

embodied the principles now utilized in the standard two-way system and is incorporated in many of the present so-called patented types.

For many years the Schuster system was actively promoted in various sections of the country and thousands of fireproof floors of this type stand today as evidence of the economy and structural stability of two-way combination tile and concrete floors.

The two-way combination system, illustrated in Fig. 10-5, consists of a series of spaced reinforced concrete joists extending in two directions normal to each other and supported on four sides. The space between the joists is filled with one or a group of two or four tile floor units which replace a large volume of concrete and add to the compressive, shear and lateral strength and stability of the system. With concrete topping, the floors are designed as a series of intersecting "T" beams but ordinarily the topping is not required except for long spans and heavy loads or when the ribs are widely spaced as with a group or nest of units.

Various floor thicknesses may be obtained, as in the one-way system, by the use of floor tiles from 3 inches to 12 inches in depth. It is recommended that tiles for use in the two-way system have one cell for each 4-in. in depth. This prevents an excessive amount of concrete from entering the open ends of the units, particularly if the consistency of

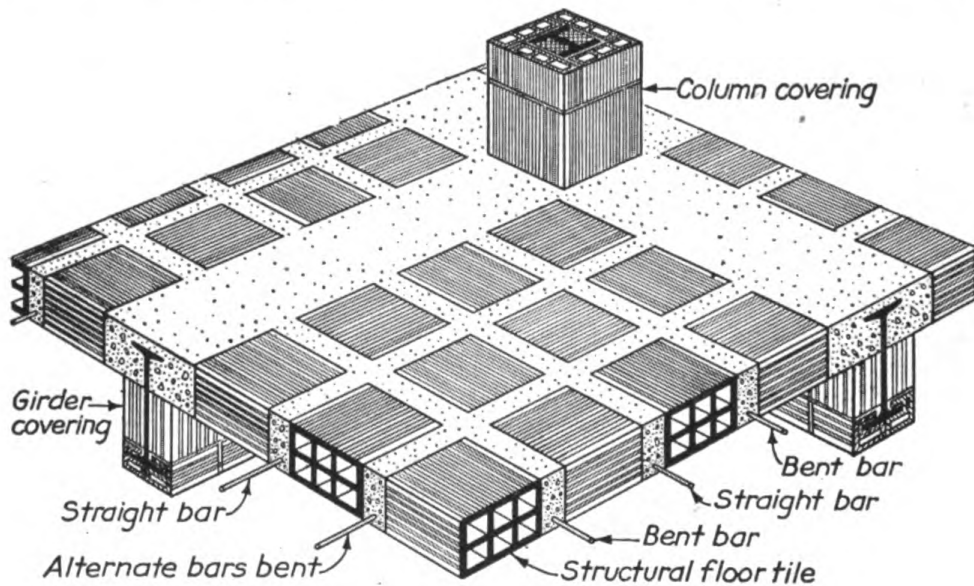


Figure 10-5

Perspective view showing the "Two-Way" clay tile and concrete rib combination floor system.

the concrete is controlled to a slump not exceeding 5 inches. The "key" formed by the small amount of concrete which forces its way into the openings provides additional bond between the tile and the concrete.

Where single tile units are in direct contact with concrete on all sides, the compressive strength of the tile is completely utilized in all directions, and concrete topping is ordinarily not required. For lighter loads, single tiles up to 20 inches square are often used in slabs without topping.

The two-way system may also be designed with a combination of two or four units in a group so that the concrete joists may be spaced for economy at intervals up to 28 in. or 30 in. on center. These slabs are usually designed with a minimum concrete topping of $1\frac{1}{2}$ inches placed monolithically with the joists.

The materials required for the construction of the two-way system are similar to those used in the one-way system. In plan, the standard tile units are usually 12 in. by