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7 CONCRETE PLANTS

7.1 GENERAL

7.1.1 Scope

- 1 This Part covers batching and mixing of concrete together with inspection of concrete plants.
- 2 Related Sections and Parts are as follows:

This Section

Part 1..... General
Part 2..... Aggregates
Part 3..... Cementitious materials
Part 4..... Water
Part 5..... Admixtures
Part 6..... Property Requirements
Part 8..... Transporting and Placing of Concrete
Part 15..... Hot Weather Concreting
Part 16..... Miscellaneous

7.1.2 References

ACI 304Guides for Measuring, Mixing, Transporting, and Placing Concrete
ASTM C94.....Specification for ready-mixed concrete

BS 1881Testing concrete
BS 8500Concrete Specification complementary to BS EN 206

EN 12390Testing of hardened concrete
EN 12390-1Testing hardened concrete — Part 1: Shape, dimensions and other requirements for specimens and moulds
EN 12390-2Testing hardened concrete — Part 2: Making and curing specimens for strength tests
EN 12390-3Testing hardened concrete — Part 3: Compressive strength of test specimens
EN 12390-4Testing hardened concrete — Part 4: Compressive strength - Specification for testing machines
EN 12390-5Testing hardened concrete — Part 5: Flexural strength of test specimens
EN 12390-6Testing hardened concrete — Part 6: Tensile splitting strength of test specimens
EN 12390-7:Testing hardened concrete — Part 7: Density of hardened concrete
EN 12390-8Testing hardened concrete — Part 8: Depth of penetration of water under pressure

EN 12350Testing fresh concrete
EN 12350-1Testing fresh concrete - Part 1: Sampling
EN 12350-2Testing fresh concrete - Part 2: Slump test
EN 12350-3Testing fresh concrete - Part 3: Vebe test

- EN 12350-4Testing fresh concrete - Part 4: Degree of compatibility
- EN 12350-5Testing fresh concrete - Part 5: Flow table test
- EN 12350-6Testing fresh concrete - Part 6: Density
- EN 12350-7Testing fresh concrete - Part 7: Air content - Pressure methods
-
- EN 206,Concrete. Specification, performance, production and conformity
- ISO 1920-1Testing of concrete —Part 1: Sampling of fresh concrete
- ISO 1920-2Testing of concrete – part 2: properties of fresh concrete
- ISO 1920-3Testing of concrete – part 3: Making and curing test specimens.
- ISO 1920-4Testing of concrete – part 4: strength of hardened concrete.
- ISO 1920-5Testing of concrete – part 5: properties hardened concrete other than strength.
- ISO 1920-6Testing of concrete – part 6: sampling, preparing and testing of concrete core.
- ISO 1920-7Testing of concrete – part 7: Non-destructive test on hardened concrete.
- ISO 1920-8Testing of concrete -- Part 8: Determination of drying shrinkage of concrete for samples prepared in the field or in the laboratory
- ISO 1920-9Testing of concrete -- Part 9: Determination of creep of concrete cylinders in compression
- ISO 1920-10Testing of concrete -- Part 10: Determination of static modulus of elasticity in compression

7.2 BATCHING

7.2.1 General

- 1 During measurement operations, aggregates shall be handled in a manner to maintain their desired grading, and all materials shall be weighed to the tolerances required for the desired reproducibility of the selected concrete mix.
- 2 The coarse aggregate shall be controlled to minimize segregation and undersized material. Fine aggregate shall be controlled to minimize variations in gradation, giving special attention to keeping finer fractions uniform and exercising care to avoid excessive removal of fines during processing
- 3 Avoid blending two sizes of fine aggregate by placing alternate amounts in bins or stockpiles or when loading cars or trucks. Satisfactory results are achieved when different size fractions are blended as they flow into a stream from regulating gates or feeders. A more reliable method of control for a wide range of plant and job conditions, however, is to separate storage, handling, and batching of the coarse and fine fractions
- 4 Stockpiling of coarse aggregate shall be kept to a minimum because fines tend to settle and accumulate. When stockpiling is necessary use of correct methods minimizes problems with fines, segregation, aggregate breakage, excessive variation in gradation, and contamination. Stockpiles shall be built up in horizontal or gently sloping layers, not by end-dumping. Trucks, loaders, and dozers, or other equipment shall not be operated on the stockpiles because, in addition to breaking the aggregate, they frequently track dirt onto the piles

