

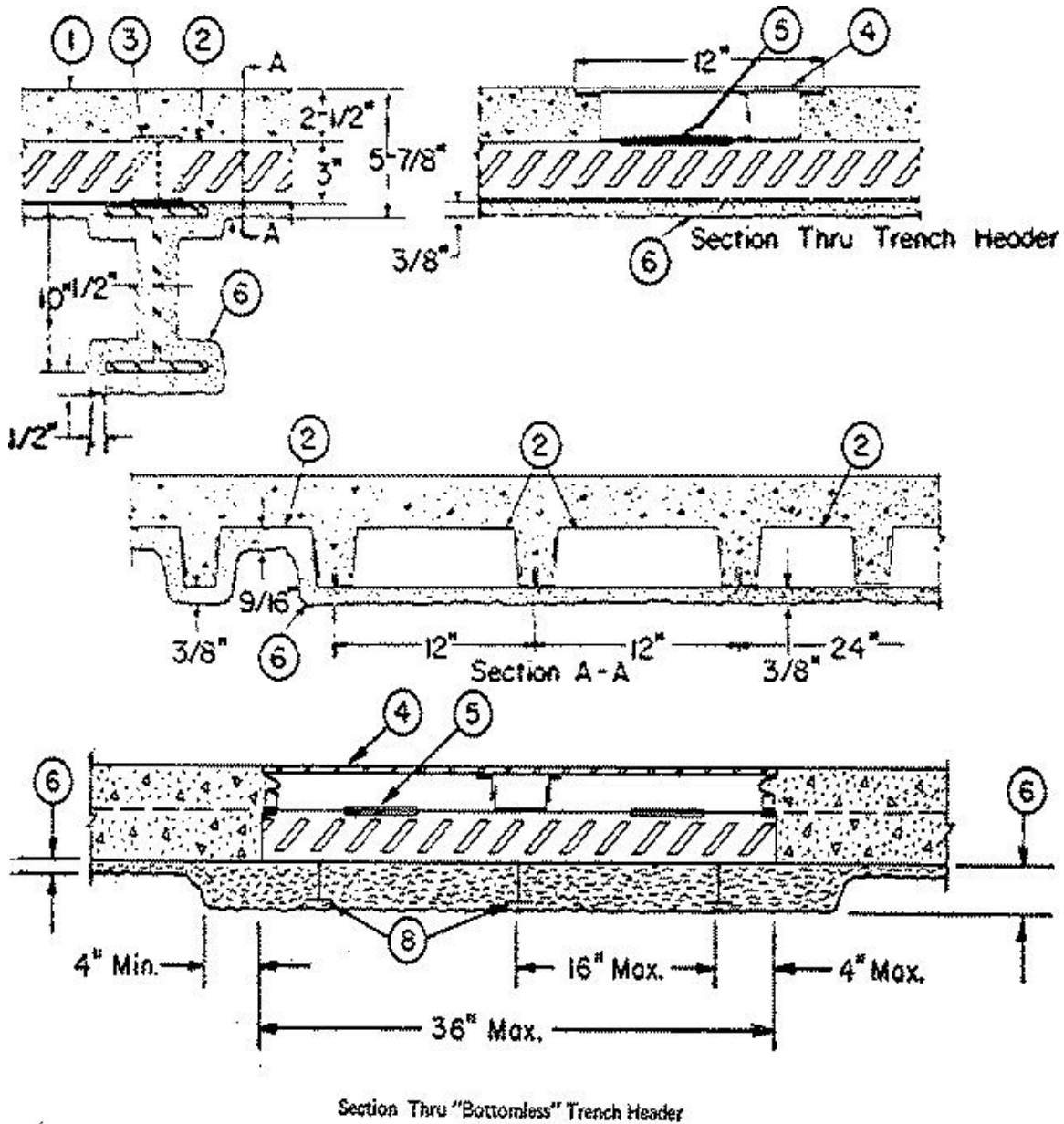
Design No. D822

April 25, 2002

Restrained Assembly Rating — 2 Hr.

Unrestrained Assembly Rating — 1 Hr.

Unrestrained Beam Rating — 1 Hr.



Beam — W10 x 21, min size.

1. **Normal-Weight or Lightweight Concrete** — Normal-Weight concrete, carbonate or siliceous aggregate, 150 (+ or -) 3 pcf unit weight, 3000 psi compressive strength, vibrated. Lightweight concrete, expanded shale, clay or slate aggregate by rotary-kiln method, 110 to 120, 3000 psi compressive strength, vibrated 4 to 7 percent entrained air.

2. **Steel Floor and Form Units\*** — Composite 2 or 3 in. deep galv cellular and fluted units. Alternating one or more 20 MSG min fluted units to one 20/18 MSG min cellular unit of equal or lesser width. One or two 12 in. wide 20/20 MSG min cellular unit may be blended with one or

more 24 in. wide or wider fluted units. Welded to supports units button-punched or welded together 36 in. OC. Allowable loading to be based on noncomposite design in spans containing trench header(s).

