

Fig. 41—Effect of Rate of Rotation of Mixer Drum on Strength of Concrete

Series 93—28-day tests similar to Fig. 40.

of the mixer is the factor which controls the amount of work done. Unfortunately, many contractors interpret a 1-minute mix requirement in the specification as meaning 60 seconds if materials happen to be moving slowly, and 10 to 30 seconds when materials are being delivered as intended.

It is folly to insist on a few seconds' increase in mixing time beyond the 1-minute period until more attention has been given to reducing the mixing water within proper limits; especially since we have seen that the wet mixes show decidedly less benefit from continued mixing than the drier ones. A statement made above will bear

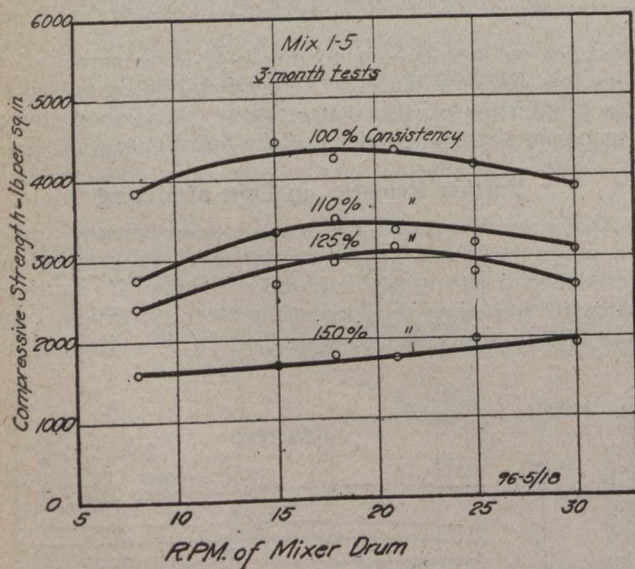


Fig. 42—Effect of Rate of Rotation of Mixer Drum on Strength of Concrete

Series 93—3-month test similar to Figs. 40 and 41.

repetition, namely: No reasonable increase in the mixing time will compensate for an excess of water in the batch.

Wear Tests of Concrete

Wear tests of concrete were made at the age of 2 months in Series 89 on a 1:4 mix, aggregates consisting of gravel graded 0-1 1/4 ins. This mix conforms closely to that generally used in concrete road construction. The blocks were stored in damp sand until two days preceding the test, when they were removed to the open room and permitted to dry out. This was done in order that the loss in weight of the blocks during the test might not

influence the indications. The wear of the concrete was determined on the basis of the loss in weight during the test. The loss of weight was reduced to the equivalent depth of wear. This seems to be a better measure of the wear, since the loss expressed as a percentage of the weight would be greatly influenced by the original thickness of the block, the unit weight of the aggregates, etc.

In Fig. 11 the influence of the time of mixing on the wear of concrete is shown for the average of six consistencies. The wear increases very rapidly as the mixing period is reduced below about 1 minute. For mixing

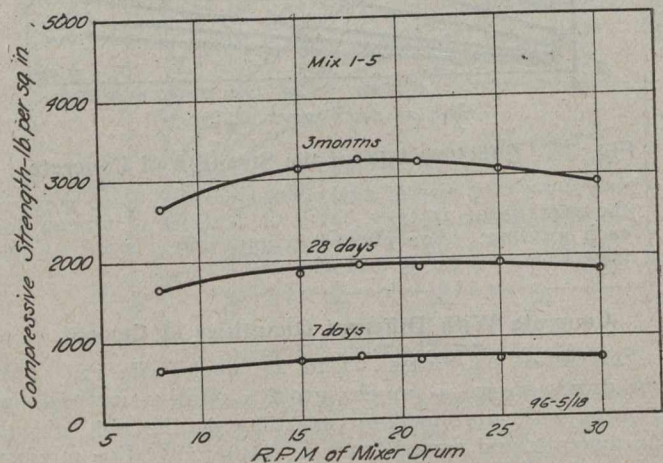


Fig. 43—Effect of Rate of Rotation of Mixer Drum on Strength of Concrete

Series 96—Each curve is the average of all consistencies for a given rate.

periods between 2 and 10 minutes there was practically no variation in the wear. The average wear ranged from 0.65 in. for the longer periods of mixing to 0.9 in. for 15-second mixing. It should be borne in mind that in Fig. 11 the six consistencies were averaged.

Fig. 12 shows the influence of water ratio of the concrete on the wear. Here the tests at different times of mixing are averaged. The average wear in this case ranges from 0.55 to 1.1 ins., being highest for the wet mixes. The influence of water on wear is approximately the reverse of that found for the strength. Fig. 13 was platted from the curve in Fig. 12. The influence of water

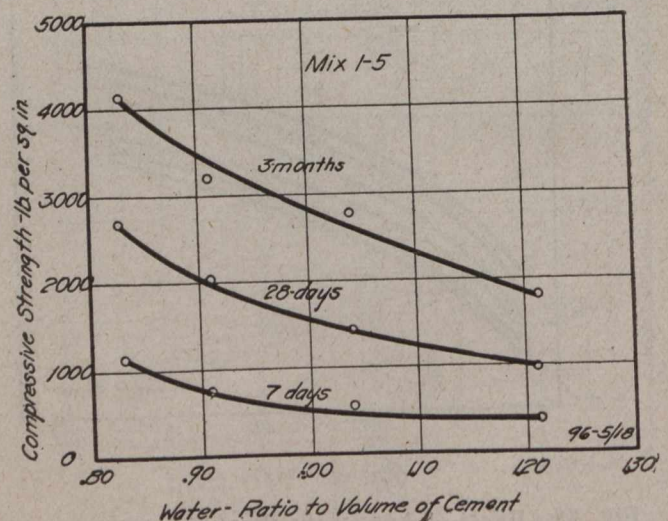


Fig. 44—Influence of Water on the Strength of Concrete

Series 96—Each point is the average of all rates of rotation for a given consistency. Compare Figs. 7, 9, 31, 33 and 52.