

"THE MONTREAL BUILDING BY-LAW OF 1899."

(Continued from November issue)

FIRST CLASS BUILDINGS, HOW CONSTRUCTED.

SECTION 103.—In all buildings of the first class hereafter erected, the external party or partition walls shall be made of stone, brick or terra cotta, in conformity with the provisions of this by-law; the beams of floors, roof, etc., and all supports other than brick or stone walls, shall be of iron or steel, of such size and so arranged that the maximum fibre strain shall not exceed 12,000 lbs. per square inch for iron, and 16,000 lbs. for steel. The beams forming the floors and roof, shall be filled in between, with porous terra cotta, hollow tiles or burnt clay, brick, cement, concrete, or other incombustible material, which is also a slow heat conductor, and such terra cotta, tiles, brick, or concrete shall completely invest the beams in such manner that in no part shall there be less than two inches of such covering on the iron or steel.

The beams supporting the terra cotta, hollow tiles, brick, or concrete, shall not be spaced further apart than 6 feet. All beams, lintels, supports or other metallic structure shall be protected against the effects of fire by a covering of incombustible material, which is also a slow heat conductor; these materials shall be applied to the metal with cement in such manner that every part of the metal is invested by not less than two inches in thickness of said material.

All cast iron, wrought iron, or steel columns shall be made true and smooth at both ends, and shall rest on steel or iron bed plates, and have iron or steel cap plates, which shall also be made true.

All iron or steel beams, of whatever kind, shall be suitably framed and connected together; and iron or steel girders, columns, beams, trusses, and all other iron or steel work of the floors and roof shall be strapped, bolted, anchored, and connected together, and to the walls, in a strong and substantial manner, and such connections, shall be made in the manner recommended in steel or iron construction.

Iron or steel floor, or roof beams shall be so arranged as to spacing and length of beams that the load to be supported by them, together with the weight of the materials used in the construction of said floors or roof, shall not cause a deflection in the said beams of more than one-fiftieth of an inch per lineal foot, and they shall be so tied together as to prevent lateral deflection.

Under the ends of all iron and steel beams where they rest on the walls, stone or iron templates shall be built into the walls; said templates, if of stone, shall not be less than twenty inches long, by twelve inches wide, and eight inches thick; if of iron or steel, they shall be not less than twelve inches long, by eight inches wide, and one inch thick.

In all first class buildings the stairs, elevator, enclosures, cars, guides, supports of machinery, etc., shall be made entirely of incombustible materials; no wood-work or other inflammable material shall be used in any of the partitions, furrings, or ceilings, excepting, however, that the doors and windows and their frames, the trimmings, the casings, and the interior finish and the floors may be of wood, provided that they are filled solid at the back with fire-proof material.

SECTION 104.—In all first class buildings constructed on the skeleton principle, wherein all external and internal loads and all strains, are transmitted to the foundations by a frame work or skeleton of metal, such frame work or skeleton shall be so constructed in all its parts that the maximum fibre stress shall not exceed 16,000 lbs. per square inch, for steel, or 12,000 lbs. per square inch for iron. All the supports, beams, girders, etc., shall be joined by riveted connections, in such manner as to rigidly connect all parts of the frame together.

If buildings of skeleton construction are designed so that their enclosing walls do not carry the weight of the floors and roofs, then their walls may be reduced in thickness less than herein before provided for, excepting that no wall shall be less than twelve inches in thickness, and provided also that such enclosing walls shall be thoroughly anchored to the metal frame or skeleton, and provided also that wherever the weight of the said walls rests upon beams or pillars, such beams or pillars must be made strong enough in each storey to carry the weight of the wall resting upon them without reliance upon the walls below them.

The floor and roof beams in such buildings shall be filled in between with incombustible and similar material, and all parts of the metal thoroughly protected from the fire with slow heat conducting material, and the framing of iron or steel, strength of beams, bearing of post, columns, and beams, construction of stairs, and elevators, and the use of wood for interior finish shall be governed by the provisions of the preceding section.

