

bar. When the work on the walls was first started, only one three-foot section of concrete could be poured in two days on account of the large amount of reinforcing steel which had to be placed. After a height of 24 feet was reached a three-foot section was poured each day. When the pouring of a section once started, it was finished regardless of the time required, the work frequently running well into the night on account of the difficulties encountered in raising the inside platform. Each pouring of a three-foot section required about three hours, 9 cubic yards of concrete being placed in that time. The concrete was mixed soft but not sloppy and was distributed in wheelbarrows in layers 12 inches thick, care being taken to equalize the pressure against the forms by uniform distribution. As soon as each pouring of a three-foot section was finished large V-shaped wooden keys were placed in the soft concrete. Before the pouring of another section was begun these keys were removed, the whole exposed surface of the concrete was wire brushed and washed, and the space occupied by the key filled to overflowing with 1:2 mortar.

As soon as the inside forms for each 6-foot section were removed, the inside wall was thoroughly wet and painted with a thick, neat cement grout.

Since the centre of the standpipe was occupied by the joint produced by the abutting radial floor joists, the walls were kept vertical by a centre secured through the use of a 30-inch wooden circular disk the exact size of a circle drawn upon and concentric with the concrete bottom of the standpipe. Three corresponding points 120 degrees apart were set on the disk and circle. The disk was then set in approximate position and adjusted accurately by shifting until plumb bobs dropped from the three points were directly above the corresponding points on the circle below. In order to dampen the plumb bob swing without hiding the three points on the floor circle, glass tumblers filled with water were placed over them.

The entire cornice and brackets are monolithic. The forms for this part of the work were supported on the tops of the outside verticals which were cut off at the proper height for this purpose. The tablets below the cornice were moulded on the ground, hoisted to position, and grouted into recesses left in the wall.

The construction force consisted of 1 foreman, 1 carpenter with 2 helpers, 1 driver with team, and 7 laborers. After the completion of the standpipe the outside was scraped, washed and painted with cement grout mixed with sufficient sand to make it spread readily. When the standpipe was first filled some leakage occurred, due to the development of fine vertical cracks in the concrete as the steel elongated under its working stress. This leakage has gradually decreased, until at present it is an immeasurable quantity. The total cost of the standpipe was \$6,000, \$500 of which amount was spent upon the cornice and ornamental work.

Concrete.—The gravel and sand used for the concrete occur mixed in the same bank which is located about two miles from the standpipe. The sand varies from rather fine to coarse. In order to secure as dense a concrete as possible for the amount of cement used, sufficient fine sand from a sand pocket in the gravel pit was added to fill the voids in the unscreened mixture of combined gravel and sand. Cement was then added to the proportions of 1 part of cement to 6.33 parts of the aggregate, the entire proportion being as follows: 1 part cement, 2.4 parts coarse sand, 3.6 parts gravel, 0.33 parts fine sand. All gravel and sand particles passing through a $\frac{3}{8}$ -inch mesh inclined screen were classed as coarse sand. The resulting concrete was very rich in appearance. Cut into some time after the erection of the standpipe, it was found to be hard and dense.

AMERICAN SOCIETY OF CIVIL ENGINEERS TO HOLD SUMMER MEETING AT OTTAWA.

It will doubtless interest a great many of our readers to know that the American Society of Civil Engineers intends to hold their summer convention at Ottawa from June 17th to 20th, inclusive. The headquarters of the convention will be Chateau Laurier. Members of the Canadian Society of Civil Engineers will be delighted to hear of this, and in all probability many of them will take advantage of this opportunity of meeting with fellow-engineers from across the border.

The American Society of Civil Engineers has its headquarters at 220 West 57th Street, New York, the secretary being Charles Warren Hunt, whom, we understand, has held that office since 1895. The society has approximately a total membership of 6,380, of which number about 160 are resident in Canada, located as follows:—

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