

CONCRETE IN BUILDING CONSTRUCTION.

A great deal of attention is just now being given to the use of concrete in building construction and everything pertaining to the method of doing the work is perused with more than usual interest. There have occurred a number of instances recently, says Carpentry and Building, where concrete has been employed with marked success in the construction of buildings intended to be used both for manufacturing and business purposes. In one instance the framing for the concrete work was built up of scantling 3x6 and 3x8 inches, with 1½ inch boards used for the concrete facing. The frames for the two sides of the wall were built up together and bolted through the uprights, the concrete being filled in between as the frame work rose. When the concrete work was completed the frames were taken down, the bolts removed and the holes filled with cement mortar. In this way the material in the frames and forms was used many times over.

In this particular instance the proportions of the materials used were 1 part Portland cement, 4 part sand, 8 parts crushed stone and 2½ parts rough stone, 1 barrel of cement making 1.35 cubic yards of concrete. The walls were left rough as they came from the forms, except about the windows, which were finished off with cement and sand. A good finish can be given by plastering the surface with a mortar composed of 1 part Portland cement and 3 parts fine, sharp sand. In putting up walls of concrete the thickness naturally varies with the height. In one case a wall 45 feet high was 17 inches thick for the first 30 feet and 12 inches thick for the remaining distance, while others 16 to 25 feet high ranged from 10 to 12 inches in thickness.

In another instance, where the buildings were to be used as an electric power plant, cement concrete was used throughout the structure. The proportions were 1 part Portland cement, 2½ parts sand and 4½ parts broken stone for the piers and arches of the chambers in which the turbine wheels were placed, also for walls and their foundations and for the finishing layers of floors. The walls were made of concrete blocks laid in ashlar masonry, the blocks being molded in boxes and allowed to remain until set. Water tables, cornices, window courses and other special forms were molded separately to give them their full architectural effect. The roof was of concrete, reinforced with expanded metal, covered with asphalted paper and slag concrete. The outer casing of the chimney, which was 175 feet high, was of concrete with an inner lining of brick.

In building chimneys a special mold is used for putting the concrete in place. The mold is circular in form, one part encircling the chimney on the outside and the other being parallel to it on the inside. A scaffolding is erected inside the chimney to support vertical beams which extend about 5 feet above the top of the mold when it is at its lowest position and from which the mold is hung.

After being put in place the two sections of the mold are tightened by turnbuckles and the concrete is deposited between

them. After the concrete is set the turnbuckles are loosened and the form raised about 5 feet by means of wheels turning on threads on the supporting rods, after which the mold is clamped again and another section of the chimney made.

In the case of a church in Brooklyn constructed of concrete, the Ransome system was used, this consisting of twisted steel bars imbedded in the concrete to give additional strength. The rods ran both vertically and horizontally, and the concrete was deposited in molds about movable wooden core pieces, making a hollow wall. Strips were nailed on the molds to produce the effect of joints, and the desired face was given to the stones by the form of the surface of the mold, the finish being produced by the use of tools after the concrete had hardened.

A convention of the Canadian Society of Civil Engineers will take place in Montreal on January 27th, 28th, and 29th. The meeting will open at the Society's rooms, 877 Dorchester street. In the evening of the 27th there will be an illustrated lecture by Mr. Wallace C. Johnston on the development of Shawinigan Falls. On Tuesday the members will be the guests of the Shawinigan Water & Power Company, going down by special train. The general meeting and election of officers will take place on Wednesday.

JOHN GALT, C.E. & M.E.

MEM. CAN. SOC. C.E. AND C.E.A., ETC.
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Correspondence invited.

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