Concrete Testing Adherence Collaboration
Paper Form TC-05.4 (2021)

This document to be used if online access not immediately available on mobile apps or website login.
Information to be logged into CRMCA database through
https://www.crmca.org/field-testing-examination/

Observer Name: *[Required]* _____
Observer's Company: *[Required]* _____
Observer ACI Certification #: _____

1. Is the Testing Technician currently ACI Field I certified* to test concrete?

Criteria Met: ○ **YES** ○ **NO**

1.1. Testing Laboratory Name: *[Required]* _____
Testing Technician First and Last Name**: *[Optional]* _____
Testing Technician ACI Certification #, If applicable/available: _____

**Verify a Certification through the ACI website. This search only provides confirmation of certification but will not provide the Certification Number.*
https://www.concrete.org/certification/verifyacertification.aspx
***"Enter '0' ONLY if Testing Technician Name is unknown"*

1.2. What type of project/site is concrete testing observed at? *[Required; select only one]*
- ○ Federal/State
- ○ Local/Municipality
- ○ Commercial/Industrial
- ○ Residential
- ○ Private
- ○ Other: _____

2. Excluding preliminary check tests, was the concrete sampled in accordance with **ASTM C172**?

Pictures: ○ **1** ○ **Zero** **Criteria Met:** ○ **YES** ○ **NO** ○ **Check Test**

2.1. Where was the sample(s) collected from? *[Required; select all that apply]*
- ☐ At point of placement; end of mixer truck discharge
- ☐ At point of placement; end of pump/belt (if used)
- ☐ At end of mixer truck discharge; prior to pump/belt (if used)
- ☐ Other; Explain _____

_____

2.2. [If NO, required] Which of the following was observed: *[select all that apply]*
- ☐ Incorrect sample size taken
- ☐ Exceeding sample time allowance **ASTM C172, section 4.1**
- ☐ Incorrect portions/intervals sampled
- ☐ Incorrect location (outside middle 1/3rd of truck discharge)
- ☐ Did not combined and remixed with a shovel **ASTM C172, section 4.1.1**
- ☐ Other; Explain _____

_____

3. Were physical property tests completed and strength specimens molded (if required to cast) in accordance with the appropriate ASTM procedure?

Pictures: ○2 ○1 ○Zero **Criteria Met:** ○YES ○NO

3.1. [If NO, required] Which procedure was not followed? *[select all that apply]*

- ☐ Temperature **ASTM C1064**
- ☐ Slump **ASTM C143**
- ☐ Air Content **ASTM C231** or **ASTM C173**
- ☐ Density (unit weight) **ASTM C138**
- ☐ Casting concrete strength specimens **ASTM C31**
- ☐ Tests completed within time requirement **ASTM C172, section 4.1.2**

3.2. [If NO, required] What was observed? _____

_____

_____

4. Were the concrete specimens (if required to cast) stored in an initial curing environment following **ASTM C31, section 10.1.2**, including temperature monitoring?

Pictures: ○2 ○1 ○Zero **Criteria Met:** ○YES ○NO ○N/A*

**no specimens cast or curing location not observed*

4.1. Which of the following was utilized? *[select all that apply; none if N/A]*

- ☐ [Available If NO] Nothing; specimens left in open environment
- ☐ Fabricated curing box or storage area
- ☐ Water bath
- ☐ Cooler or buckets (dry)
- ☐ Insulation (i.e. space blanket, foam, plastic shavings, etc.)
- ☐ Earthen burial
- ☐ Other; Explain _____

_____

4.2. Which type of temperature monitoring device was utilized in the curing environment? *[select all that apply; none if N/A]*

- ☐ Continuous record
- ☐ Min/Max
- ☐ Instant read only
- ☐ Thermostatic control (heat)
- ☐ Thermostatic control (cool)
- ☐ [Available If NO] Nothing
- ☐ Other; Explain _____

