

*Bearing-walls to be braced.*

21. Exterior bearing-walls and other walls of unit masonry or brick construction shall be adequately tied together at the level of each floor-line from outside to outside of the structure by continuous metal rods or other bonds of continuous strength, and shall be tied to all intervening partition walls.

*Footings to be interconnected.*

22. Where the design of the building includes isolated footings, such footings shall be completely interconnected in two directions at right angles to each other or as nearly at right angles as the case permits. Each such interconnecting member shall be capable of transmitting either by tension or by compression at least one-tenth of the load on the heavier only of the two footings it connects, or, with the consent of the Council, at least one-tenth of the total load on all the footings divided by the number of footings.

*Strength against Horizontal Force.*

23. (a) Every building and every portion thereof shall be designed and constructed to withstand a continuously applied force in any horizontal direction equal to at least one-tenth of the weight carried by the building.

(b) Each part of the building shall be considered as subjected to the said continuously applied horizontal force, and shall individually be strong enough and sufficiently connected with the remainder of the building adequately to resist this force.

(c) The building as a whole shall be designed and constructed to resist the shears and moments of the said continuously applied horizontal force.

*Assumed Weight of Buildings.*

24. (a) For the purposes of the last preceding clause hereof the weight carried by the building shall be deemed to include—

- (i) The full dead-weight of the building and any objects fastened or attached thereto or permanently placed therein or substantially permanently so placed, together with
- (ii) The fraction of the transient live or floor load of the building, consisting of the aggregate of the floor-loads of the rooms thereof hereinafter specified.

(b) In the case of a room designed to be used principally for the storage or display of goods the prescribed fraction of the floor-load of that room shall be two-thirds of the total live load which the room is designed to bear.

(c) In the case of a room designed to be used principally for domestic or office purposes the prescribed fraction of the floor-load shall be not less than 20 lb. per square foot of the total floor-space in addition to any special load intended to be carried by the floor of such room.

(d) In the case of a room designed to be used for a purpose other than those set out in the two last preceding subclauses hereof the prescribed fraction of the floor-load shall be such as may be specified by the Council in each case, but in no case shall be less than 20 lb. per square foot of the total floor-space.

(e) Objects to be placed or carried on a wall and not included in the dead weight of a building shall be deemed to be part of the floor-load of the floor next below them.

(f) Objects to be supported or suspended from a floor or ceiling and not included in the dead-weight of a building shall be deemed to be part of the floor-load of the floor next above them.

(g) All floor-loads shall be considered as applied at the level of the floor on which they are carried or deemed to be carried, or of which they are deemed to be part of the floor-load.

(h) For the purposes of this clause the term "room" shall be deemed to include corridors and landings of staircases and every other part of a building provided with a floor.

*Horizontal Shear.*

25. The total horizontal shear at any level of the building shall be taken to be not less than one-tenth of the total weight carried by the building above that level, computed as hereinbefore provided.

*Bracing System to be Symmetrical.*

26. The main bracing systems shall be located symmetrically about the centre of mass of the building, having due regard to the relative rigidity in the horizontal plane of all elements of the load-carrying structure, or else proper provision shall be made for the resulting torsional moment on the building.

*Working Unit Stresses.*

27. The working unit stresses under combined vertical and horizontal forces, including those due to earthquake, shall not exceed those required for vertical load alone in the case of a building with a frame-work of structural steel by an amount exceeding 50 per centum, or, when specially approved, 75 per centum, and in the case of a building with a framework of reinforced concrete by an amount exceeding one-half of those percentages:

Provided that a percentage exceeding 50 per centum or one-half of 50 per centum (as the case may be) shall be allowed only where a building, from its monolithic nature, possesses a substantial reserve of inherent strength of a kind not easily calculated and not included in the calculations.