

eleven times as long. This lack of vibration is due to the solidity provided by the monolithic nature of the structure, and the ability of the concrete to absorb vibration.

Another great advantage that this type of building enjoys is the large window area, giving the maximum amount of light. It has been conceded that as a general rule the employer of labor regards ample light as a very valuable asset, and in no other type of building construction known can this asset be handled to such advantage as in reinforced concrete construction. Figs. 1, 2 and 3 illustrate to what an extent this idea has been carried out in the Darling building. One particularly striking feature of this building is the large floor areas, the columns being spaced 19 feet by 22 feet centre to centre. Another important feature is the manner in which the space under the sidewalk has been utilized, on Spadina avenue the area being 20 by 129 feet, and the area on the Adelaide street side being 17 by 100 feet. In order to make this area valuable in a practicable way the excavation was carried lower than usual: the owner very wisely insisted on having ample head room under this area. We have already referred to the fact that the boilers are placed in this area, and in addition to which all fuel rooms, machinery rooms, etc., are cared for in this space, the balance of the space being used for packing and shipping rooms. A complete set of toilet rooms is located on each floor, special attention having been paid to the arrangement of fixtures, lighting and ventilation of these rooms. Fig. 1 is an exterior view of the building, and illustrates the pleasing effect that can be produced by concrete when properly handled along correct architectural lines. On enquiry we learn that the building, owing to its exceptionally well studied construction will receive the lowest insurance rate possible to obtain in the city of Toronto. The saving of insurance alone in this instance will amount to a considerable sum annually to the prospective tenants. Mr. Darling is to be congratulated upon his display of good judgment in the selection of this class of building, its merits being unquestionable.

Messrs. Gordon & Helliwell of Toronto were the

architects. The Provincial Construction Company of Toronto were the contractors, and The Trussed Concrete Steel Company of Canada, Limited, Toronto, were the consulting and supervising engineers, and the manufacturers of reinforcing steel used in structure.

## Steel Frame Construction Fireproofed With Concrete

**A**NOTHER type of fireproof building construction well adapted for the modern warehouse is well illustrated in the new Ogilvie building at the corner of

Wellington and Bay streets, Toronto, which is an excellent example of a steel frame structure with frame encased in concrete on expanded metal lath. No expense or effort has been spared in arrangement of plan or equipment to make it absolutely fireproof.

A feature of the building is the provision for the numerous, large window openings, providing an exceptionally great amount of light. Plenty of light is an important asset in every well planned warehouse. The structure has many other points in design and plan worthy of discussion, but the system of construction is the most interesting.

The concrete with which the steel is encased serves as first-class protection against heat and corrosion, as well as takes up a large amount of vibration common in steel frame structures.

Here we have outer walls of brick pier construction and thin panel walls of brick between them. These piers and the interior steel columns, which are 16 feet apart in one direction, and in the other 18 feet support the heavy steel I beam girders, the latter dividing the building in its long direction into 7 bays, each 16 feet wide. The steel columns are joined at each floor level by small steel I beams (6 in.), these running in the opposite direction to the girders and tying the columns one to another.

In fact, this arrangement of steel work, consisting of columns, girders and tie beams, unites the entire structure firmly and rigidly, thus forming a suitable skeleton whereon to erect the concrete floors.

As the Figs. 14, 15, and 16 show, concrete joist beams,



**Fig. 8—WAREHOUSE AND OFFICE BUILDING RECENTLY ERECTED BY THOMAS OGILVIE & SONS, AT TORONTO. THIS STRUCTURE IS AN EXCELLENT ILLUSTRATION OF STEEL FRAME ENCASED WITH CONCRETE ON EXPANDED METAL LATH, A TYPE OF CONSTRUCTION BECOMING QUITE POPULAR, AND ONE WELL ADAPTED FOR WAREHOUSES. NO EFFORT OR EXPENSE HAS BEEN SPARED IN PLAN, ARRANGEMENT, SELECTION OF MATERIALS, OR APPLIANCES TO RENDER THIS BUILDING AS THOROUGHLY FIREPROOF AS MODERN BUILDING SCIENCE WILL PERMIT OF. BURKE & HORWOOD, ARCHITECTS, TORONTO. EXPANDED METAL AND FIRE-PROOFING CO., CONSULTING ENGINEERS.**