Section 5
Inspection and Certification
Of
Delivery Vehicles

This section is pertinent to Certification of Delivery Vehicles in:
Quality Control Manual – Section 3

Certification of Ready Mixed
Concrete Production Facilities

Obtain a copy of QC Manual Section 3 for Certification of the Production Facility
5. DELIVERY FLEET INSPECTION

General
The Company has the following two options for the inspection of the delivery fleet:

Option A – In-house inspection of delivery fleet and review of records and procedures by the Inspecting Engineer

Option B – Inspection of delivery fleet by the Inspecting Engineer

Truck mixers, agitators and nonagitating units used to deliver concrete from the plant will be evaluated and qualified as acceptable or unacceptable regarding conformance with the requirements given in 5.1, 5.2 and 5.3 respectively. Agitators and non-agitating units are permitted only for central mixing operations. Certification will not be granted if:

1) For a truck-mixing or shrink-mixing operation, 10 percent or more of the total truck mixers are listed as unacceptable; OR
2) For a central-mixing operation, 10 percent or more of the total agitators and nonagitating units are listed as unacceptable.

It is assumed that purchasers of concrete will forbid delivery in units that are allowed to remain defective but will permit use of new units added to the fleet or of units restored to acceptable condition subsequent to execution of the check list. It is assumed that units qualifying as truck mixers will also qualify as agitators.

Option A – Delivery Fleet Inspection by the Company

This option is provided to allow inspection of the delivery fleet as a part of the routine maintenance and quality control program of the company and to avoid the necessity for the Inspecting Engineer to physically inspect all delivery vehicles in a very short time period. For this reason the program must be under the direction and supervision of a responsible Company Official who monitors and routinely participates in the vehicle inspection process to ensure that established company policies are followed in the process. The personnel inspecting delivery vehicles shall be under the supervision of the company official or on contract with the company.

A Statement of Qualifications shall be maintained for all personnel involved in the delivery vehicle inspection process and shall include:

a) Name and present company title.
b) Date of preparation of the Statement of Qualifications.
c) Years of service with the present company.
d) Job titles and dates of service of prior positions held within the company.
e) Years of service with other companies that produce ready mixed concrete, concrete contractors, testing laboratories, or other companies that provide experience with concrete technology and concrete construction.
f) Training related to concrete production, equipment maintenance, technology, or construction.

The Statement of Qualifications for all personnel involved with delivery vehicle inspection shall be provided to the Inspecting Engineer during the inspection of the production facility. The Inspecting Engineer shall interview the personnel and witness a demonstration of inspection procedures on two mixers or agitators that have seen significant use and if previously inspected are in the latter half of their 14-month inspection period.

Note 19: The demonstration of delivery vehicle inspection procedures is an essential requirement to assure the Inspecting Engineer that defective units that adversely affect the quality of delivered concrete are properly identified and corrective actions, if any, are made. The inspecting engineer may waive the demonstration in lieu of previous experience or knowledge of the Company’s personnel and procedures.

Designees of the Company Official must evaluate all units of the delivery fleet used to deliver concrete from the plant for conformance with the requirements in Sections 5.1, 5.2 and 5.3, as appropriate. The inspection for each vehicle shall be documented on the Inspection Record of Delivery Fleet (Section 5.6). The personnel conducting the inspection shall initial all pertinent items and sign and date the form. The date shall reflect the date of inspection of the specific vehicle. The company official shall also sign this form.
A completed and signed Inspection Record of Delivery Fleet (Section 5.6) shall be sent to NRMCA for issuance of Delivery Fleet Certification Sticker for each delivery unit. A certification sticker will be issued by NRMCA with a unique sticker number and expiration date indicated. The expiration date on the sticker will be 14 months from the date of inspection of the specific unit. The sticker shall be applied to the driver side door of the delivery unit. The Company shall retain a copy of the Inspection Record of Delivery Fleet for each delivery unit with the sticker number and expiration date.

**Note 20:** The 14 month period is used to allow some flexibility in complying with a nominal 1-year inspection period and to allow for sufficient time to order stickers.

On re-certification of a production facility the Inspection Record of Delivery Fleet must show that the truck mixers and agitators have been re-inspected at the required 14-month interval and maintained in compliance with requirements since the previous certification of that facility or within the previous 2 years, whichever is less.

The company shall maintain a Summary of Fleet Condition (Section 5.7) for review by the Inspecting Engineer during the inspection of the production facility. The Summary of Fleet Condition shall be maintained on file for the period of certification.

When the company has several production facilities in an area where delivery vehicles are batched from different plants on the same or different days it will be necessary to include all trucks that might be used at the plant in question on any given day in the Summary of Fleet Condition. When trucks are rented from others they must be inspected prior to use if they are to be batched from the plant in question. If they are to be used for more than a 1-month duration they must possess a certification sticker.

**Note 21:** If some or all of the trucks have been used in a previously certified plant they will already have been inspected and will have stickers on the driver-side door with an expiration date.