- 5 Stockpiles located to prevent contamination; arranged to assure that each aggregate as removed from its stockpile is distinct and not intermingled with others. The concrete supplier is asked to separate storage bins or compartments for each size and type of aggregate properly constructed and charged to prevent mixing of different sizes or types
- 6 Sequencing and blending of the ingredients during charging of the mixers shall be carried out in such a way as to obtain uniformity and homogeneity in the concrete produced as indicated by such physical properties as unit weight, slump, air content, strength and air-free mortar content in successive batches of the same mix proportions and as stated in ASTM C94 Annex A.
- 7 The mix recipe for the mixes to be produced shall be readily available to the mixer operator. Only authorised personnel shall be allowed to make changes to the mix design.
- 8 All cement bags shall be stored in weathertight, properly ventilated structures to prevent absorption of moisture.
- 9 Storage facilities for bulk cement shall include separate compartments for each type of cement used. The interior of a cement silo shall be smooth, with a minimum bottom slope of 50 degrees from the horizontal for a circular silo and 55 to 60 degrees for a rectangular silo. Silos shall be equipped with non-clogging air-diffuser flow pads through which small quantities of dry, oil-free, low-pressure air can be introduced intermittently at approximately 3 to 5 psi (20 to 35 kPa) to loosen cement that has settled tightly in the silos. Storage silos shall be drawn down frequently, preferably once per month, to prevent cement caking.
- 10 Each bin compartment from which cement is batched shall include a separate gate, screw conveyor, air slide, rotary feeder, or other conveyance that effectively allows both constant flow and precise cutoff to obtain accurate batching of cement
- 11 Fly ash, ground slag, or other pozzolans shall be handled, conveyed, and stored in the same manner as cement. The bins, however, shall be completely separate from cement bins without common walls that could allow the material to leak into the cement bin.
- 12 All bins and silos shall be properly tagged at silos, bins and near charging hose.
- 13 Bags of cement should be stacked on pallets or similar platforms to permit proper circulation of air. For a storage period of less than 60 days, stack the bags no higher than 14 layers, and for longer periods, no higher than seven layers.
- 14 The water batcher and the water pipes should be leak-free. If ice is used, the ice facilities, including the equipment for batching and transporting to the mixer, should be properly insulated to prevent the ice from melting before it is in the mixer.

7.2.2 Plant Type

- 1 Manual control batching. Manual plants are acceptable for small jobs having low batching rate requirements, generally for jobs up to a total concrete quantity of 1000 m³ and 10 m³/h.
- 2 Semi-automatic control batching. In this system, aggregate bin gates for charging batchers are opened by manually operated push buttons or switches. Gates are closed automatically when the designated weight of material has been delivered.
- 3 Automatic control batching. Automatic batching of all materials is electrically activated by a single starter switch. However, interlocks shall interrupt the batching cycle when the scale has not returned to ± 0.3 % of zero balance or when weighing tolerances detailed in Clause 7.2.5 of this Part are exceeded.

