506 APPENDIX A

Volumetric Concrete Mixer Inspection Checklist

Is a Quality Control Manual available as described in 506.10

Yes  No

Is the VMMB rating plate 100-1 affixed to mixer? (Verify the truck is produced by a certified manufacturer)

Yes  No

Is the scale used for calibrations of equipment certified to be accurate to 2 lbs or ± 0.20% throughout its range of use. (This must be done by an independent calibration company.)

Yes  No

Cementitious Materials

Are the bins free of damage and preventing intermingling with other materials?

Yes  No

Are the cementitious feed pipes/and or bins designated?

Yes  No

Has the cementitious delivery system been verified accurate to within 4% for a sample mass of 75 lbs minimum. Annual verification must be by an independent NRMCA certified Batch Plant inspector. Five trials to be completed on cementitious materials for calibration.

Yes  No

Aggregates

Has each type of aggregate been provided its own storage bin with no intermingling between bins?

Yes  No

Has the aggregate delivery system been verified accurate to within 4% by mass for a sample mass of 75 lbs. minimum. Annual verification must be by an independent NRMCA certified batch plant inspector. Five trials to be completed on the high gate setting and five trials to be completed on the low gate setting for aggregate material calibration.

Yes  No

Mix Water

Has the water delivery system been verified accurate to within 2% by mass or volume. Minimum 10 gallon sample mass. Annual verification must be by an independent NRMCA certified batch plant inspector.

Yes  No
Admixtures

Are the storage tanks and dispensers protected from contamination? Yes  No

Has the admixture delivery system been verified accurate to within 6% by mass or volume\(^1\). Annual verification must be by an independent NRMCA certified batch plant inspector. Sample size must be 16 to 32 oz.

Uniformity of Batching

Minimum of 1 cubic yard of concrete to be batched. Obtain first sample after a minimum of ¼ cubic yard of concrete has been run out of the mixer. Obtain the second sample after at least ¾ cubic yard of concrete has been batched and at least ¼ cubic yard of concrete has been run out after restarting the machine if stopped in between samples. Shortly after running a batch of concrete and without cleaning the belts or chute of the volumetric unit, call for a batch of one quarter of a cubic yard of concrete. Direct the chute of the truck so that the placement of the concrete fills a box that has the inside dimensions of 3 feet by 3 feet by 10 inches to a tolerance of 1/16 of an inch in each dimension. Mark the sides from bottom up at 8 ½ and 9 ½ inches. The leveled concrete must fall between the marks. (The box must be sitting on a level surface to within 0.5 degrees.)

Recommended mix has 460 lb per yard of cementitious content, a slump of 4 inches ± 1.5 inches and one inch nominal maximum size of aggregate. Test for slump, air content, unit weight, and cast three cylinders from each sample. In addition, using the concrete of a known mass from the unit weight test, wash the sample over a #4 sieve removing the cement and most of the sand. Dry to a constant mass and determine the mass of the dry coarse aggregate as a percent of the original sample using the following equation.

\[
P = \left( \frac{C}{B} \right) \times 100\]

Where:
- \(P\) = % mass of coarse aggregate
- \(C\) = dry mass of aggregate retained on #4 sieve
- \(B\) = mass of sample of concrete

Tests must be performed by a TTQP CTT certified technician independent of the company. Tests must meet the requirement of table 1.

Table 1: Requirements for Uniformity of Concrete
<table>
<thead>
<tr>
<th>TEST</th>
<th>Range of 2 Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Content % (Minimum 4 % air)</td>
<td>1.0</td>
</tr>
<tr>
<td>Unit Weight</td>
<td>3 lbs.</td>
</tr>
<tr>
<td>Slump</td>
<td>1.5 in.</td>
</tr>
<tr>
<td>Coarse Aggregate % by mass</td>
<td>6.0</td>
</tr>
<tr>
<td>7 day compressive strength %</td>
<td>7.5</td>
</tr>
<tr>
<td>Yield Test</td>
<td>single test</td>
</tr>
</tbody>
</table>

**Records**

Each concrete mobile unit shall be provided with a chart unique to that vehicle derived from gate opening calibrations correlated to meter counts for each mix design. The recording system must permanently record meter counts in such a manner that both the quantity and quality of concrete delivered may be determined.

**Delivery tickets must include:**

- Name of producer
- Date and serial # of ticket
- Truck #
- Volume of concrete in cubic yards
- Concrete mix ID
- Weights of individual cementitious materials
- Weights of individual aggregates
- Quantities of Water
- Quantities of Admixtures

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Calibration Procedures: Five consecutive trials must be within the range of the given tolerances based on lbs./count for solid masses or oz./count for liquids.