYSTEMS INC — 24 or 36 in. wide, Types CFD-2, CFD-3; 24, 30 or 36 in. wide Type CFD-1.5; 24 in. wide Type NC; 24 in. wide Type Versa-Dek® S, LS, XLS. Units may be phos/ptd.

Spacing of welds attaching units to supports shall be 12 in. OC for 24 and 36 in. wide units, four welds per sheet for 30 in. wide units. Unless noted otherwise, adjacent units button-punched or welded together 36 in. OC along side joints.

5. Mineral and Fiber Boards — Boards cut in various widths to be compatible with the size of beam being protected. Boards placed parallel with the flange of the beams being protected. Boards placed parallel with the flange of the beams are cut the width of the flange. Boards placed parallel with the web of the beams are cut the width of the beams (web side) plus twice the board thickness. The voids created by the flutes above the beam to be filled with mineral wool batts having a nom density of 4 lb per cu ft.

| Restrained Assembly Rating Hr | Unrestrained Assembly Rating Hr | Unrestrained Beam Rating Hr | Min Mineral & Fiber Board Thkns In. |
|--------------------------------------|--|------------------------------------|--|
| 1 | 1 | 1 | 3/4 |
| 1-1/2 | 1 | 1 | 3/4 |
| 1-1/2 | 1-1/2 | 1-1/2 | 3/4 |
| 2 | 1 | 1 | 3/4 |
| 3 | 2 | 2 | 1-5/8 |

ALBI MFG, DIV OF STANCHEM INC — Type Dri-Clad.

6. **Noggings** — Min 1-1/2 in. thick, pieces of mineral and fiber board (See Item 5). Cut to friction fit between beam flanges.

7. **Fasteners** — The boards are fastened to the noggings and to each other by means of spiral type screws, spaced a max of 6 in. OC. The fasteners are installed on both sides of horizontal joints.

8. **Shear — Connector Studs** — Optional — Studs 3/4 in. diam by 3 in. long, for 1-1/2 in. deep form units to 5-1/4 in. long for 3 in. deep form units, headed type or equivalent per AISC specifications. Welded to the top flange of the beam through the steel form units.

9. **Electrical Inserts** — (Not shown) Classified as "Outlet Boxes and Fittings Classified for Fire Resistance".

H H ROBERTSON — Preset Inserts.

For use with 2-1/2 in. lightweight concrete topping over QL-WKX steel floor units. Installed over factory-punched holes in floor units per accompanying installation instructions. Spacing shall not be more than one insert in each 14 sq ft of floor area with spacing along floor units not less than 48 in. OC. The holes cut in insert cover for passage of wires shall be no more than 1/8 in. larger diam than wire. Restrained Assembly Rating is 3/4 hr with Tapmate II-FS-1 and 1 hr with Tapmate II-FS-2 inserts.

H H ROBERTSON — Tapmate II-FS-1, II-FS-2; Series KEB.

WALKER SYSTEMS INC — After set Inserts.

Single-service after set inserts installed per accompanying installation instructions in 2-1/2 in. diam hole core-drilled through min 3-1/4 in. thick concrete topping to top of cell of any min 3 in. deep cellular steel floor unit specified under Item 3. Spacing shall be no more than one insert in each 10 sq ft of floor area in each span with a min center to center spacing of 16 in. If the high potential and low potential raceways of the cellular steel floor unit are separated by a valley filled with concrete, the center to center spacing of the high potential and low potential single-service after set inserts may be reduced to a min of 7-1/2 in. Restrained Assembly Rating is 2 hr or less with internally protected Type 436 after set insert with Type M4-, M6- or M8- Series single-service activation fitting.

WALKER SYSTEMS INC — Internally protected Type 436 after set insert with Type M4-, M6- or M8- Series single-service activation fitting.

10. **Mineral and Fiber Boards*** — (Optional, not shown. For use with the 3-1/4 in. lightweight concrete topping only) — Applied over concrete floor with no restriction on thickness. When the insulation is used, the Restrained Assembly Rating is reduced to 1-1/2 h.

See Mineral and Fiber Board (CERZ) category for names of manufacturers.

