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THE

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THE CANADIAN CONTRACT RECORD,

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The purpose of this journal is to supply Contractors, Manufacturers and Dealers throughout Canada, with advance information regarding contracts open to tender, and to furnish Architects, Municipal and other Corporations with a direct medium of communication with Contractors.

Information from any part of the Dominion regarding contracts open to tender will be gratefully received.

ADVERTISING RATES ON APPLICATION.

At its Convention held in Toronto, Nov. 20 and 21, 1889, the Ontario Association of Architects signified its approval of the CANADIAN CONTRACT RECORD, and pledged its members to use this journal as their medium of communication with contractors with respect to advertisements for Tenders.

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EFFECT OF VIBRATION ON A BUILDING.

BY OWEN B. MAGINNIS.

The examination of a house built about six years ago, on one of the uptown streets, between Fourth and Madison avenues, shows how sensitive a structure can be to the effect of vibration when its component parts are small and the structure is unprovided with safeguards against this unusual agent.

The serious injury about to be described, can only be attributed to vibration, because the house—a five storey double flat—was well built of bricks, and fair mortar, with a brownstone ashlar front, the whole having a rubble foundation resting on sound rock, and interior brick piers supporting the timber girders which carried the main stud partitions, in the usual manner. It is then reasonable to suppose that had the structure not been subjected to unusual forces differently applied to its foundation, the settlement would have been uniform, and the interior would not have shown the following evidences of unequal settlement and strains:

Commencing the examination in the cellar, the foundation wall evinces no sign of exterior fracture, but it is depressed in several places, from front to rear, showing that the bed on which it rests has been displaced. The eastern wall next to Fourth avenue is about 6 inches lower on the footing in the centre of its length, than the west wall, and the piers, supporting the partitions are bent about two inches in the height, about 5 feet 6 inches, seemingly from the pressure of the beams as they subsided with the eastern foundation wall. The floor concrete, however, is unbroken round the piers, though it is broken at the wall and sunken in many places throughout the entire surface.

The consequences of this are shown throughout the partition walls, set at right angles to the eastern wall, and on all door jambs and window frames. Having settled so much at the foundations, it follows that all square openings are thrown out by pulling down the eastern side to a more or less degree in each, for instance, some are 1 1/4 inches out of square, some 1 inch, some 3/4 of an inch and so on. Needless to say, the doors and sash have all been pieced and cut to fit into the present shape of the openings. All the joints are open, and it is a fortunate circumstance that the walls settled plumb, or the doors and sashes would have required more fitting.

The plaster is in a worse condition, being parted at the junctions and traversed over by large cracks running diagonally from the top eastern side to the bottom on the western side, and in many places it threatens to fall off. So distinctly is the settlement shown, that the picture mould in the dining-room is bent into a curve, and the floors are sagged to such an extent, that when a table is placed against the west wall, a ball of wool will roll off its top to the floor.

Summed up in its entirety, the building is in a poor condition and shows too early dilapidation. As to the cause of this it is evidently attributable, as stated before, to vibration, communicated in this case, by the trains on Fourth avenue and by the concussion made in blasting out cellars on the adjoining street. The perceptible effect of the vibration caused by the trains varies with their different speeds and weights, but it is always so noticeable, that a glass of water placed on the floor when a train is passing, will raise a wavelet on the surface of the water, and the heavier trains often rattle the sash in their frames. This vibration is felt all along the avenue, and the buildings suffer more or less. The writer has also known this to be so great that a small frame house, built close to the track, was violently shaken by a passing train.

Another reason for the failure of the above foundation, was the shock of the blasting. This was very violent, owing to the use of very heavy charges, often unnecessary, which shook the house from cellar to roof, frightening the inmates, causing a rocking in the whole structure, and must necessarily have disintegrated the surface rock under the foundation walls, perhaps causing displacement as the unequal settlement would denote. If this be the case, and it could be clearly proven, there would be good ground for action and subsequent compensation for damages. It is a singular fact that the front and rear, or north and south walls, are uninjured, and the east and west walls are strained. The whole subject is well worthy of consideration, and the owners of property along Fourth avenue should carefully watch the condition of their buildings, for it is not always faulty construction which necessitates constant repairs and more expenditure.—Manufacturer and Builder.

A French writer observes that painting floors with any colour containing white lead is injurious, as it renders the wood soft and less capable to wear. Other paints without white lead, such as amber or sienna are not injurious, and can be used with advantage. Varnish made of drying lead salts is also said to be destructive, and it is recommended that the borate of magnesia should be used to dispose the varnish to dry. A recipe for a good floor varnish is given as follows. Take two pounds of pure white borate of magnesia, finely powdered, and add it little by little to a saucepan containing ten pounds of linseed oil, which is to be well stirred and raised to a temperature of 360° Fahrenheit. Heat 100 pounds of linseed oil in a boiler until ebullition takes place, then add to it the first liquid, increase the heat, and allow it to boil for twenty minutes. Then remove from the fire and filter the solution through cotton cloth. The varnish is then ready for use.

The "Canadian Contractors' Hand book," 50 cents to RECORD subscribers.