CRMCA Concrete Quality Pre-Construction Checklist

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Project Information

Project Name: _____ **Location:** _____

Project Representatives:

Owner: _____ Architect: _____

Structural Engineer: _____ Construction Manager: _____

General Contractor: _____ Concrete Supplier: _____

Testing Agency: _____ Other: _____

Concrete Mixture Design Submittals

Mixture Usage	Mixture Code	Special Attributes	Mixture Design Specifications				Approved Y/N
			Strength @ __ d	Max. w/cm	Slump (in.)	Air (%)	

Special Attribute Codes:

AE	Air Entrained	CLR	Color Addition	NCA	Non-Chloride Acceleration
NAE	Non-Air Entrained	CI	Corrosion Inhibiting	SF	Silica Fume
LTWT	Lightweight Agg.	SRA	Shrinkage Reduction	UFFA	Ultra Fine Fly Ash
SCC	Self-Consolidating	FP	Fiber Product	HVWT	Heavy Weight Aggregate
HRWR	High Range WRA	HE	High Early Strength	RET	Retardation/ Hyd. Stabilization
Other					

Concrete Quality Control/ Assurance

(Circle Yes or No)

Does Owner's testing/laboratory meet ASTM C1077 as required by ACI 301/318? yes no*

***CCRL Lab Listing** **(Click on link to see listing of laboratories inspected by CCRL)**

Note 1: Section 26.12.1.1(b) of Building Code Requirements for Structural Concrete (ACI 318-14) and section 1.6.1.1 of Specifications for Structural Concrete (ACI 301-10) require that the agency performing acceptance testing comply with ASTM C1077 Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation.

If no, explain remedies _____

Does the technician(s) performing concrete and aggregate testing on this project posses current technician certification in accordance with AST C1077? (Circle Yes or No)

Concrete Field Testing Technician Section 6.1.6	yes	no
Concrete Laboratory Testing Technician Section 6.1.5	yes	no
Concrete Aggregate Testing Technician Section 6.1.4	yes	no

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Contractor's Responsibilities in accordance with ACI 301-10 Section 1.6.2

- Allow access to the project site or to the source of materials and assist Owner's testing agency in obtaining and handling samples at the project site or at the source of materials.
- Advise Owner's testing agency at least 24 hours in advance of operations to allow for scheduling of quality assurance tests, review of project requirements, and for the assignment of personnel.
- Provide space and source of electrical power on the project site for facilities to be used for initial curing of concrete test specimens as required by ASTM C31 for the sole use of Owner's quality assurance testing agency.

Concrete Sampling and Testing Requirements

Sampling Frequency: _____

Sampling Location: (Circle Yes or No)

Pt. of truck discharge (in accordance with ASTM C94)	yes	no
Pt. of placement (must be specified and comply with OSHA regulations)	yes	no

Note 2: The concrete supplier will be responsible for compliance when samples are obtained at truck discharge after 10% or before 90% of the batch has been discharged and tests are conducted in accordance with applicable ASTM standards.

Tests to be performed on each sample: (Circle Yes or No)

Slump:	yes	no	Compressive Strength:	yes	no
Air Content:	yes	no	# cylinders per test	_____	
Density (unit wt.):	yes	no	Flexural Strength:	yes	no
Temperature:	yes	no	Other: _____	yes	no

Note 3: ASTM C172, section 4.1.1 states, "Transport the individual samples to the place where fresh concrete tests are to be performed or where test specimens are to be molded." Section 4.1.2 states, " Start tests for slump, temperature and air content within 5 min. after obtaining the final portion of the composite sample."

Acceptance/Rejection of Fresh Concrete:

Who has the authority to accept or reject a concrete delivery? _____

What criteria will be used to accept or reject a concrete delivery? (Circle Yes or No)

Slump:	yes	no	Temperature:	yes	no
Air Content:	yes	no	Density (unit wt.)	yes	no
W/CM Ratio:	yes	no	Time Limit:	yes	no

Note 4: ASTM C94, section 7.2 states, "the producer shall not be responsible for the limitation of minimum slump or slump flow after 30 min. have elapsed starting either on arrival of the vehicle at the prescribed destination or at the requested delivery time, whichever is later."

Who's responsible for adding water and/or air entrainment at the project site? _____

Note 5: ASTM C94 section 12.7, allows a 'one-time' water addition as long as the maximum water content for the batch as established by the mixture design proportions has not been exceeded. A 'one-time' water addition may be several distinct additions provided no concrete has been discharged except for slump or slump flow testing. When air content is below the specified level, Section 8.3 allows the concrete supplier to adjust the level with additional air-entraining admixture.