7.2.3 Bins and Weight Batchers

- 1 Batch plant bins shall be of sufficient size to effectively accommodate the production capacity of the plant. Compartments in bins separate the various concrete materials, and the shape and arrangement of aggregate bins shall prevent aggregate segregation and leakage.
- 2 Weight batchers shall be charged with easy-operating clam shells or undercut radial-type bin gates.
- 3 Gates used to charge semi-automatic and fully automatic batchers shall be power operated and equipped with a suitable in flight correction to obtain the desired weighing accuracy. They shall be calibrated by the plant supplier for the types of aggregate used at the standard range of moisture contents.
- 4 Weigh batchers shall be accessible for obtaining representative samples, and they shall be arranged to obtain the proper sequencing and blending of aggregates during charging of the mixer.
- 5 The amount of concrete mixed in any one batch shall not exceed the rated capacity of the mixer.
- 6 All mixing and batching plants shall be maintained free of set concrete or cement and shall be clean before commencing mixing.
- 7 For each different type of cement at use at the plant a separate silo shall be provided.

7.2.4 Tolerances of Measuring Equipment

- 1 Scales for weighing concrete ingredients shall be accurate when in use within $\pm 3\%$ and $\pm 1.5\%$ for additives. Standard test weights shall be available to permit the checking of scale accuracy.
- 2 Testing of the weighers shall be at three-month intervals. If water is dispensed by flow meter the frequency of testing shall be at three-month intervals. Such testing shall be undertaken by a calibration company approved by Qatar General Organization for Standardization (QS), and calibrated to recognized international standards.
- 3 Test certificates shall be displayed in the plant in prominent positions.

7.2.5 Batching Tolerances

- 1 Operation of batching equipment shall be such that the concrete ingredients are consistently measured within the following tolerances. The plant shall have the ability to flag values that are outside these limits. The operator shall make manual adjustments to the batching and the final weights shall be within the given limits stated in table 7.1. Any adjustments shall be displayed on the batch weight printouts.
- 2 Cementitious materials shall be measured by mass. When supplementary cementitious materials are used in the concrete mixtures, the cumulative mass is permitted to be measured with hydraulic cement, but in a batch hopper and on a scale which is separate and distinct from those used for other materials.
- 3 Aggregate shall be measured by mass. Batch mass measurements shall be based on dry materials and shall be the required masses of dry materials plus the total mass of moisture (both absorbed and surface) contained in the aggregate
- 4 Mixing water shall consist of water added to the batch, ice added to the batch, water occurring as surface moisture on the aggregates, and water introduced in the form of admixtures. The added water shall be measured by weight or volume.

- 5 Added ice shall be measured by weight. In the case of truck mixers, any wash water retained in the drum for use in the next batch of concrete shall be accurately measured; if this proves impractical or impossible the wash water shall be discharged prior to loading the next batch of concrete
- 6 Chemical admixtures in powdered form shall be measured by mass. Liquid chemical admixtures shall be batched by mass or volume

Table 7.1
Typical batching tolerances Ingredient

Typical batching tolerances Ingredient	Batch weights greater than 30% of scale capacity		Batch weights less than 30% of scale capacity	
	Individual batching	Cumulative batching	Individual batching	Cumulative batching
Cement and other cementitious Materials	$\pm 1\%$ of required mass or $\pm 0.3\%$ of scale capacity, whichever is greater		Not less than required weight or 4% more than required weight	
Water (by volume or weight), %	± 1	Not recommended	± 1	Not recommended
Aggregates, %	± 2	± 1	± 2	$\pm 0.3\%$ of scale capacity or $\pm 3\%$ of required cumulative Weight, whichever is less
Admixtures (by volume or weight), %	± 3	Not recommended	± 3	Not recommended

- 7 Cement supplied in bags shall be placed directly from the bag into the intake of the mixing plant and each batch must contain one or more complete bags of cement. No mixer having a rated capacity of less than a one-bag batch shall be used and the mixer shall not be charged in excess of its rated capacity.

7.2.6 Charging the Mixer

- 1 Each batch shall be so charged into the mixer that some of the water will enter in advance of the cement and aggregates. Controls shall be provided to prevent batched ingredients from entering the mixer before the previous batch has been completely discharged.
- 2 The first batch of concrete through the mixer shall contain an excess of cement to allow for coating of the inside of the mixing drum without reducing the required mortar content of the mix.
- 3 Mixing plant that has been out of action for more than 30 minutes shall be thoroughly cleaned before any fresh concrete is mixed in it.
- 4 When a change of mix is made to one using a different type of cement, the mixing plant shall be thoroughly cleaned of all traces of the previously used cement, whatever is the time interval between successive mixes.

