Double columns to meet exigencies.

said column or columns shall be either constructed double, that is, an outer and inner column, the inner column alone to be of sufficient strength to sustain safely the weight to be imposed thereon, and the outer columns shall be one inch shorter than the inner columns, or such other iron or steel columns of sufficient strength, and protected with not less than two inches of fireproof material securely applied, except that double or protected columns shall not be required for walls fronting on streets or courts.

Solid iron plates on iron or steel columns.

15A. Iron or steel posts or columns with one or more open sides and backs shall have solid iron plates on top of each, excepting where pierced for the passage of pipes. Rivets in flanges shall be spaced so that the least value of a rivet for either shear or bearing is equal or greater than the increment strain due to the distance between adjoining rivets. All other rules given under riveting shall be followed. The compression flange of plate girders shall be secured against buckling if its length exceeds thirty times its width. If splices are used, they shall fully make good the members spliced in either tension or compression. Stiffeners shall be provided over supports and under concentrated loads. They shall be of sufficient strength as a column to carry loads and shall be connected with a sufficient number of rivets to transmit the stresses into the web plate. Stiffeners shall fit so as to support the flanges of the girders. If the unsupported depth of the web plate exceeds sixty times its thickness, stiffeners shall be

used at intervals not exceeding one hundred and twenty times the thickness of the web. When rolled steel or wrought iron beams are used in pairs to form a girder they shall be connected together by bolts and iron separators at intervals of not more than five feet. All beams twelve inches and over in depth shall have at least two bolts to each separator.

Bolts for certain sized beams.

15B. When the lintels or girders are supported at the ends by brick walls or piers they shall rest upon cut granite or bluestone blocks at least ten inches thick, or upon cast iron plates of equal strength by the full size of the bearings. In case the opening is less than twelve feet, the stone blocks may be five inches in thickness, or cast iron plates of equal strength by the full size of the bearings may be used; provided, that in all cases the safe loads do not exceed those fixed by this ordinance.

Lintels to rest on granite or bluestone.

15C. All rolled steel and wrought iron floor and roof beams used in buildings shall be of full weight, straight, and free from injurious defects. Holes for tie rods shall be placed as near the thrust of the arch as practicable. The distance between tie rods in floors shall not exceed eight feet, and shall not exceed eight times the depth of floor beams twelve inches and under. Channels or other shapes, where used as skewbacks, shall have a sufficient resisting movement to take up the thrust of the arch. Bearing plates of stone or metal shall be used to reduce the pressure on the wall to the working stress. Beams resting on girders shall be securely riveted or bolted to the same.

Floor or roof beams.