

 GOVERNMENT OF DUBAI	Organization/Unit: إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	Document Title: Factory Production Control System for Ready Mixed Concrete Plants and CBUs	عنوان الوثيقة:	
	Doc Ref. DM-DCLD-RD-DP21-2086 (IC)	رقم الوثيقة:	

Issue Date	Rev. No.	Summary Of Amendments
16-06-2011	0	First draft
12-02-2013	0	Final draft
15-04-2013	1	Issue for use
14-04-2019	2	Updated format as per new DM template and logo

1. INTRODUCTION

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This factory production control system is part of the requirements for certification of ready mix concrete plants and central batching units according to Specific Rules No. DM-DCLD-RD-DP21-2177 (IC) "Certification of Ready Mix Concrete Plants as per Admin Decision (316) 2012 and DMS 026".

The factory shall implement a factory production control system to ensure that the properties of concrete are maintained in conformity with specified requirements.

2. DOCUMENTATION REQUIREMENTS

The factory shall maintain documented quality plan and procedures for the implementation of the Factory Production Control System. The documented procedures shall define the following:

- Responsibility, authority and interrelation of all personnel who manage, perform, and verify work affecting the quality of concrete;
- The control requirements to be implemented (as given in this document), and their corresponding acceptance criteria;
- The intended frequencies of tests and inspections to be carried out (as given in this document);

The factory shall maintain records of the results of tests and inspections for at least three years, unless otherwise specified under contractual obligations.

3. SCOPE

The established factory production control system shall include: (1) selection of materials; (2) concrete design; (3) concrete production; (4) inspections and tests; (5) use of the results of tests; (6) inspection of equipment; and (7) conformity control.

4. REQUIREMENTS

4.1 Control of constituent materials

S/N	Constituent material	Inspection/Test	Purpose	Minimum Frequency
1	Cement	Inspection of delivery ticket and Certificate of Conformity prior to discharge	To verify and confirm that it is as per ordered and from the correct source	Each delivery
2	Aggregates	Inspection of delivery ticket prior to discharge	To verify and confirm that it is as per ordered and from the correct source	Each delivery
3	Aggregates	Inspection of aggregate prior to discharge	To compare with normal appearance with respect to grading, shape and impurities	Each delivery
4	Aggregates	Test by sieve analysis	To assess compliance with grading requirements	First delivery from new source + periodic thereafter with specified frequency; and In case of doubt after visual inspection
5	Aggregates	Test for impurities	To assess the presence of impurities	First delivery from new source + periodic thereafter with specified frequency; and In case of doubt after visual inspection

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6	Aggregates	Test for water absorption	To assess the effective water content of concrete	First delivery from new source + periodic thereafter with specified frequency; and In case of doubt after visual inspection
7	Additional control for light-weight or heavy-weight aggregates	Test for loose bulk density	To measure the loose bulk density	First delivery from new source + periodic thereafter with specified frequency; and In case of doubt after visual inspection
8	Admixtures	Inspection of delivery ticket and label on container prior to discharge	To verify and confirm that it is as per ordered and from the correct source	Each delivery
9	Admixtures	Test for identification	For comparison with manufacturer's specification	In case of doubt.
10	Additives (bulk powder)	Inspection of delivery ticket prior to discharge	To verify and confirm that it is as per ordered and from the correct source	Each delivery
11	Additives (bulk powder)	Test of loss on ignition on fly ash	To identify changes in carbon content	First delivery from new source
12	Additives in suspension	Inspection of delivery ticket prior to discharge	To verify and confirm that it is as per ordered and from the correct source	Each delivery
13	Additives in suspension	Test for density	To ascertain uniformity	First delivery from new source
14	Water	Chemical tests	To verify and confirm that it is free from harmful constituents	Where a new non-DEWA source is used for the first time + In case of doubt

4.2 Control of equipment

S/N	Equipment	Inspection/Test	Purpose	Minimum Frequency
1	Stockpiles and bins, etc.	Visual inspection	To ascertain conformity with requirements	Once per week
2	Weighing equipment	Visual inspection	To ascertain clean condition and functionality	Daily
3		Calibration	To ascertain that the accuracy is within the tolerance	On installation and periodically according to schedule. + In case of doubt after visual inspection
4	Admixture dispensers	Visual inspection	To ascertain clean condition and functionality	Before first use of the day
5		Calibration	To ascertain accuracy of quantity dispensed	On installation and periodically according to schedule. + In case of doubt after visual inspection
6	Water meter	Calibration	To ascertain accuracy	On installation and periodically according to schedule. + In case of doubt after visual inspection
7	Equipment for continuous measurement of water content of fine aggregate	Calibration	To ascertain accuracy	On installation and periodically according to schedule. + In case of doubt after visual inspection
8	Batching system	Visual inspection	To ascertain functionality	Daily
9		Calibration by any suitable means to ascertain accuracy of actual vs. target vs. reading recorded	To ascertain batching accuracy	On installation and periodically according to schedule. + In case of doubt after visual inspection

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10	Testing equipment	Calibration according relevant standard requirements	To check conformity with standard	On installation and periodically according to schedule. + In case of doubt after visual inspection
11	Mixers	Visual inspection	To check functionality and wear	As per schedule

4.3 Control of production and concrete properties

S/N	Properties	Inspection/Test	Purpose	Minimum Frequency
1	Designed concrete	Initial test	To demonstrate that specified properties are met by the proposed design with adequate margin	Before using new concrete design
2	Water content of fine aggregate	Continuous measuring system, drying test or equivalent	To determine dry mass of aggregate and water to be added	Continual, or daily, depending on local and weather conditions, more or less frequent tests may be required.
3	Water content of coarse aggregate	Drying test or equivalent	To determine dry mass of aggregate and water to be added	Depending on local and weather conditions
4	Water content of fresh aggregate	Check of the quantity of water added	To provide data for the water/cement ratio	Every batch
5	Chloride content of concrete	Initial determination by calculation	To verify that maximum chloride content is not exceeded	When performing initial test. In case of an increase in chloride content of constituent.
6	Consistency	Visual inspection	For comparison with normal appearance	Each batch
7		Consistency test as per standard method	To verify that the specified value is achieved	When consistence is specified. When testing air content. When in doubt after visual inspection.
8	Density of fresh concrete	Density test as per standard method	For light-weight and heavy-weight concrete for supervision of batching and density control	Daily
9	Cement content of fresh concrete	Check the mass of cement batched	To check cement content and to provide data for water/cement ratio	Every batch
10	Additives content of fresh concrete	Check the mass of additives batched	To check the additives content and to provide data for water/cement ratio	Every batch
11	Admixture content of fresh concrete	Check the mass or volume of admixture batched	To check the admixture content	Every batch
12	Water/cement ratio of fresh concrete	By calculation or by testing	To verify that the specified value is achieved	Daily, where specified
13	Air content of fresh concrete where specified	Test according to standard test method	To verify that the specified value is achieved	First batch of each production day until value stabilizes
14	Temperature of fresh concrete	Measure the temperature	To verify that the specified value is achieved	Where temperature is specified: Periodically dependent on the situation. In case of doubt.
15	Density of hardened concrete	Test as per standard test method	To verify that the specified value is achieved	Where density is specified, as frequently as compressive strength test
16	Compressive strength test of molded concrete	Test as per standard test method	To verify that the specified value is achieved	As agreed with the specifier as part of conformity control

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