7.3 MIXING

7.3.1 Charging Concrete Materials

- 1 Water shall enter the mixer first with continuous flow while other ingredients are entering the mixer. Water charging pipes must be of the proper design and of sufficient size so that water enters at a point well inside the mixer and charging is completed within the first 25% of the prescribed mixing time and where concrete uniformity shall be verified by approved inspector.
- 2 Admixtures shall be charged to the mixer in accordance with the instructions of the manufacturer. Automatic dispensers shall be used.

7.3.2 Mixing Time for Stationary Mixers

- 1 The mixing time required shall be based upon the ability of the mixer to produce uniform, homogeneous, consistent mixture throughout the batch and from batch to batch.
- 2 Final mixing times shall be based on the results of mixer performance tests made at the start of the project and the time fixed unless a change is authorised by the Engineer. The time shall however not be less than 60 Sec unless otherwise verified as stated hereafter. Where no mixer performance tests are made, the acceptable mixing time for mixers having capacities of 0.75 m³ or less shall be not less than 1 min. For mixers of greater capacity, this minimum shall be increased 15 s for each cubic meter or fraction thereof of additional capacity.
- 3 Where mixer performance tests have been made on given concrete mixtures in accordance with the testing program ASTM C94 Annex A and NRMCA certification, and the mixers have been charged to their rated capacity, the acceptable mixing time is permitted to be reduced for those particular circumstances to a point at which satisfactory mixing defined in ASTM C94 and NRMCA certification for central mixing plants shall have been accomplished. When the mixing time is so reduced the maximum time of mixing shall not exceed this reduced time by more than 60 s for air-entrained concrete. The mixing time shall be measured from the time all ingredients are in the mixer.
- 4 Batch mixers with audible indicators used in combination with interlocks which prevent mixer discharge prior to completion of a preset mixing time shall be provided on automatic plants and are also desirable on manual plants.
- 5 The mixer shall be designed for starting and stopping under full load.

7.3.3 Mixing

- 1 All structural concrete to be placed in-situ shall be manufactured in a computer controlled batching plant of the types described in Clause 7.2.2 of this Part.
- 2 The plant shall be complete with suitable water chilling or ice making facilities, or both, to ensure concrete temperatures are maintained as specified in Parts 6 and 15 of this Section.
- 3 Concrete shall be mixed in batches in plant capable of combining the aggregates, cement and water (including admixtures, if any) into a mixture of uniform colour and consistency and of discharging the mixture without segregation.
- 4 Automatic moisture content probes, set in the hoppers shall be used to continuously determine the moisture content of the aggregates.
- 5 Contractor shall make due allowance for the water contained in the aggregates when determining the quantity of water to be added to each mix.
- 6 The amount of water added to each mix shall be adjusted to maintain the constant approved water : cement ratio of the mixed concrete.

7.3.4 Limitation of Water : Cement Ratio

- 1 No concrete shall exceed the water : cement ratio as given in Part 6 of this Section.
- 2 The quantity of water used in mixing shall be the least amount that will produce a workable homogeneous plastic mixture which can be worked into the forms and around the reinforcement.
- 3 Excess water over the maximum allowed by the mix design shall not be permitted and any batch containing such excess will be rejected.