Test Specimen Storage and Transportation

Standard Curing Method: (Concrete Acceptance) (Circle Yes or No)

Immersed in water-controlled temperature environment (Preferred)	yes	no
Storage box-controlled temperature environment	yes	no
Exposed to the environment	yes	no

Who's responsible for providing specimen storage water tank or box? _____

Who's responsible for maintaining the temperature of the storage environment? _____

Note 6: ASTM C31 states, "Immediately after molding and finishing, the specimens shall be stored for a period up to 48h in a temperature range from 60 and 80 F and in an environment preventing moisture loss from the specimens. For concrete mixtures with a specified strength of 6000 psi or greater, the initial curing temperature shall be between 68 and 78 F." ASTM C31 also states, "The storage temperature shall be controlled by use of heating and cooling devices, as necessary. Record the temperature using a maximum-minimum thermometer."

Note 7: ASTM C31 states, "Upon completion of initial curing and within 30 min after removing the molds, cure specimens with free water maintained on their surfaces at all times at a temperature of 73.5 +/- 3.5 F. …"

Transportation of Specimens to the Laboratory

ASTM C31, Section 11.1 states, " Specimens shall not be transported until at least 8 h after final set. During transporting, protect the specimens with suitable cushioning material to prevent damage from jarring. During cold weather, protect the specimens from freezing with suitable insulation material. Prevent moisture loss during transportation by wrapping the specimens in plastic, wet burlap, by surrounding them with wet sand, or tight fitting plastic caps on plastic molds. Transportation time shall not exceed 4 h."

When will specimens, cast on days preceding non-work days, be transported to the laboratory?

Please explain: _____

Field Curing Method: (Form or Shoring Removal but not Acceptance) (Circle Yes or No)

Storage under conditions consistent with concrete in the structure	yes	no
Maturity	yes	no

Acceptance Criteria for Hardened Concrete (ACI 301/318)

In accordance with ACI 318-14, Section 26.12.1.1 (e) and ACI 301 Section 1.6.3.1 (a-c) the Owner's testing agency shall report results to the Architect/Engineer, Contract, Concrete Supplier, and if requested, the Owner. ACI 301 also requires that the testing agency issue a report immediately, to these parties when it appears that furnished material is not in compliance with the specifications. Test results from standard molded and cured strength specimens will be evaluated separately for each concrete mixture. Evaluation is valid only if tests have been conducted in accordance with specified procedures. Each Validation of tests not conducted in accordance with specified procedures will be the responsibility of the Owner's testing agency.

Contact Information for Test Results to be sent to (via email, fax, mail) to

Owner:		Architect:	
Structural Engineer:		Concrete Supplier:	
General Contractor:		Other:	

Acceptance of Concrete Strength in accordance with ACI 301-10

The strength of standard molded and cured strength specimens is satisfactory if the following criteria are met:

1.6.6.1 a Every average of three consecutive strength tests equals or exceeds the specified compressive strength f'c.

1.6.6.1 b No strength test result falls below f'c by more than 500 psi when f'c is 5000 psi or less, or by more than 0.10 f'c when f'c is more than 5000 psi.

Coring

Section 1.6.6.2- The strength of concrete in the area represented by cores, tested in accordance with ASTM C42, is considered adequate when the average compressive strength of the cores is at least 85% of f'c and if no single core is less than 75% of f'c.

Statement of Acknowledgement

The American Concrete Institute (ACI) and the ASTM International have established many standards and practices related to the performance and safety of concrete construction. The quality of concrete construction is heavily dependent upon the commitment of the project team to the standard practices associated with the production, delivery, placement, and testing of ready mixed concrete. We believe the information in this document accurately reflects the discussion(s) between all attendees.

	(Circle Yes or No)			(Circle Yes or No)	
Owner:	Yes	No	Architect:	Yes	No
Structural Engineer:	Yes	No	Construction Manager:	Yes	No
General Contractor:	Yes	No	Concrete Supplier:	Yes	No
Owners Testing Agency:	Yes	No	Testing Agency:	Yes	No

Additional Items for Possible Discussion include: Subgrade prep, Scheduling, Delivery, Washout Location, Jointing, Curing (evaporation control, moisture protection, hot/cold weather)