**CONSOLIDATED SYSTEMS INC** — 24 or 36 in. wide Types CFD-2, CFD-3. Units may be phos/ptd.

Alternate Construction — Noncomposite units of the same type listed above may be used provided allowable loading is calculated on the basis of noncomposite design.

3. **Joint Cover** — No. 18 MSG galv steel, nom 3-13/16 in. wide welded to each 24 in. wide steel form unit at four locations. Two inch tape placed on the 12 in. wide cellular units.

3A. **Welded Wire Fabric** — (Not Shown) — 6X6/W1.4 XW1.4 wire fabric is required when preset electrical inserts (Item 5A) are used. When floor is designed noncompositely, fabric may be precut to approx 24 x 30 in. sizes with the center piece of wire cut away so that an opening will result to fit over the insert.

4. **Trench Header** — (Bearing the UL Listing Mark). Max nom width of 12 in., constructed of steel and provided with metal edge screeds and bottom pan. The Spray-Applied Fire Resistive Materials (Item 6) shall be applied at thicknesses of 9/16 in. under the crests and 3/8 in. under the valleys and flat plates under the trench header with bottom pan.

4A. **Trench Header** — Trench header (bearing UL Listing Mark), without the bottom pan. The allowable superimposed load for spans with bottomless trench shall be based on noncomposite design. This trench header, with width ranging from min 12 in. to max 36 in., consists of two cell closers which conform to the contour of the floor units, placed along the sides of the desired trench location and welded to the floor units. The side rails, consisting of extruded aluminum screeds secured to galv steel channels (min 18 MSG) are positioned over the cell closers, aligned and welded to the closers and floor units. A separate U shaped channel (min 18 ga) serving as the power compartment, is welded to the floor units. Steel cover plates, 1/4 in. thick, shall be secured to the side rails. In bottomless trench headers wider than 18 in., each side joint of the steel floor units shall be welded with a 1 in. long weld near the trench header centerline. The Spray-Applied Fire Resistive Materials (Item 6) thickness shall be increased to 2.0 in. under crests, valleys and flat plates under the bottomless trench.

5. **Access Openings** — As required, with grommets.

5A. **Electrical Inserts** — (Not Shown) — Preset electrical inserts Classified as "**Outlet Boxes and Fittings Classified for Fire Resistance.**" \* Installed per accompanying installation instructions over factory-punched holes in 3 in. deep K-Type cellular steel floor units. The spacing of the preset electrical inserts shall be not less than 24 in. O.C. along cellular steel floor units with not more than one preset electrical insert in each 8 sq ft of floor area. Either Type RAKM-II, FAKM-II, S36BB, S36BC or S36CC service fittings are installed with N-R-G Bloc IV Series preset inserts per accompanying installation instructions. Refer to installation instructions for Classified assemblies. When Type RAKM-II, S36BB, S36BC or S36CC service fittings are used, the minimum Spray-Applied Fire Resistive Materials thickness on the cellular floor units with inserts is 11/16 in. When Type FAKM-II service fittings are used, the minimum Spray-Applied Fire Resistive Materials thickness on the cellular floor units with inserts is 7/16 in. The required thickness of Spray-Applied Fire Resistive Materials on the cellular steel floor units with electrical inserts shall be sprayed the entire length and width of the cellular steel floor units between supports and shall extend onto adjacent floor units for a minimum horizontal width of 12 in.

**WALKER SYSTEMS INC** — Type N-R-G Bloc IV Series inserts; Type RAKM-II, FAKM-II, S36BB, S36BC or S36CC service fittings.

6. **Spray-Applied Fire Resistive Materials\*** — Applied by spraying with water, to the thicknesses shown on the design sketch above. Applied to steel surfaces which are free of dirt, oil, or scale. Use of adhesive is optional. Tamping is optional. Min avg density is 12 pcf with min ind density of 11 pcf for Types II or DC/F. Min avg and min ind densities of 22 and 19 pcf,

respectively, for Type HP. For method of density determination refer to Design Information Section.

**ISOLATEK INTERNATIONAL** — Types D-C/F, HP or II, with Type EBS or Type X adhesive/sealer optional.

7. **Shear-Connector Studs — Optional** — (Not shown) — Studs, 3/4 in. diam by 3-1/2 in. long, for 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 beam through the steel form units.

8. **Steel Studs with Discs** — The stud consists of No. 12 SWG galv steel wire, 1-5/8 in. long, with one end welded to 1-3/16 in. diam No. 27 MSG galv disc. The total number of studs shall avg at least one stud per 256 sq in. of floor units' area beneath the trench header. The studs shall be welded to the floor units in rows running parallel with the trench header. The distance between the outer rows and the sides of the trench header shall not exceed 4 in. The spacing between the rows shall not exceed 16 in. The spacing between studs along each row shall not exceed 24 in. with one stud near each joint of floor units in the outer rows.

\*Bearing the UL Classification Mark

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