

Description of the test for compressive strength:—As it is important that tests of the same Portland cement at different places should give corresponding results, it is necessary that the following rules be carried out.

To be exact, the means are to be taken from at least 5 briquettes prepared for each test.

Preparations of mortar briquettes.—Fabrications of the normal mortar (1:3) and of the briquettes for compressive tests:—

(a) **Mixing Mortar:**—Mortar made of one part of Portland cement to three parts of normal sand in weight is mixed in the Steinbrück-Schmelzer mortar mixer as follows: 400g. (14 oz.) of cement and 1,200g. of sand are mixed dry with a light spoon in a cup, for one minute; to the dry mixture is added the necessary quantity of water; the whole is then mixed for one minute more and the mass is equally spread in the mortar mixer and worked by 20 revolutions of the basin.

Dimensions of the Mixer

Weight, with ax'e kg.	Thickness, of the roller. without axle kg.	Diameter, c.m.	Distance from the middle plane of the roller to the centre of the basin c.m.	Space left free be- tween the roller and the basin c.m.
21.5-22.0	19.1-19.4	8.08	20.25-20.35	19.7-19.8
				0.50-0.60

(b) **Quantity of water to be added:**—The determination of the quantity of water to be added to normal mortar is obtained from a test with the briquette form as follows:

A dry mortar mixture, prepared as above, is mixed with 128g. (8 per cent.) of water for the first test, and, if necessary, with 160g. (10 per cent.) for the second test; the mixing is made in the mortar mixer as already explained.

850 to 860g. of this thoroughly mixed mortar is put in a form of which the cover carries 2 gutters on its lower face; the whole is placed in the Böhme ramming machine, improved by Martens, and 150 taps are given on top of mortar.

The correct quantity of water is judged from the behaviour of the mortar under the ramming and that quantity is modified accordingly for subsequent tests.

When the proper quantity of water has been added, the mortar begins to flow through one of the gutters between the 90th and the 110th blow.

The mean of three tests on briquettes containing an equal quantity of water gives a result considered as conclusive. The mortar flows out more slowly from a dry form than from a form already used, therefore, the results obtained when using the mould for the first time may be inaccurate.

(c) **How to make briquettes:**—The preparation of normal mortar briquettes shall be as follows:

850 to 860g. of mortar, mixed as indicated above, is to be put in the normal cubic form and placed in the Böhme ramming machine, improved by Martens, in which it receives 150 taps.

A knife is then drawn over the mould and the briquette face, made smooth, is marked.

The quantity of mortar obtained with 400g. of Portland cement and 1,200g. of normal sand is sufficient for two briquettes. These briquettes are to be kept in a moist closet, resting on a non-absorbent material, and are to be taken out of the moulds after 20 hours; 24 hours after their completion the briquettes are immersed in water at 15 to 18° C.

The briquettes prepared for hardening under water must only be taken out of water at the time of the test. They should not be covered with more than 2 cm. ($\frac{3}{4}$ in.) of water, same being renewed at least every 14 days. The briquette prepared for hardening in the air must be kept separate and resting on wooden tripods in a closed room sheltered from draught and at a temperature of from 15 to 30° C.

How to handle the briquettes when testing:—When testing, in order to obtain uniform results, the pressure shall be always applied on the lateral faces of the cube, but neither on the lower face nor on the upper one which has been more completely worked.

The mean of 5 tests gives the compressive strength of the cement.

INGLIS COMPANY LAUNCH FINE BOAT.

The John Inglis Company, of Toronto, launched the Rapids Prince, a new passenger steamer for the Richelieu and Ontario Navigation fleet, Saturday last. The hull was built for the John Inglis Company by the Toronto Shipbuilding Company. The boat was designed by the Richelieu and Ontario Navigation Company's engineers. It draws six feet of water; length, 205 feet; beam breadth, 43 feet 6 inches; depth of hull, 9 feet 6 inches. The boat is licensed to carry twelve hundred passengers. It is a sister ship to the Rapids King and the Rapids Queen, owned by the same navigation company.

The Rapids Prince carries twin screw triple expansion engines with cylinders $12\frac{1}{2}$ inches, 20 inches, and two 22 inches diameter, by 16 inches stroke. Steam is supplied by one Scotch boiler, 14 feet 8 inches in diameter, 12 feet long, with the Howden system of forced draught and a working pressure of 170 pounds. There are six feed pumps and a vertical jet condenser.

There are a number of water-tight compartments, and also the steel hull is sheathed on the bottom with four inches of oak to protect it in going through the rapids. The boat is equipped with steam and hand-steering apparatus. It is lighted with electric light supplied by a Westinghouse direct connected 22 kilowatt generator of 250 volts. The main deck is of steel and above this are three wooden decks. There will be fifty-six state rooms, all of which have outside windows. The salon between the state rooms will be finished in white pine panels. On the main deck will be an entrance hall with stair-case to salon above, while the dining hall will be located directly at the top of the stairs. Both the hall and dining room will be finished in red oak.

Below the main deck are the crew's quarters, waiters' rooms, and a completely equipped pantry and kitchen. The pilot house is on the top deck, together with the officers' rooms, a large observation room and the usual lunch counters, etc. The state rooms are fitted with hot and cold running water throughout.

The vessel was christened by Mrs. Rodolphe Forget, wife of the president of the Richelieu and Ontario Navigation Company. It will be completed about July 15th, when the trial trip will be made, after which the boat will be used between Prescott and Montreal on the St. Lawrence River. Among the directors and officials of the Richelieu and Ontario present at the launching were Messrs. Rodolphe Forget, William Wainwright, George Caverhill, Major Haig Sims, H. Markland Molson, Honorable Senator Casgrain, Sir Henry M. Pellatt, General Manager C. J. Smith, Traffic Manager Thomas Henry, Mechanical Superintendent Captain G. Johnston, and Assistant General Passenger Agent H. Foster Chaffee.

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