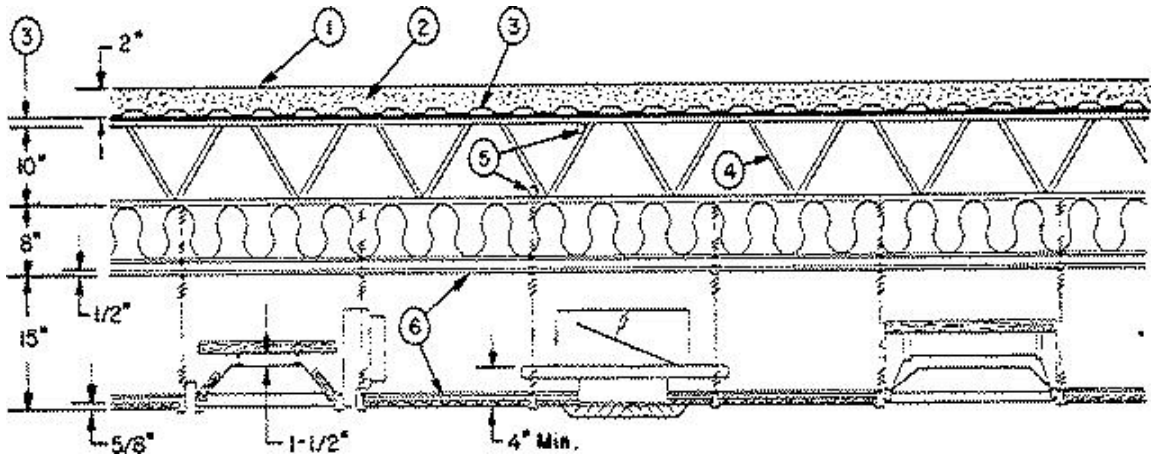


**Design No. P241**

July 31, 2000

**Restrained Assembly Rating — 2 Hr.**

**Unrestrained Assembly Rating — 2 Hr.**



1. **Roof Covering\*** — Consisting of hot mopped or cold application materials compatible with insulation(s) described herein which provide Class A, B or C coverings. See Roofing Materials and Systems Directory-Roof Covering Materials(TEVT).

1A. **In lieu of Item 1, roof covering consisting of single-ply Roofing Membrane\*** — that is either ballasted, adhered or mechanically attached as permitted under the respective manufacturer's Classification. See Fire Resistance Directory-Roofing Membranes (CHCI).

1B. **In lieu of item 1 or 1A roof covering consisting of one ply of UL Classified glass fiber ply sheet (See Building Materials Directory) randomly nailed in place followed by one layer of self-adhering Roofing Membrane\*** — covered as indicated below. Lap detail per manufacturer's specification.

**W R GRACE & CO - CONN**

**CONSTRUCTION PRODUCTS DIV** — Type GRM-230 surfaced with 400 lbs per 100 sq ft of roofing gravel embedded in manufacturer's UL Classified GRM-GA-200 gravel adhesive (See Building Materials Directory) applied at a rate of 3 gal per 100 sq ft or Type GRM-120 surfaced with a coating of manufacturer's UL Classified GRM-WC-200 or GRM-WC-300 coating material (See Building Materials Directory) applied at nominal rates of 1 gal and 3/4 gal per 100 sq ft, respectively; or Type GRM-500 not surfaced.

2. **Insulating Concrete** — Various types of insulating concrete prepared and applied in the thickness specified below:

A. **Vermiculite Concrete** — Mix consists of 6 cu ft of Vermiculite Aggregate\*, 94 lbs. of Portland cement and 6 oz. of air entraining agent. Thickness to be 2 in. min from the top plane of steel roof deck.

**GRACE CANADA INC**

**ELASTIZELL CORP OF AMERICA** — Types MS 16-U, MSV 200.

**MANDOVAL LTD**

**MANDOVAL VERMICULITE PRODUCTS INC**

**PALMETTO VERMICULITE CO**

**SIPLAST INC**

**B. Cellular Concrete — Roof Topping Mixture\*** — Foam concentrate mixed with water and Portland cement per manufacturer's specifications. Cast dry density and 28-day compressive strength of min 190 psi as determined in accordance with ASTM C495-66. Thickness of cellular concrete topping to be 2-3/4 in. min from the top plane of steel roof deck.

**CELCORE INC** — Cast dry density of 31 (+ 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.

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

**LITE-CRETE INC** — Cast dry density of 29 (+ or -) 3.0 pcf.

**SIPLAST INC** — Mix #2. Cast dry density of 36 (+ or -) 3.0 pcf.

**C. Perlite Concrete** — 6 cu ft of perlite aggregate\* to 94 lb of Portland cement and 1-1/2 pints of air entraining agent. Thickness of perlite concrete topping to be 2 in. min as measured to the top plane of the steel form units.

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

**D. 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. The cellular concrete topping thickness shall be 2-3/4 in. min from the top plane of steel roof deck.

**CELLULAR CONCRETE L L C** — Mix #3.

**SIPLAST INC** — Mix #3.

**3. Steel Roof Deck** — (Unclassified) — Min 9/16 in. deep and 31-3/4 in. wide, galv, corrugated steel deck. Min 0.016 in. thick (28 gauge). Corrugations 2-3/8 in. OC. Attached to each joist with welds spaced 14 in. O.C. Adjacent units overlapped one corrugation or,

**Classified Steel Floor and Form Units\*** — Noncomposite 9/16, 15/16, 1-5/16 or 1-1/2 in. deep, 30 in. wide, galv units. Min thickness is 0.016 in. (28 gauge) for corrugated and 0.029 in. (22 gauge) for fluted units. Spacing of welds attaching units to supports shall not exceed 12 in. OC. Corrugated units welded to supports through welding washers. Adjacent corrugated units overlapped one corrugation. Adjacent fluted units button-punched or welded together 36 in. O.C. along side joints.

**CONSOLIDATED SYSTEMS INC** — Types EHD, HD, S, SD.

**4. Steel Joists** — Type 10J3 min size, spaced 48 in. OC and welded to end supports.

5. **Bridging** — Steel bars, 1/2 in. diam welded to top and bottom chords of each joist.

6. **Insulated Ceiling Membrane** — See Items 9 through 29 of Design No. P237 for description of ceiling materials and details of ceiling installation.

\*Bearing the UL Classification Mark

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