THEATRES AND OPERA HOUSES.

SECTION 105.—Every building hereafter built or altered to be used as a theatre for dramatic, operatic or other similar purposes, involving the use of a stage with movable or shifting scenery, curtain and machinery, shall be a first class building, and the highest part of main floor of auditorium shall not be over seven feet above the level of the street or pavement on which the doors of exit are located.

Every theatre referred to in the preceding paragraph shall have the front in which the main exits are placed, made as wide as the auditorium, including the passages or stairways leading to the galleries, and said frontage for the whole height of the building shall be upon a street or square. Should another building intervene between the said front in which the main exits are placed, and a street or square, then the said front shall be upon a court or passage way not less than thirty feet wide, and open to the sky, and said court shall communicate with a street or square by a passage way also open to the sky, and not less in width than thirty feet; should the exit from said court to a street or square be through another building, the said exit or passage way shall not be less than thirty feet wide, and unobstructed, and should it be ceiled over, the ceiling and the walls supporting the ceiling shall be constructed of substantial fire proof material.

There shall be at least two independent exits from each division, compartment, or gallery in such theatre; every such exit shall have a width of at least 18" for each one hundred persons which the division, compartment, or gallery to which it leads, is capable of containing; three or more exits may be substituted for the two exits above required, provided they are of the same aggregate width; no exit shall be less than five feet in width, and the doors of such exits shall all open outwards only. In addition to the exits before mentioned there shall be provided where practicable, direct exits from the main floor or auditorium to a street, square, lane, or court, and such exits shall be provided with suitable light doors or sashes opening outwards, and secured on the inside only in such manner as will admit of their being readily opened in case of fire or a panic.

Should a room intervene between the doors from the auditorium above described, and the street or square, which would prevent or impede the egress of an audience in case of fire or panic, a distinct corridor shall continue from the said doors to the street or square, and should the street end of said corridors be fitted with doors they shall open outwards, and be fitted with fastenings on the inside only; all exits from such buildings shall be opened for the use of departing audiences and shall have fastenings on the inside only. Plans showing the exits and stairways shall be printed on every programme or play bill. There shall also be posted in some conspicuous place on each gallery or floor, and also on the stage along with the regulations referred to in this section, a diagram, showing the stairways and exits. Rooms in theatres for the use of persons employed therein shall have at least two independent exits; all exits here described shall have the word "Exit" in letters at least 6 inches long painted on the auditorium or stage side of such exit.

Each gallery in such building shall have at least two independent staircases located as far apart as possible and extending from the gallery to a street or square, or to a court or lane, having open communication with a street or square.

All such stairs shall be of incombustible materials, except the treads, which may be hardwood, and shall be of ample strength to sustain the load to be carried, the cut of the strings for such stairs shall not exceed 6½ inches rise, nor be less than 12½ inches on the tread. No winding steps shall be used.

No stair shall be less than 4 feet 6 inches wide in the clear, no platforms less than four feet; there shall be no flights of more than fifteen nor less than three steps between landings.

All stairs and landings shall have a substantial hand rail on each side; stairways of twelve feet or over in width shall have one, and stairs sixteen feet or over, two intermediate hand rails firmly secured to the steps.

All corridors, passage ways, aisles, etc., in such theatre shall be of ample and uniform width, and, if possible, widening towards the exits, to afford easy exit from the building, and shall be kept during performances free of all obstructions of whatsoever kind. No temporary seats, and no person shall be allowed to remain in any aisle or passage way during a performance.

All passage ways and aisles on the respective floors in the auditorium having seats on both sides of same, shall not be less than 3 feet wide where they begin, and shall be increased in width towards the exit in the ratio of 1½ inches to every 5 lineal feet. Aisles having seats on one side only shall not be less than 2 feet