_____

Test Date: _____ Test Time: _____

Concrete Supplier: _____ Dispatch Ticket: *[Required]* _____

Additional Observation Notes: _____

_____

_____

ASTM REFERENCE SUMMARIES

ASTM C172: Sampling Freshly Mixed Concrete *"The elapsed time shall not exceed 15 min. between obtaining the first and final portions of the composite sample… Transport the individual samples to the place where fresh concrete tests are to be performed or where test specimens are to be molded. They shall be combined and remixed with a shovel to ensure uniformity and compliance with the maximum time limits… Start molding specimens for strength tests within 15 min after fabricating the composite sample… Make the samples to be used for strength tests a minimum of 28 L [1 ft^3]… Do not obtain samples from the very first or last portions of a mixer's continuous discharge. [Note: No sample should be taken before 10% or after 90% of the batch has been discharged.]"*

ASTM C172, section 4.1.1: *"The elapsed time shall not exceed 15 min between obtaining the first and final portions of the composite sample…"*

ASTM C172, section 4.1.2: *"Start molding specimens for strength tests within 15 min after fabricating the composite sample… use the sample and protect the sample from the sun, wind, and other sources of rapid evaporation, and from contamination."*

ASTM C1064: Temperature of Freshly Mixed Hydraulic-Cement Concrete *"…the sensor of the temperature measuring device has at least 75 mm [3 in.] of cover in all directions… Position of the temperature measuring device so that the end of the temperature sensing portion is submerged a minimum of 75 mm [3 in.] into the freshly mixed concrete. Close the void left by the placement by gently pressing the concrete around the temperature measuring device at the surface… Leave the temperature measuring device in the freshly mixed concrete for at least 2 min but not more than 5 min…"*

ASTM C143: Slump of Hydraulic-Cement Concrete *"Dampen the mold and place it on a rigid, flat, level, moist, nonabsorbent surface, free of vibration… Rod each layer 25 times uniformly… allow the rod to penetrate through the layer being rodded and into the layer below approximately 1 in [25 mm]… Raise the mold a distance of 12 in [300 mm] in 5 ± 2 s…"*

ASTM C231: Air Content of Freshly Mixed Concrete by the Pressure Method <u>*Follow ASTM C138 procedure for Unit Weight, then:*</u> *"Assemble the apparatus. Close the main air valve… and open both petcocks… inject water through one petcock until water emerges from the opposite petcock. Jar the meter gently until all air is expelled from this same petcock… Close the air bleeder valve… and pump air into the air chamber until the gauge is on the initial pressure line… Close both petcocks… Open the main air valve… Tap the sides of the measuring bowl smartly with a mallet…"*

ASTM C173: Air Content of Freshly Mixed Concrete by the Volumetric Method *"…fill the measuring bowl… in two layers of approximately equal volume… Rod each layer 25 times uniformly… After each layer is rodded, tap the sides of the measuring bowl 10 to 15 times with the mallet… Attach the top section of the measuring bowl and insert the funnel…"* <u>*Add water and appropriate amount of alcohol. Roll and invert per procedure.*</u> *"If at any time, during the inversion and rolling procedures liquid is found to be leaking from the meter, the test is invalid and a new test shall be started…"*

ASTM C138: Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete *"Rod each layer with 25 strokes… each layer uniformly over the cross section… After each layer is rodded, tap the sides of the measure 10 to 15 times with the appropriate mallet… Strike-off the measure to cover about two thirds of the surface and withdraw the plate with a sawing motion to finish only the area originally covered. Then place the plate… to cover the original two thirds of the surface and advance it with a vertical pressure and a sawing motion… to advance it until it slides completely off the measure. Incline the plate and perform final strokes with the edge of the plate to produce a smooth surface."*

ASTM C31: Making and Curing Concrete Test Specimens in the Field *"Rod each layer uniformly… tap the outsides of the mold at least 10 times with the mallet… Use an open hand to tap molds that are susceptible to denting or other permanent distortion if tapped with a mallet."*

ASTM C31, section 10.1.2: *"Immediately after molding and finishing, the specimens shall be stored for a period up to 48 h in a temperature range from 16 to 27°C [60 to 80°F] and in an environment preventing moisture loss from the specimens… An appropriate procedure or combination of procedures shall be used."* <u>See Note 8 referenced for more detail</u>.