

INSERT PAGES  
IBC CHAPTER 21

To be inserted between pages 402 & 403.

**Comm 62.2109 Empirical design of masonry. (2) OPENINGS.** This is a department rule in addition to the requirements in IBC section 2109.4.1: Unless evidence is provided to show that openings do not cause lateral stability and stress requirements to be exceeded, the amount of openings in a masonry wall shall not exceed the limits set forth in Table 62.2109-1.

Table 62.2109-1  
Maximum Ratio of Laterally Unsupported Height or  
Length to Thickness for Exterior Walls With Openings†

| Type of Masonry   | Percent of Openings at Any Horizontal Plane of Wall |    |    |               |
|---|---|----|----|---------------|
|   | 20  | 40 | 60 | Over 60       |
| Single wythe walls of solid or grouted walls of solid units | 20  | 16 | 12 | Submit design |
| All other masonry   | 18  | 14 | 10 | calculations  |

†The percentage of openings shall be calculated for each 100 lineal feet of wall or portion thereof at any horizontal plane of wall.

**Comm 62.2109 Empirical design of masonry. (3) JOINTING.** These are department rules in addition to the requirements in IBC section 2109:

(a) *Expansion and shrinkage.* Joints commensurate with lateral stability requirements shall be installed in all exterior masonry to allow for expected growth of clay products and shrinkage of concrete products.

(b) *Vertical jointing.* Vertical movement joints shall be provided at a spacing in compliance with Table 62.2109-2.

Table 62.2109-2  
Maximum Spacing Of Exterior Masonry Movement Joints  
Between Unrestrained Ends† (Feet)

| Loading<br>Conditions    | Type of<br>Material | Openings (Percent of Total Wall Area) |                    |                   |                    |
|--------------------------|---------------------|---------------------------------------|--------------------|-------------------|--------------------|
|                          |                     | 0 to 20                               |                    | More than 20      |                    |
|                          |                     | Joint to<br>Joint                     | Joint to<br>Corner | Joint to<br>Joint | Joint to<br>Corner |
| Load-bearing             | Clay units          | 140                                   | 70                 | 100               | 50                 |
|                          | Concrete units      | 60                                    | 30                 | 40                | 20                 |
| Nonload-bearing<br>walls | Clay units          | 100                                   | 50                 | 60                | 40                 |
|                          | Concrete<br>units   | 50                                    | 25                 | 30                | 20                 |

†Jointing required is a minimum and is not intended to prevent minor cracking. The distances given for maximum spacing of joints are for a single wall plane. For composite walls, the maximum spacing of joints shall be governed by the masonry material type used in the exterior wythe.

**Note: To accomplish the intended purpose, joints should be located at critical locations, such as changes in building heights, changes in framing systems, columns built into exterior walls, major wall openings, and changes in materials.**

(c) *Horizontal jointing.* Where supports such as shelf angles or plates are required to carry the weight of masonry above the foundation level, a pressure-relieving joint shall be provided between the structural support and any masonry that occurs below this level. The joint width shall be such as to prevent any load being transmitted from the support to any element directly below. All mortar and rigid materials shall be kept out of this joint. This type of joint shall be provided at all such supports in a concrete frame structure where clay masonry is exposed to the weather.