Inspections of delivery vehicles by State Highway or other agencies may be used as a basis for applying for NRMCA stickers, if those inspections include all of the items required by this checklist.

At the time of inspecting the production facility, the Inspecting Engineer shall accomplish the following:

- a) Review the records of vehicle inspection, including the Inspection Record of Delivery Fleet for each unit and the Summary of Fleet Condition.
- b) Review the Statement of Qualifications for the personnel conducting the vehicle inspection.
- c) Interview the personnel conducting the vehicle inspection and witness the demonstration of vehicle inspection of at least two units.
- d) Ensure that the company has obtained or has requested stickers for each vehicle from NRMCA.
- e) The stickers are, or will be, attached to the driver-side door of the delivery vehicle. The sticker identifies the truck number and an expiration date, which is not more than 14 months after inspection date of the vehicle.
- f) Complete 5.4 of the checklist.

**Option B - Delivery Fleet Inspection by the Inspecting Engineer**

The inspecting engineer shall conduct the inspection of the all units of the delivery fleet used to deliver concrete from the plant for conformance with the requirements of 5.1, 5.2 and 5.3 as appropriate. Each unit will be listed in either the acceptable of unacceptable category of the appropriate section of the Summary of Fleet Condition (Section 5.7), which shall be returned with a completed check list for the production facility. NRMCA will issue a sticker for each acceptable unit listed with an expiration date indicated. The expiration date on the sticker will be 14 months from the date of inspection. The company shall attach the sticker to the driver side door of the delivery unit.

Since the certification of the concrete production facility is valid for a period of 2 years, the vehicles shall be re-inspected during the certification period of the production facility to maintain its certification status.

The inspector shall complete Section 5.5 of this checklist.
5.1 Truck Mixers

**Definition:** Concrete mixers mounted on trucks or other vehicles, used for the complete mixing of concrete ingredients after they have been batched at the plant.

Each acceptable truck mixer shall conform to the following requirements:

5.1.1 Interior condition satisfactory: no appreciable accumulation of hardened concrete; blades free of excessive wear. Blade wear shall be checked at the point of maximum drum diameter nearest to the drum head. When the height of the blade at this point, measured from the drum shell, is less than 90 percent of the original radial height (dimension “X” in sketch of applicable blade type), the blade is considered excessively worn. The manufacturer of the mixer will furnish original blade dimensions on request.

5.1.2 Charging and discharge openings and chute in good condition: free from appreciable accumulations of cement or concrete; hopper and chute surfaces clean and smooth.

5.1.3 Drum or container of such size that the rating as a mixer (in volume of mixed concrete) does not exceed 63 percent of the gross volume of the mixer, disregarding blades. (This requirement is met by all mixers carrying a rating plate of the Truck Mixer Manufacturer Bureau.)

5.1.4 Provided with a plate showing the mixer manufacturer’s recommended operating speed for mixing, which must be in the range of not less than 4 nor more than 22 rpm; demonstrated capability to operate satisfactorily a speed within recommended range.

5.1.5 Equipped with a counter in working condition to indicate the number of revolutions of the drum or blades.

5.1.6 On units equipped to batch mixing water, equipment to be in proper working condition: gage glasses or water meters clean and legibly graduated; water pump or injection system in good working order with nozzles unobstructed and without leakage into mixer; water measurement spot-checked and found accurate within ±1 percent of mixing water capacity or ±1 gallon (Note 5, page 4), whichever is greater.

5.2 Agitators

**Definition:** Drums or containers, mounted on trucks or other vehicles, in which central-mixed concrete is kept sufficiently in motion during delivery to prevent segregation.

Each acceptable agitator shall conform to the following requirements:

5.2.1 Interior condition satisfactory: no appreciable accumulation of hardened concrete.

5.2.2 Charging and discharge openings and chute in good condition: free from appreciable accumulations of cement or concrete; hopper and chute surfaces clean and smooth.

5.2.3 Drum or container of such size that the rating as an agitator (in volume of mixed concrete) does not exceed 80 percent of the gross volume of the container, disregarding blades. (This requirement is met by all units carrying a rating plate of the Truck Mixers Manufacturers Bureau.)

5.2.4 Provided with a plate showing the mixer manufacturer’s recommended maximum agitating speed which must not exceed 6 rpm; demonstrated capability to operate satisfactorily at the recommended speed.

5.2.5 Equipped with a counter in working condition to indicate the number of revolutions of the drum or blades.
5.3 Nonagitating Units

**Definition:** Containers, mounted on trucks or other vehicles, for delivering central-mixed concrete, not constructed or equipped to keep the mass of concrete in motion in the container.

Each acceptable nonagitating unit shall conform to the following requirements:

5.3.1 Interior surface smooth and watertight, with rounded corners.

5.3.2 Gates or other means provided to control the concrete discharge.

5.3.3 Interior free from excessive accumulation of hardened concrete and from other obstruction or deterioration sufficient to interfere with proper discharge of concrete.

