



Figure 10-2 Examples of lateral support at the tops of interior, non-loadbearing partitions.

Structural clay tile is often used for partitioning in schools, hospitals, food processing plants, kitchens, sports facilities, airports, correctional facilities, and so on, where the imperviousness of a ceramic glazed surface, high durability, and low maintenance are required. Several different types of wall construction may be used, depending on the aesthetic requirements for the facing. For the standard 4-, 6-, and 8-in. thicknesses, single units glazed on

one or both sides are available. Double wythes can be used to provide different colors or finishes on each side of the partition (see Fig. 10-3). The 6- and 8-in. walls are capable of supporting superimposed structural loads, but the 4-in. partitions are limited to non-loadbearing applications. Lateral support spacing is governed by the same length- or height-to-thickness ratio of 36, giving the same height limitations of 12, 18, and 24 ft without pilasters or cross walls.

Concrete block partitions are widely used as interior fire, smoke, and sound barriers. Decorative units can be left exposed, but standard utility block is usually painted, textured, plastered, or covered with gypsum board. Wood or metal furring strips can be attached by mechanical means as described in Chapter 7, or sheet materials may sometimes be laminated directly to the block surface. Code requirements for lateral support are the same as for brick and clay tile.

Hollow masonry unit partitions can be internally reinforced to provide the required lateral support in lieu of cross walls or projecting pilasters (see Fig. 10-4). A continuous vertical core at the required interval is reinforced with deformed steel bars and then grouted solid to form an in-wall column.

Cavity walls can be similarly reinforced and also facilitate the placement of conduit and piping for utility distribution within a building. The continuous cavity easily accommodates horizontal runs. The thickness of cavity walls for computing lateral support requirements is taken as the net thickness of the two wythes minus the width of the cavity.

10.2 SCREEN WALLS AND FENCES

Perforated masonry screen walls may be built with specially designed concrete block or clay tile units, with standard concrete blocks laid with cores oriented horizontally, with brick or block laid in an open pattern, or with combinations of these units (see Fig. 10-5). As sun screens, the walls are often built along the outside face of a building to provide shading for windows. Screen walls are also used to provide privacy without blocking air flow, and to form interior and exterior area separations. The function of the wall influences finished appearance, from strong and heavy to light and delicate. Dark colors absorb more heat and reflect less light into interior spaces. Relatively solid wall patterns block more wind, and open patterns allow more ventilation.

Screen walls can be anchored at the floor line or at vertical structural projections such as steel or masonry piers or pilasters (see Fig. 10-6). Screen walls are governed by the same h/t ratio for lateral support requirements as empirically designed masonry walls and partitions, but those with interrupted bed joints should be designed more conservatively because of reduced flexural strength and lateral load resistance.

Concrete masonry screen wall units should meet the minimum requirements of ASTM C129. Brick should be ASTM C216, Grade SW, and clay tile units should be ASTM C530, Grade NB. Mortar for exterior screen walls should be Type N or Type S.

Solid, uncored brick is used to build what some call “pierced” walls by omitting the mortar from head joints and separating the units to form voids. The walls may be laid up in single- or double-wythe construction. In double-wythe walls, separate header or rowlock courses alternate with stretcher courses to form different patterns. Double-wythe walls are more stable than single-wythe designs because of the increased weight, wider footprint, and through-wall bonding patterns. Piers may be either flush with the wall or