11. Roof Covering Materials* — (Optional, not shown) Consisting of materials compatible with insulation described herein which provide Class A, B or C coverings. See Built-Up Roof Covering Materials in Building Materials Directory.

12. Insulating Concrete — (not shown) Optional. Various types of insulating concrete prepared and applied in the thickness indicated:

A. Vermiculite Concrete — (not shown) Optional.

1. Blend 6 to 8 cu ft of Vermiculite Aggregate* to 94 lb Portland Cement and air entraining agent. Min thickness of 2 in. as measured to the top surface of the structural concrete or foamed plastic (Item 10) when it is used.

ELASTIZELL CORP OF AMERICA

W R GRACE & CO - CONN CONSTRUCTION PRODUCTS DIV

2. Blend 3.5 cu ft or Type NVS Vermiculite Aggregate* to 94 lb Portland Cement. Slurry coat, 1/8 in. thickness beneath foamed plastic (Item 10) when used, 1 in. min topping thickness.

W R GRACE & CO - CONN CONSTRUCTION PRODUCTS DIV

Vermiculite concrete may be covered with Roof Covering Materials (Item 8).

B. Cellular Concrete — Roof Topping Mixture* — Concentrate mixed with water and Portland cement per manufacturers specifications. Cast dry density and 28-day min compressive strength of 190 psi as determined with ASTM C495-66.

CELCORE INC — Cast dry density of 31 (+ or -) 3.0 pcf.

CELLUFOAM CONCRETE SYSTEMS, DIV OF CELLUFOAM CONCRETE OF — Cast dry density of 30 (+ or - 3.0) pcf.

CELLULAR CONCRETE L L C — Cast dry density of 37 (+ or -) 3.0 pcf.

ELASTIZELL CORP OF AMERICA — Type II. Mix #1 of cast dry density 39 (+ or -) 3.0 pcf, Mix #2 of cast dry density 40 (+ or -) 3.0 pcf, Mix #3 of cast dry density 47 (+ or -) 3.0 pcf.

C. Cellular Concrete — Roof Topping Mixture* — Concentrate mixed with water and Portland cement per manufacturers specifications. 28-day min compressive strength of 190 psi as determined with ASTM C495-66.

W R GRACE & CO - CONN CONSTRUCTION PRODUCTS DIV — Mix No. 1 or 2. Cast dry density of 32+3 (Mix No. 1) or 36+3 (Mix No. 2) pcf.

D. Perlite Concrete — 6 cu ft of Perlite Aggregate* to 94 lb of Portland Cement and 1-1/2 pt air entraining agent. Min thickness 2 in. as measured to the top surface of structural concrete or foamed plastic (item 10A) when it is used.

See Perlite Aggregate (CFFX) in Fire Resistance Directory for names of manufacturers.

E. Cellular Concrete-Roof Topping Mixture* — Foam Concentrate mixed with water, Portland Cement and UL Classified Vermiculite Aggregate per manufacturer's application instructions. Cast dry density of 33 (+ or -) 3.0 pcf and 28-day compressive strength of min 250 psi as determined in accordance with ASTM C495-86.

CELLULAR CONCRETE L L C — Mix No. 3.

W R GRACE & CO - CONN CONSTRUCTION PRODUCTS DIV — Mix No. 3.

13. **Foamed Plastic*** — For use only with cellular concrete. Nom 24 by 48 by max 8 in. thick polystyrene foamed plastic insulation boards having a density of 1.0 + 0.1 pcf encapsulated within cellular concrete topping (Item 98). Each insulation board shall contain six nom 3 in. diam holes oriented in two rows of three holes each with the holes spaced 12 in. OC, transversely and 16 in. OC longitudinally.

See Foamed Plastic* (BRYX) category in Building Materials Directory or Foamed Plastic* (CCVW) category in Fire Resistance Directory for list of manufacturers.

14. **Foamed Plastic*** — (Optional, not shown. For use with 3-1/4 in. lightweight concrete topping only — Polyisocyanurate roof insulation, applied over concrete floor with no restriction on thickness. When the insulation is used the Restrained Assembly Rating is reduced to 1-1/2 h.

See Foamed Plastic (CCVW) category for list of manufacturers.

*Bearing the UL Classification Mark

Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc.

Copyright © 2005 Underwriters Laboratories Inc.®