

Ready-Mix Concrete Quality Management Plan

1.1 Introduction

1.1.1 The purpose of the Ready-Mix Concrete Quality Management Plan is to establish the procedures for becoming prequalified as a supplier of ready-mix concrete. The Management Plan is to assure the Kansas City, Missouri Public Works Department (KCMO PW) that permanent and portable ready-mix concrete batch plants are capable of producing a quality ready-mix concrete product. Only approved suppliers will be accepted and certified for KCMO PW projects.

1.2 Prequalifications for Ready-Mix Suppliers

1.2.1 Applicants shall submit to the Materials Engineer, a letter requesting that they be designated as a prequalified supplier. The letter shall include the following:

1.2.1.1 Proof that the batch plant producing ready-mix concrete is currently meeting the requirements of a prequalified supplier as outlined in section 1.3 of this document.

1.2.1.2 Name and phone number of the Quality Control Manager (QCM) at each supplier who may be contacted for scheduling of inspections and general information.

1.2.1.3 Signature of a representative having legal authority to bind the company.

1.2.2 The Ready-Mix Supplier agrees to:

1.2.2.1 Meet or exceed all applicable KCMO PW Standards and Specifications, MCIB Specifications, project manuals and ASTM and AASHTO specifications.

1.2.2.2 Make available to the Materials Engineer, or representative, all records required by section 1.3 of this document when requested.

1.2.2.3 Submit to a minimum of one Materials Section batch plant inspection per year in order to maintain certification as a prequalified supplier.

1.2.3 Notification of acceptance as a Ready-Mix Concrete supplier will be made in writing by the Materials Engineer.

1.2.4 Send all documentation and correspondence to the address listed below.

Materials Engineer
4721 Coal Mine Road
Kansas City, MO 64130
Phone Number: (816) 513-8722
Fax Number: (816) 513-8822

1.3 Materials Section Plant Inspection Program

1.3.1 Acceptance as a Prequalified Supplier:

1.3.1.1 Description: A prequalified supplier will adhere to the guidelines set forth in section 1.3 of this document. Suppliers will pass a Materials Section inspection prior to acceptance as a prequalified batch plant. Each prequalified

plant will be subject to a minimum of one Materials Section plant inspection per year. Portable batch plants must be prequalified each time they are moved. Failure to meet one or more of the requirements listed in sections 1.3.3 and 1.3.4 may result in an accelerated inspection program. Any additional failures to meet these minimum requirements will result in the suspension of the plant as a prequalified supplier until all documented deficiencies are corrected. The supplier may be reinstated, as a prequalified supplier, after a mandatory Materials Section review of the supplier's QC program.

1.3.2 Batch Plant Quality Control Policies and Procedures:

1.3.2.1 Description: Provide adequate training to familiarize all QC personnel with the company's QC procedures and supply each Quality Inspector (QI) with a copy of the company QC Policy Statement, and QC Manual which includes, at a minimum, the plant certification technical criteria set forth in this document. Have a designated QI (see section 1.3.3.1.b) present on every work shift. These individuals must be properly trained and thoroughly familiar with all required QC procedures. In addition, the QI shall have the authority to fully enforce the procedures.

1.3.2.2 Commentary: The ultimate success in achieving a quality product is heavily dependent upon the company's and employee's commitment and the employee's understanding of the company's QC procedures. In order to successfully implement and enforce compliance with the company's QC policies, a QI should report to an individual with the authority and knowledge to oversee plant operations.

1.3.3 Batch Plant Requirements:

1.3.3.1 QC Procedures:

- a) Develop, periodically review and update as necessary, a company QC policy statement and manual. The QC Manual must be approved by the Materials Engineer prior to acceptance as a prequalified supplier.
- b) Designate a QI for every work shift. The QI must be ACI Concrete Field Technician-Grade I certified and have a minimum of six (6) months experience working in a ready-mix concrete batch plant. The QI must be present while the batch plant is producing concrete for KCMO PW projects.
- c) Provide necessary training to designated QI and plant personnel. QI shall have ready access to the latest company QC Manual.
- d) Conduct meetings with the QCM and designated QI's, a minimum of once every six months to review the company's QC procedures, discuss possible changes and implement any procedural changes.
- e) Submit to a minimum of one plant inspection, each year, by a Materials Section Inspector.

f) Address and document each deficiency noted in the Materials Section inspection reports (see section 1.3.5) and conduct monthly follow-up meetings for a period of three (3) months to assure compliance.

1.3.3.2 Required QC Records:

- a) Supplier will conduct QC testing at a frequency consistent with their QC guidelines. Supplier shall maintain records of all QC testing. QC tests may include, but are not limited to: gradation of aggregates, moisture content of aggregates, concrete yield, concrete air content, concrete slump, concrete temperature, and concrete compressive strength.
- b) Applicable mix designs approved by the Materials Section, updated yearly.
- c) Aggregate gradation, quality checks, and source certification and cement chemical analysis and certification, updated biannually. Samples for aggregate testing must be from plant stockpiles. ASR reactivity testing on KCMO mixes and coarse aggregate durability factor updated every two years.
- d) Manufacturer's Certificate of Compliance for all admixtures.
- e) QCM and QI's current ACI certification documents, experience verification documents and QC training records.
- f) Maintain a written "new employee" training and/or orientation policy in the company files.
- g) Keep copies of the plant's QC Policy Statement and QC Manual on file.
- h) Comprehensive report signed by the QCM, which details the plants response and follow-up to each specified deficiency documented during a Materials Section inspection (see section 1.3.5).