7.4 READY-MIXED CONCRETE

7.4.1 General

- 1 The manufacture of readymix concrete for use in government projects or projects that mentioned that in the contract may only be carried out in batching plants that have an approval certificate accredited by the Qatar General Organization for Standardization (QS) or any authority delegated from Qatar General Organization for Standardization (QS). When this certificate is under renewal process by the readymix concrete manufacturer, other certificate such as NRMCA shall be considered by the Engineer as approval on the uniformity and consistency of the facility. The engineer may request to re-validate the uniformity tests under his supervision. In addition, the use of readymix concrete in any part of the work shall require the Engineer's written approval.
- 2 The Contractor shall satisfy the Engineer on the following:
 - (a) materials used in ready-mixed concrete comply with the specification in all respects
 - (b) manufacturing and delivery resources of the proposed supplier are adequate to ensure proper and timely completion.
- 3 The specified requirements as to the sampling, trial mixing, testing and quality of concrete, of various grades as described in Part 6 of this Section, shall apply equally to ready-mixed concrete.
- 4 Every additional facility, including but not limited to testing equipment, labour, laboratory facilities and transport, which the Engineer or persons authorised by him may require for the supervision and inspection of the batching, mixing, testing and transporting to Site of ready-mixed concrete shall be provided by the Contractor at no extra cost.
- 5 Copies of all delivery notes shall be submitted to the Engineer in duplicate, on computer generated forms and shall include at least the following information.
 - (a) name of supplier, serial number of ticket and date
 - (b) truck number
 - (c) name of Contractor
 - (d) name of Contract and location of office
 - (e) grade of concrete
 - (f) specified workability
 - (g) type and source of cement
 - (h) source of aggregate
 - (i) nominal maximum size of aggregate
 - (j) quantity of each concrete ingredient
 - (k) type of admixture and quantity
 - (l) water content

- (m) time of loading and departure from ready-mix plant
 - (n) arrival and departure times of truck
 - (o) time of completion of discharge
 - (p) notations to indicate equipment was checked and found to be free of contaminants prior to batching.
- 6 A copy of the delivery note shall be given to the Engineer's site representative for each load.
- 7 Unless approved otherwise in advance of batching all concrete of single design mix for any one day's pour shall be from a single batch plant of a single supplier.
- 8 Ready-mix concrete shall conform to BS 8500 in addition to EN 206, except materials, testing and mix design shall be as specified in this Section.
- 9 Transit mixers equipped with automatic devices for recording the number of revolutions of the drum shall be used.
- 10 Excess water over the maximum allowed by the mix design shall not be added.
- 11 Each mixer truck shall arrive at the job site with its water container full.
- 12 In the event that a container is not full or concrete tests give a greater slump than acceptable, the load shall be rejected.
- 13 Shade temperature and concrete temperature shall be recorded at the point of discharge of the mixer and at placement for each load of concrete delivered to site.
- 14 Maximum and minimum temperatures and wet bulb temperatures shall be recorded daily.
- 15 Slump tests shall be performed in accordance with EN 12350 or relevant GSO standard at the point of placement as stated in Part 6.
- 16 No water shall be added at the Site.

