

ENGINEERING DIRECTIVE

Frank Tramontozzi (signature on original)

CHIEF ENGINEER

Procedures for the Use of Concrete Produced by Volumetric (Mobile) Concrete Mixers

General

This Directive provides guidance and procedures to be followed for use of Volumetric (Mobile) Concrete Mixers on MassDOT Highway Division facilities or on MassDOT Highway Division projects. The MassDOT Highway Division will only permit the use of Mobile Concrete Mixers when all of the procedures in this Directive are adhered to.

Upon written request by a Contractor, the District Construction Engineer may approve the use of concrete proportioned by a Mobile Concrete Mixer for the following purposes: to produce concrete for backing curb stones or to produce concrete for setting castings. No other use of concrete proportioned by a Mobile Concrete Mixer shall be allowed. This Directive does not apply to latex modified concrete.

All cement concrete materials, concrete handling, placement, protection, curing, and finishing requirements of the *Standard Specifications for Highways and Bridges* shall apply. MassDOT approved Mobile Concrete Mixers will be listed on the Pre-Qualified Material Producers List (with serial number) and shall meet all the requirements of ASTM C685 and be currently registered with the Volumetric Mixer Manufacturers Bureau (VMMB).

Pre-Qualification of Mobile Concrete Mixers

Each Mobile Concrete Mixer used on MassDOT Highway Division projects shall be pre-qualified as follows. All Mobile Concrete Mixers are required to have a Quality System Manual (QSM) that conforms to the format outlined in AASHTO R-38 and that adequately addresses the information specified in AASHTO R 38. The QSM shall be approved by the Research & Materials Section annually. A copy of the approved QSM shall be kept with the Mobile Concrete Mixer and made available to the Engineer upon request. The Quality Control procedures for concrete production contained in the approved QSM shall be adhered to for all placements.

Research & Materials Section personnel will witness calibration or verification of equipment and pre-qualification sampling and testing of concrete ingredients performed for each Mobile Concrete Mixer. Pre-

qualification of each Mobile Concrete Mixer will be issued on an annual basis by the Research & Materials Section.

Concrete mix design and trial batches shall be preapproved by the Research & Materials Section annually.

Project Quality Control Plan

For any project where a Mobile Concrete Mixer is proposed to be used, the Contractor must prepare and submit a project-specific construction Quality Control Plan (QC Plan.) The QC Plan shall conform to the format and content detailed in the Northeast Transportation Training and Certification Program (NETTCP) Model QC Plan (December 2009, or latest edition). Information contained in relevant sections of the approved QSM for the proposed Mobile Concrete Mixer may be referenced, rather than repeated, in applicable sections of the QC Plan (e.g. Materials Control, Production Facilities.) The QC Plan shall be submitted to the Engineer a minimum of 30 days prior to proposed placement of concrete by Mobile Concrete Mixer. The District Construction Engineer and the Research & Materials Section will review the QC Plan. The Contractor shall not place any concrete by Mobile Concrete Mixer prior to approval by the Research & Materials Section.

Concrete Delivery Requirements

Each concrete delivery shall be accompanied by a Certificate of Compliance with test results for all constituent materials used (i.e. cementitious materials, fine and coarse aggregates, water, and admixtures.) A signed batch ticket printout from the printer mounted on the Mobile Concrete Mixer truck indicating that the mix batched is in conformance with the mix design previously approved shall also be provided to the Engineer prior to discharging concrete. After each use of the Mobile Concrete Mixer a copy of the Certificate of Compliance and the signed batch ticket shall be sent to the Research & Materials Section.

Field Placement Requirements

Quality Control inspection, sampling and testing, including but not limited to slump, air, temperature and cylinders for compressive strength, shall be performed by the Contractor in accordance with the approved QC Plan. The Engineer will perform Acceptance sampling and testing per the current MassDOT Guide Schedule for Sampling and Testing Materials, as well as Acceptance inspection for materials and workmanship attributes.

The use of Mobile Concrete Mixers is prohibited when the ambient temperature is expected to drop below 40° F within 7 days prior to the anticipated concrete placement. The Engineer may suspend or revoke approval of the Mobile Concrete Mixer at any time the unit fails to produce uniformly mixed concrete within the quality limits specified.