1.3.3.3 Responsible Person(s): QCM.

1.3.4 Equipment Certification Requirements:

1.3.4.1 QC Requires

- a) Maintain certification of beams, scales, water meters, moisture probes and admixture dispensers, all calibrated at least once per year.
- b) Maintain certification and calibration of air meters, unit weight buckets, thermometers, scales and compression machines as per ASTM and AASHTO Specifications.
- c) Any broken or malfunctioning equipment must be removed from service immediately and replaced with new or repaired/recertified equipment.
- d) If contract testing laboratory is used, documents must be supplied proving the laboratory is KCMO PW approved.

e) QCM shall conduct inspections of all ready-mix trucks at least once per year and maintain a file of current inspection documents. The inspection documentation must include at a minimum the inspection date, the truck number, truck type, drum capacity, condition of drum revolution counter, condition of water gauge, ability of drum to operate at manufacturers recommended speed, condition of charging and discharging openings, drum internal condition, and date of repairs to correct deficiencies.

1.3.4.2 Required Records:

a) Notation on inspection checklist documenting which test equipment was used for each test.

b) Maintain file of all equipment certifications listed in section 1.3.4.1.

1.3.4.3 Production Delivery Requirements: Each truck load of ready-mix concrete delivered to a KCMO PW project shall be accompanied by a ticket(s) stating, at a minimum, the information required by ASTM C94 and the batch information.

1.3.4.4 Responsible Person: QCM.

1.3.5 Materials Section Inspector Guidelines:

1.3.5.1 Prequalification Inspection: The Materials Section inspector will make a plant inspection visit at the request of the supplier. At that time the inspector will check the plant in accordance with the requirements of this document. Upon completion of the inspection the Materials Engineer will recommend one of the following:

a) Certification as a prequalified Ready-Mix concrete plant.

b) Noncompliance as a prequalified plant. The Materials Section inspector will submit a written report to the supplier outlining all deficiencies observed during the plant inspection process. The supplier is required to address all deficiencies noted in the Materials Section inspector's report, at which time the supplier may request another prequalification inspection.

1.3.5.2 Maintenance of Prequalification Status: The Materials Section inspector will make a minimum of one plant inspection visit per year. However, batch plant operators can expect numerous inspections throughout each construction season. At that time the inspector will check the plant in accordance with the requirements of this document. In addition, the Materials Section inspector will periodically review KCMO PW materials sampling and testing records for compliance with applicable standards and specifications. Upon completion of the inspection and/or records review the Materials Engineer will recommend one of the following:

a) Certification as a prequalified Ready-Mix Concrete plant.

b) Placement on the Accelerated Plant Inspection Program. Failure to consistently meet applicable standards and specifications may constitute placement on the Accelerated Plant Inspection Program. Also, any violations found during a routine inspection must be addressed within 30 days of notification. The supplier must submit a letter to the Materials Engineer outlining the corrective action taken for each violation within the aforementioned 30 days. Failure to do so may constitute placement on the Accelerated Plant Inspection Program.

c) Disqualification as a prequalified supplier. Violations documented during the accelerated plant inspection program would constitute disqualification as a prequalified supplier.

1.3.5.3 Accelerated Inspection Program: The accelerated inspection program will be carried out for one year at a minimum frequency of one inspection visit per month during production. Failure to meet one or more of the requirements listed in sections 1.3.3 and 1.3.4 or poor test results may result in an accelerated inspection program. Any additional failures to meet these minimum requirements will result in the suspension of the plant as a prequalified supplier. The supplier is required to address all deficiencies noted in the Materials Section inspector's report, at which time the supplier may request another plant inspection. The supplier will be reinstated as a prequalified supplier upon receiving a favorable rating by the Materials Section inspector.

1.3.5.5 Materials Section Inspector Tests and Check List:

- a) Examine the plants QC policy statement and manual.
- b) Review the distribution of QC policy statement and manual and its availability to employees.
- c) Review QC training records.
- d) Review the plant records to confirm that a QI has been assigned to each work shift.
- e) Interview the person(s) responsible for QC policies and procedures.
- f) Examine the plant's equipment certification records.
- g) Examine admixture certifications and delivery systems.
- h) Examine aggregate stockpiles and testing/certification records.
- i) Examine cement certification and storage.
- j) Review KCMO approved mix designs and required testing for mixes.
- k) Observe batching operations.
- l) Examine batch tickets.
- m) Examine the plant's agitating ready-mix trucks and truck inspection records.

- n) Inspect testing equipment for damage and ensure all equipment is in good repair.
- o) Verify KCMO PW approval of contract laboratory, if used.
- p) Verify production QC testing records are being maintained.

1.3.5.5 Responsible Person: Materials Section Inspector.