END OF PART

7.5 APPENDIX A: CONCRETE PLANT INSPECTION – CHECKLIST

ARAB ENGINEERING BUR

CONCRETE PLANT INSPECTION CHECK LIST

New Approval ☐

Renewal ☐

Regular Inspection ☐

1.0 GENERAL INFORMATION OF PLANT

1.1 Company Name : _____

1.2 Inspection Date : _____ AM / PM

1.3 Plant Location : _____

1.4 Plant No/s : _____

1.5 Plant Manufacturer : _____

1.6 Plant ID No. : _____

1.7 Approval Certificate No : _____

1.8 Contact a Plant : _____

2.0 FACTORY CONDITION

2.1 Concrete Floor Under Mixer and silos Yes ☐ No ☐ _____

2.2 Concrete floor with Slope under materials Yes ☐ No ☐ _____

2.3 Hard and stable surface for Access and ramps Yes ☐ No ☐ _____

2.4 Floors Clean Yes ☐ No ☐ _____

2.5 Cleaning plan implements Yes ☐ No ☐ _____

2.6 Drainage System Yes ☐ No ☐ _____

2.7 Separated Place of Waste materials Yes ☐ No ☐ _____

2.8 Separated Place of wash tank Yes ☐ No ☐ _____

3.0 MATERIAL STORAGE AND HANDLING

3.1 Cement and Cementations materials (including blended cements, fly ash, GGBS, silica fume..)

3.1.1 The Silos of Cement

A. Outside Cleaning for Cement silo Yes ☐ No ☐ _____

B. Cement scale calibration Current ☐ Expired ☐ _____

C. Reflective color for cement silo Yes ☐ No ☐ _____

D. Board clarify the cement type Yes ☐ No ☐ _____

3.1.2 The silos of cementations materials

A. Outside Cleaning for Cementations silo Yes ☐ No ☐ _____

B.	Cementations scale calibration	Current	<input type="checkbox"/>	Expired	<input type="checkbox"/>	
C.	Reflective Color for Cementations Silo	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
D.	Board Clarify the Cementations Type	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
E.	All Cementations Materials Excess of use protected under shad	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	

3.2 Aggregates:

A.	Aggregate Shading	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
B.	Aggregate Separation under shad	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
C.	Aggregate Separation in bins	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
D.	Aggregate scale calibration	Current	<input type="checkbox"/>	Expired	<input type="checkbox"/>	
E.	Cover for Conveyer Belts	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
F.	Board Clarify the Aggregate Type	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
G.	Effective method for checking the level of material inside the bins	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	

4.0 Water & Admixture Supply

4.1 Water supply

A.	Water pipe insulated	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
B.	Chiller using	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
C.	Ice plant or Nitrogen cooling	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
D.	Water gauge calibration	Current	<input type="checkbox"/>	Expired	<input type="checkbox"/>	

4.2 Admixture supply

A.	Additive storage silos	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
B.	Additive Gage calibration	Current	<input type="checkbox"/>	Expired	<input type="checkbox"/>	
C.	Board Clarify the Admixture Type	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
D.	All admixture excess of use protected under shad	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
E.	Agitation system for all storage tanks or silos more than 5000 liter	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	

5.0 Requirements of the Concrete batching plant

5.1	Certificate validity	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
5.2	Computer controlled	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
5.3	Plant type	Wet mix	<input type="checkbox"/>	Dry mix	<input type="checkbox"/>	
5.4	Computer printout	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
5.5	Calibration validity	Current	<input type="checkbox"/>	Expired	<input type="checkbox"/>	

5.6 Cleaning of plant blades Yes ☐ No ☐

6.0 Laboratory

6.1 Records for raw materials and cube tests

Required Tests to QCS 2014	Was Test Performed?	Frequency of Tests			Comments of Inspection
		D	W	M	
6.1.1 Grading	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.2 Fines content (%)	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.3 Fines quality	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.4 Clay lumps and friable particles	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.5 Lightweight pieces	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.6 Organic impurities	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.7 Water Absorption	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.8 Particle density	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.9 Shell Content	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.10 Flakiness Index (%)	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.11 Chloride content (%)	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.12 Sulphate content (%)	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.13 Soundness (%)	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.14 Los Angeles abrasion	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.15 Moisture Content (%)	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.16 Compressive Strength	Yes <input type="checkbox"/> No <input type="checkbox"/>				
6.1.17 Other test*					

*Such as recycled aggregate

6.2 Specimens testing at inspection time

ITEMS	CASE	COMMENTS
6.2.1 Method of slump test	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6.2.2 Curing of samples	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6.2.3 Water Temperature Of Curing Tank	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6.2.4 Concrete Temperature at plant	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6.2.5 Concrete Slump at plant	Yes <input type="checkbox"/> No <input type="checkbox"/>	

6.3 Laboratory equipment calibration

EQUIPMENT	CASE	COMMENTS
6.3.1 Compression Testing Machine	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6.3.2 Sieves	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6.3.3 Balance	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6.3.4 Thermometers	Yes <input type="checkbox"/> No <input type="checkbox"/>	

7.0 Recommendations

8.0 Plant representative information

Name of representative	:	
Contract number	:	
Signature	:	

9.0 Inspector team

Inspected by	Signature