Volume 21. Toronto, November 2, 1911

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The Canadian Engineer

An Engineering Weekly

A REINFORCED CONCRETE STAND-PIPE.

Some notes on a reinforced concrete stand-pipe recently built at Westerly, R.I., and described in the September Proceedings of the American Society of Civil Engineers, by W. W. Clifford, will be of interest because of some methods of construction used for the first time, and also because of its appearance and water-tightness.

The general shape of this stand-pipe is shown by Fig. 1. The cement seemed to give the concrete a somewhat lighter color than usual, and this was increased by the lime which was added, the result being an almost white concrete. As steel forms were used, its surface was very smooth. The jointing seen in Fig. 2 is due to the fact that the forms were not absolutely water-proof at the joints, and the water running out caused a slight burr at the edge of each panel. The finishing tiles of the dome are dark red and glazed, and, forming a marked contrast with the light concrete, give a distinctly pleasing appearance.

The stand-pipe is founded on hardpan, which at this point is only 5 or 6 ft. below the surface. The inside diameter is 40 ft.; the height, from the floor to the overflow, is 70 ft., and from the ground to the top of the ventilator on the dome, is about 88 ft. The thickness of the wall at the floor is 4 ft., tapers to 14 in. at a height of 5 ft., and is of this thickness up to the water line. The wall, for the first 5 ft. above the ground, has an outside diameter of 44 ft. 4 in., then an ornamental moulding reduces it to 42 ft. 4 in., which is constant to the bottom of the triglyphs, 6 ft. below the water line. Just above this there is a fillet 6 in. deep and projecting 4 in. Above the water line there is a cornice 24 in. deep and projecting 30 in. This is surmounted by a parapet wall 4 ft. high. A Guastavino dome of red tile springs from a seat 2 ft. above the water line. Its diameter is 41 ft. and its rise 13 ft.

A steel ladder, 1 ft. wide, of ½ by 1½-in. flats and ¾-in. rounds, is secured by bronze bolts in cast-iron sockets with 1-in. bronze faces, set into the wall at 16-ft.6 intervals. The rungs are 12-in. from centre to centre, but this spacing is reduced to 6 in. through the opening in the cornice. The ladder was erected in 16-ft. sections, and the bottom is about 16 ft. from the ground. Over the parapet the flats are replaced by 1½ by 2½ by ¾-in. angles.

For construction purposes, a frame tower, large enough for a 1-yd. Ransome auto dump bucket, was placed so that it cleared the outside edge of the cornice by about 1 ft. This tower had 6 by 6-in. uprights, and was thoroughly cross-braced. A No. 2 Smith concrete mixer, run by steam, was set in a pit so that the materials could be conveniently dumped into the hopper from the ground. The mixer emptied directly into the bucket, which was run by a hoisting engine. The same boiler furnished steam for mixing, hoisting, and later, also, for pumping water to the top of the wall for washing it. The concrete for the foundation floor and base was hoisted about 20 ft. and dropped in a chute; one section of this chute carried the concrete from the tower to the centre of the tank, and from there a movable section delivered it in place.

An inside stage was used for all but the first few feet of the wall. The floor of this stage was framed of two rings

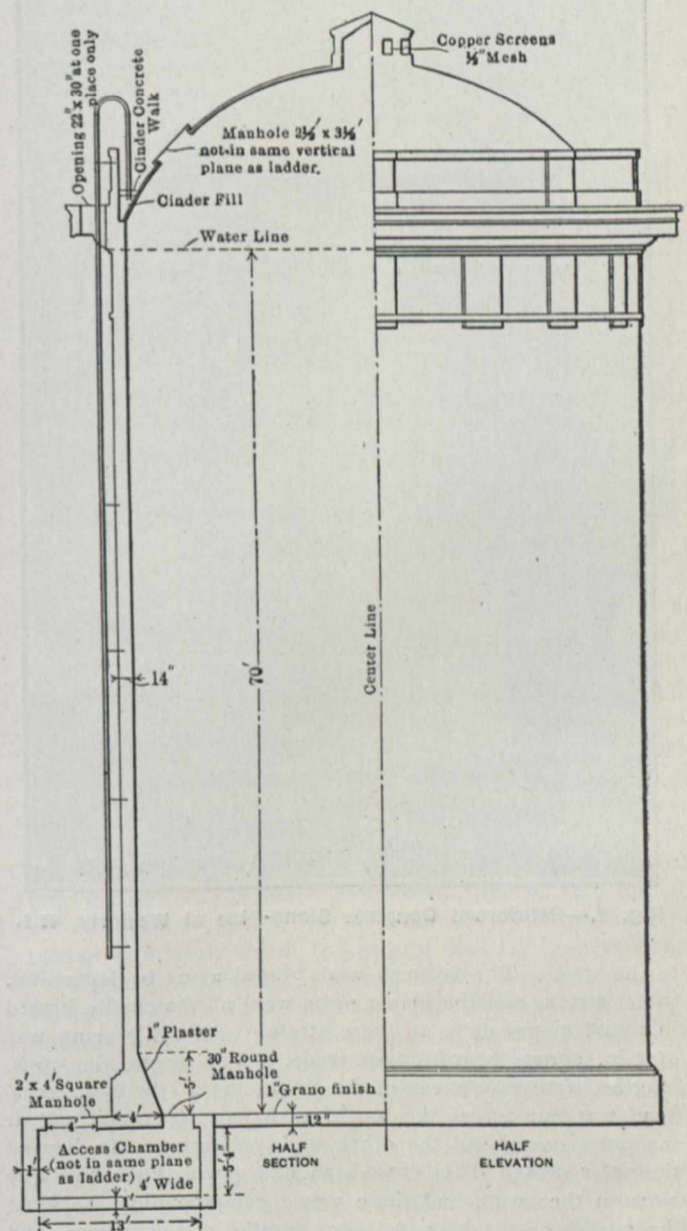

Fig. 1.

of 8-in., 11¼-lb. channels. These rings were 38 and 28 ft. in diameter, respectively, and were in four sections, bolted together with standard splice-plates, the splices being staggered on the two rings. Two braces, each consisting of two 6¼-in., 5-lb. channels, held parallel and 18 in. apart by bolts