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Executive Summary

Comparative Testing – Volumetric versus Drum Truck

In July of 2010, the Volumetric Mixer Manufacturers Bureau (VMMB) initiated a study to compare the quality of concrete produced by means of a volumetric mixer as compared to drum mixed concrete. A third party engineering testing firm was used to conduct field and laboratory tests and draft a report. A final report was stamped by a professional engineer and completed in March of 2011.

Both drum mixed concrete and volumetric mixed concrete were produced by using raw materials from the same source, with an identical mix design. The concrete was produced in accordance with ASTM C94 and ASTM C685 respectively. Materials used in all concretes were reported to be similar.

All concrete field tests were performed by American Concrete Institute (ACI) certified technicians. The concrete was tested for slump (ASTM C143), air content (ASTM C231), temperature (ASTM C1064), unit weight (ASTM C138) and compressive strength cylinders (ASTM C31) were molded, from each of four quarters of both the volumetrically mixed and drum mixed concrete.

Compressive strength specimens were tested following procedures in ASTM C39 and ASTM C617 at 7 days, 28 days and 56 days age.

The author of the report concluded the compressive strength of the volumetrically mixed concrete had a marginally higher strength gain at all three test ages as compared to the drum mixed concrete at similar water cement ratios. The author also states, “Based on the field and laboratory test results it appears that the volumetric and drum mixed production methods produce similar results when similar materials are used to produce concrete within a specified slump, air content and water cement ratio”.

A copy of the full report, including field and laboratory test data, can be found at the website of the Volumetric Mixer Manufacturers Bureau. (vmmb.org)