

10 in. wide by 12 in. deep and reinforced with steel rods, were built on temporary wood centring between the girders, and divided each bay, 16 ft. x 18 ft., into 5 panels. The steel girders also were encased in concrete, the outer edge of the steel having at least a 2½ in. protection. Strips of heavy expanded metal run along each side of

floor. These partitions are fitted with wire-glass windows and fireproof sliding doors that close automatically in case of fire. By such arrangement an absolutely safe means of exit to the street from any floor is provided, irrespective of the passenger elevator, which, like the freight lifts in the rear, is also cut off by reinforced fireproof enclosures.

In the above construction the concrete was what is known as a wet mix, the proportions being 4 broken stone, 3-4 in. ring, 2 sand, and 1 Portland cement.

The entire building, with the exception of the first floor is equipped with metallic window frame and sash glazed with wired glass, and the windows on the alley on the south are protected with water curtains, thus rendering almost impossible the ingress of fire. The entire building is fitted throughout with an automatic sprinkler system which is fed by a tank on the roof supported by a steel frame tower encased in concrete on expanded metal, protecting it from fire and rust.

The only wood to be found in the entire building is the hardwood wearing floors and the office screens and fittings. The entrance vestibule is paved with marble mosaic, and is wainscotted with dark Italian green marble.

Messrs. Burke & Horwood, Toronto, were the architects and the Expanded Metal and Fireproofing Co., 100 King street east, Toronto, were the consulting engineers and the contractors for the expanded metal reinforcing.

Standard Mill Construction

THE third type of modern warehouse shown in Figs. 17, 18, and 19 is the Shuttleworth building, now under course of construction at the corner of Victoria street and Miller avenue, Toronto, and is a good example of what may be accomplished in minimizing to a great extent the danger of fire through arrangement of plan and modern fire prevention equipment, even in a mill-constructed warehouse.

The structure, which is of best standard mill construction, has dark red brick exterior walls, with white

the girder's lower flange and extending upward into the concrete haunch, thus ensuring the integrity of the concrete fire protection for the lower flange, the most vulnerable portion of the girder. The concrete joist beams of the columns differ in no way from the others except in the incorporation of the small tie-beam as part and parcel of the reinforcement. The method of hooking the ends of the rods, and their bending or trussing is plainly shown in the sectional Fig. 14. Three rods being used, two were trussed, the other being straight from end to end. All rods were placed two inches from the bottom of the concrete, and the rods kept 1 1-2 inches apart. Short eight feet shear bars pass over the girders and are bent down into the concrete beams on either side. Simultaneously with the pouring of the beams, the three-inch concrete floor panels were laid on wood forms between the joist beams the expanded metal reinforcing it being kept one inch from the under side of the floor. As the construction progressed upwards wood forms were also built surrounding the steel columns and the concrete poured in. Here again expanded metal was utilized, the steel columns being securely wrapped with same to bind the concrete protection together.

Partitions, stairs, pent-houses, the lintels supporting the brick curtain walls and entire roof of the Ogilvie warehouse, were of similar construction. The thoroughness of the designing to secure a stairs system which shall afford the occupants of all floors absolute safety is very evident from the photograph (Fig. 10). The reinforced concrete stairs running from one floor to the next, are separated from the rest of the building by a reinforced fireproof partition, and land in a similarly isolated enclosure at each

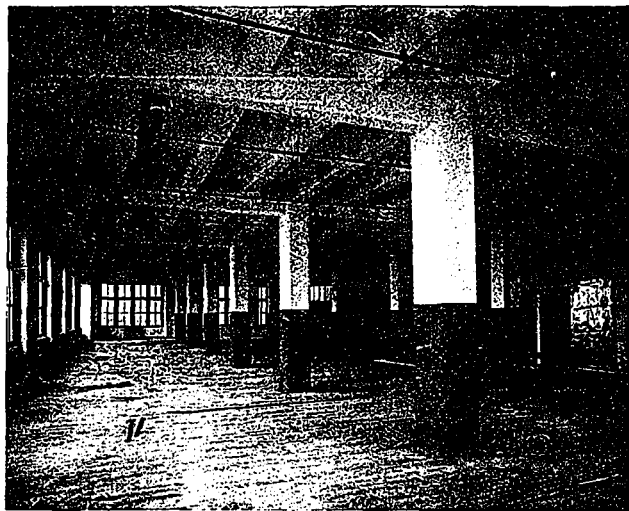


Fig. 9—INTERIOR VIEW, SECOND FLOOR, OGILVIE BUILDING, TORONTO, SHOWING STEEL GIRDERS AND COLUMNS ENCASED IN CONCRETE ON EXPANDED METAL LATH, ALSO THE REINFORCED CONCRETE JOIST BEAMS. THE LARGE WINDOW SHOWN HAVE METAL SASH AND FRAME AND WIRED GLASS.



Fig. 10—VIEW OF FIREPROOF STAIRWAY, OGILVIE BUILDING, TORONTO, SHOWING THE SOLID CONCRETE TREADS AND IRON HANDRAIL. IN THE BACKGROUND TO THE RIGHT MAY BE SEEN ONE OF THE WALLS ENCLOSING THE PASSENGER ELEVATOR SHAFT. THE WINDOW SHOWN HAS METAL SASH AND FRAME, AND IS GLAZED WITH WIRED GLASS.