

SPECIFICATIONS FOR READY-MIX CONCRETE1031. 1. DESCRIPTION

The work will consist of supplying concrete premixed in a plant or mixed in transit, or both, and delivered to the site. This concrete will hereinafter be referred to as "ready-mix" concrete. The "Specifications for Reinforced Concrete" shall govern in all respects unless otherwise indicated in this specification.

1031. 2. CONTRACTOR'S CHOICE AND RESPONSIBILITY

By inclusion of this Specification in the Contract, the Department does not stipulate that "ready-mix" concrete must be used. It shall be strictly the Contractor's own choice. If the Contractor decides to use "ready-mix" concrete, then it shall be supplied in accordance with the Specifications herein contained.

The Department may place an Inspector at the "ready-mix" plant, and all instructions given to the "ready-mix" supplier at the plant or at the site shall be assumed to have been given to the Contractor. Where practical, there shall be a telephone communication between the site and the plant. The Contractor shall assume the responsibility for all actions of the supplier and under no circumstances will the Department enter into any separate negotiations with the supplier.

1031. 3. MATERIALS

Cement will be released to the Contractor after the completion of the mixing and placing of all the concrete. On large jobs, and at the request of the Contractor, progress releases may be made. The Contractor shall keep a detailed record of all cement used and shall submit a copy of this record to the Engineer at the end of each pour.

1031. 5. EQUIPMENT

5.1 Proportioning Plant

- (a) The plant shall be equipped to proportion, by mass, the cement, fine aggregate and coarse aggregate. Separate bins or compartments shall be available for each nominal size and type of aggregate, as well as for the cement.

All scaling devices shall be tested and approved for accuracy prior to the commencement of batching operations and the devices shall be subject to testing by the Engineer at any time. The standard masses used for the testing of the scaling devices shall be supplied to the Engineer on request. No adjustments to scaling devices shall be made without the Engineer's approval.

- (b) Water shall be measured by volume or by mass. The device for the measurement of the water shall be readily adjustable and under all operating conditions, shall be accurate to within 1% of the quantity of water required for the batch. The device shall be so arranged that the measurements will not be affected by variable pressures in the water supply line.

The water measuring equipment shall be checked regularly and shall be subject to a check by the Engineer at any time. Means of checking the water measuring equipment shall be made available to the Engineer on request.

1031. 5. EQUIPMENT (Cont'd)

5.1 Proportioning Plant (Cont'd)

- (c) Air entraining agent, retarding agent and cement dispersing admixture shall be measured by means of mechanical dispensing equipment. The dispensing equipment, as well as the consistency of the agents and admixtures, shall be checked regularly. Means of checking the dispensing equipment and the consistencies shall be made available to the Engineer on request.

5.2 Mixers and Agitators

- (a) Mixers may be stationary mixers or truck mixers. Agitators may be truck mixers or truck agitators. Each mixer and agitator shall have attached by the manufacturer in a prominent place, a metal plate or plates on which it is plainly marked the various uses for which the equipment is designed, the capacity of the drum or container in terms of the volume of concrete that can be mixed or agitated and the speed of rotation of the mixing drum or blades. Stationary mixers shall be equipped with an acceptable timing device that will not permit the batch to be discharged until the specified mixing time has elapsed.
- (b) The Engineer may, from time to time, make slump tests of individual batches in order to determine the uniformity of the concrete consistency at approximately one-quarter and three-quarter points of the load. If these tests indicate a variation in the slump exceeding 50 mm, the mixer or agitator shall not be used until the condition is corrected.
- (c) Mixers and agitators shall be maintained in good mechanical condition and no accumulation of hard concrete or mortar will be permitted. Blades shall be replaced when any part or section is worn 25 mm or more below the original height of the manufacturer's design.

1031. 7. MIXING AND DELIVERY

- (a) "Ready-mix" concrete shall be mixed and delivered by means of one of the following operations:
 - (1) Mixed completely in a stationary mixer and the mixed concrete transported to the point of delivery in a truck agitator or in a truck mixer operating at agitating speed.
 - (2) Mixed completely in a truck mixer.

No concrete shall be mixed and delivered without first obtaining the approval of the Engineer.

- (b) Mixers and agitators shall be operated within the limits of the capacity and speed of rotation as designated by the manufacturers of the equipment.
- (c) When a truck mixer or agitator is used for transporting concrete, the concrete shall be delivered to the site and the discharge of the concrete shall be completed within 1.5 h after the introduction of the mixing water to the cement and aggregates, unless a longer time is specifically authorized by the Engineer. Each batch of concrete delivered to the site shall be accompanied by a time slip issued at the batching plant, bearing the time of departure. In hot or cold weather, or under conditions contributing to quick stiffening of the concrete, a time less than 1.5 h may be specified by the Engineer.

1031. 7. MIXING AND DELIVERY (Cont'd)

In hot weather, in order to avoid a reduction in the delivery and discharge time of 1.5 h, crushed ice may be substituted for a portion of the mixing water. All the ice shall be melted completely before discharging any of concrete at the delivery point.

The concrete, when discharged from truck mixers or truck agitators, shall be of the consistency and workability required for the job without the use of additional mixing water.

A record of the actual proportions used on any one pour shall be kept by the Contractor and a copy of this record shall be submitted to the Engineer after each pour.

1031. 9. INSPECTION AND REJECTION

Proper facilities shall be provided for the Engineer to inspect the ingredients and processes used in the manufacture and delivery of the concrete. The Contractor shall supply to the Engineer all reasonable facilities, without charge, for securing samples in order to determine whether the concrete is being furnished in accordance with these Specifications.

Truck loads of concrete that do not meet the specified requirements will be rejected by the Engineer and his decision will be final.

Furthermore, if loads are frequently rejected, the Department may, on 24 h notice, refuse permission for further use of "ready-mix" concrete. The Department will not pay for or replace the cement in rejected loads.

1031. 11. BASIS OF PAYMENT

The supply of "ready-mix" concrete will be considered incidental to the Contract Unit Price for "Mixing and Placing Concrete" and not separate payment will be made for this work.