REINFORCED CONCRETE PONTOONS FOR A MODERN FLOATING BOATHOUSE.

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The universal presence of the "teredo" in the salt water of the ocean renders very short the life of wood used for supporting floating boathouses, etc. Likewise, steel pontoons require special surface coating and frequent inspection to ensure against their being corroded by the salt water.

In the design of the modern boathouse described below, concrete was used for the novel purpose of building the pontoons, as it is unaffected by either, if properly constructed. Fig. 1 shows the outside form assembled and the reinforcing in position. The walls and floor are only 2½ inches thick and consequently the design and installation of the reinforcing required great accuracy and care. Half-inch square bars were carefully bent to the shape of the shell, carried along the bottom and up the sides. These bars were spaced about 18 inches centres, and the ends of longitudinal ½-inch bars were carefully looped to accurately fit the ½-inch vertical bars. One of these bars was driven down with a sledge until it was 1 inch from the bottom on each side. A second bar was placed on the top on either side and across the ends. This

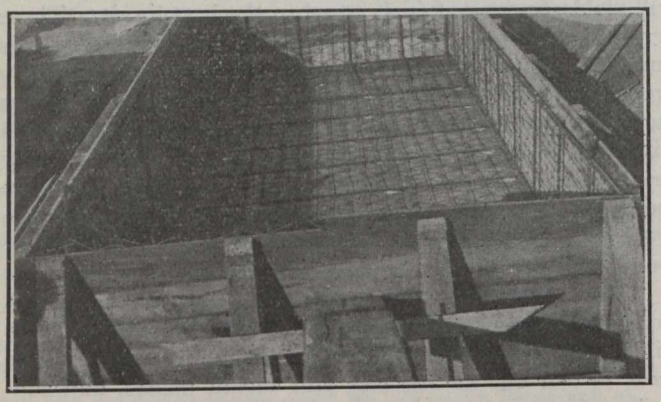

Fig. 1.—Pontoon Form Showing Reinforcing.

formed a very rigid skeleton steel frame of interlocked bars which could not be displaced, and which afforded ample support for fastening the intermediate bars in position. On this framework was carefully spread triangle wire mesh, style No. 26. The lengths were cut and formed so as to extend along the bottom longitudinally and up the two ends, and the sides were treated likewise. The wire mesh was carefully wired to ½-inch bars at every intersection. At about 20 inches from each end a special reinforcing bar had an eye welded to it, projecting above the top of the finished side wall. This enabled chain blocks to be applied for launching, and furnished means of attaching ropes for towing to the site of the boathouse.

This building is 100 feet long by 27 feet wide with a clear height of 17 feet 6 inches to the bottom of the roof truss. Calculations to ascertain its weight determined the most economical size of pontoon to be 16 feet long by 7 feet 6 inches wide and 30 feet deep.

Fig. 2 shows one of the finished pontoons in the water after launching. A centre partition was built into the side walls and floor and consisted of "ferro-dovetail" sheets with their ends projecting 1½ inches into the walls and plastered with concrete on both sides. This stiffened the walls and made two separate water-tight compartments.

For attaching the sills of the boathouse ¾-inch bolts, threaded at the ends, were set into the concrete about 3 inches off the centre of the pontoon, to which the 6-inch by 8-inch sills of the boathouse were bolted. This offset was calculated sufficient to withstand the extra weight of the roof slab and to cause the pontoon to float properly in the water.

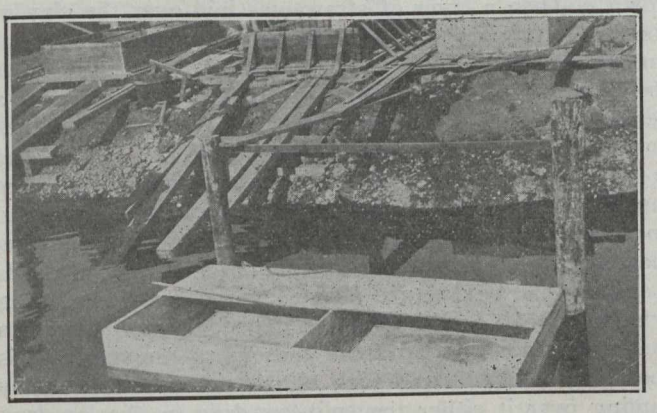

Fig. 2.—Finished Pontoon.

It may be noticed that the roof slab extends on one side only. Further, the end walls were cast with a 2-inch fall from the centre. This portion of the pontoon is outside the building line and the roof sheds the rain. The roof is made of "ferro-dovetail" sheets ⅝-inch in depth of groove, resting on the centre partition wall, and fastened to the ends and side by ⅜-inch carriage bolts placed in the green concrete. Both top and bottom of the sheets were then plastered with a 1:2 mixture. The finished roof slab was only 1¼ inches thick, but possessed remarkable strength and absolute watertightness.

In order to get all the buoyancy possible, every pound of unnecessary weight had to be eliminated. As constructed, the pontoons weighed about 8,000 lbs. and, on launching, floated to within ¼ inch of calculated water line. Each pontoon supports a live load of about 7,800 pounds.

The boathouse under description has 11 pontoons under it, five on each side and one on the forward end, while the other end of the building, containing the large swinging doors, as shown in Fig. 3, was tied together by a 1½-inch iron bar attached by galvanized bolts to the top of the pontoon, and passing between guide bolts set in the bottom, so as to distribute the load in a vertical plane. The horizontal part of the tie rod was 6 feet below water, allowing a yacht to pass over it in entering the boathouse.

The building is rigidly built, and the roof supported by trusses, both roof and walls being covered with a special V crimp, galvanized iron, with a panelled lattice running around the entire building. Manholes in the floor allow for inspection of the inside of the pontoons, which are used for storing light material used about the yacht. At one end it is held in position by a reinforced concrete pile 24 inches square, and by a floating boom attached to the shore at the other. A floating fender attached by spreaders to the sill was installed to prevent the yacht ramming the pontoons in making a landing alongside the boathouse.