5.4 Option A – Delivery Fleet Inspection by the Company

5.4.1 The delivery fleet inspection records show that not more than one unit or 10 percent of the units, whichever is greater, to be used at the plant fails to meet requirements.

5.4.2 The delivery fleet used on a normal business day during the period when the plant facilities are being inspected demonstrate compliance with requirements.

5.4.3 The Company maintains records that indicate compliance with the requirements of this checklist for the inspection of delivery vehicles.

5.4.4 Personnel responsible for vehicle inspection have demonstrated knowledge of the required inspection procedures and requirements of Sections 5.1, 5.2 and 5.3 of this checklist, as appropriate.

5.4.5 Personnel responsible for vehicle inspection have demonstrated appropriate judgment of acceptable blade wear and accumulations of hardened concrete.

OR

5.5 Option B – Delivery Fleet Inspection by the Inspecting Engineer

5.5.1 The delivery fleet inspection indicates that not more than one unit or 10 percent of the units, whichever is greater, to be used at the plant fails to meet requirements.

5.5.2 The delivery fleet used on a normal business day during the period when the plant facilities are being inspected demonstrate compliance with requirements.
5.6 Inspection Record of Delivery Fleet (for Option A in Section 5)

Complete a copy of this form and send to NRMCA Engineering Division, 900 Spring Street, Silver Spring, MD 20910. Fax: (301) 585-4219. NRMCA will issue Delivery Fleet Certification Sticker with an expiration date 14 months after the date of inspection reflected on this form. The company shall note the sticker number and expiration date on the Summary of Fleet Condition (Section 5.7) and retain the records for review by the Inspecting Engineer during the visit to inspect the production facility.

| Company | City/State: |
|--------------------------------------------------|
| Truck Number* | Description** |

Expiration Date from previous inspection, if applicable (check sticker on truck):

<table>
<thead>
<tr>
<th>Compliance with Section (see NRMCA QC3 checklist for detailed description of requirements)</th>
<th>✓ or F*</th>
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</thead>
<tbody>
<tr>
<td>5.1.1 Internal condition – hardened concrete build up; blade wear</td>
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<tr>
<td>5.1.2 Condition of charging and discharging openings, hopper and chute</td>
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<tr>
<td>5.1.3 Drum size conforms with rated capacity for mixing</td>
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<td>5.1.4 Manufacturer’s recommended mixing speed visible; capable of operating at mixing speed</td>
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<td>5.1.5 Revolution counter functioning</td>
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<td>5.1.6 Water gages and meters; pumps; accuracy</td>
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<tr>
<td><strong>Truck Mixers</strong></td>
<td></td>
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<tr>
<td>5.2.1 Internal condition – hardened concrete build up</td>
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<tr>
<td>5.2.2 Condition of charging and discharging openings, hopper and chute</td>
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<tr>
<td>5.2.3 Drum size conforms with rated capacity for agitator</td>
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<td>5.2.4 Manufacturer’s max agitation speed visible; capable of operating at recommended speed</td>
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<td>5.2.5 Revolution counter functioning</td>
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<td><strong>Agitators</strong></td>
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<td>5.3.1 Interior surface – smooth, watertight, rounded corners</td>
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<td>5.3.2 Gates or means to control concrete discharge</td>
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<td>5.3.3 Hardened concrete build-up; discharge of concrete not obstructed.</td>
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Signature of Person Conducting Inspection | Print Name | Date of Inspection |
------------------------------------------|------------|--------------------|

Signature of Company Official | Print Name | Date |
-------------------------------|------------|-----|

* Identification of the vehicle used by the company
** Manufacturer/Size/Rear or Front
* ✓ - if the requirement is met; F - (failed) if the requirement is not met.

The company official shall ensure that the original blade dimensions and drum volumes as indicated by the manufacturer are available for review.

For NRMCA Use

Date Received: ____________________________ Reviewed By: ____________________________
Certification ID #: ____________________________ Expiration Date: __________________________

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5.7 **Summary of Fleet Condition**

For Option A in Section 5, the Company shall maintain a Summary of Fleet Condition for all delivery vehicles operating from the production facility seeking NRMCA certification. This record shall be presented to the Inspecting Engineer during the visit to inspect the production facility.

For Option B in Section 5, the Inspecting Engineer shall complete this form, sign and return it with the completed checklist with the applicable fee. NRMCA will issue the Delivery Fleet Inspection Sticker for all units that are acceptable.

- Total number of units available for use: __________________
- Number of units checked and found acceptable or have certification stickers: __________
- Number of units checked and found unacceptable: __________

<table>
<thead>
<tr>
<th>Truck Number</th>
<th>M/A/N*</th>
<th>✓ or F**</th>
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Use additional sheets as necessary and number the sheets

* M – Truck Mixer Units; A – Agitator Units; N – Non-Agitating Units
** Include subsection numbers of 5.1, 5.2 or 5.3 to identify the requirement the unit fails to meet
✓ ✓ - if the requirement is met; F - (failed) if the requirement is not met.

Signature of Inspecting Engineer __________________ Date __________

Engineer Initials __________________