



Concrete Laboratory Inspection Checklist

It is advised that a careful review of the following criteria be undertaken by the laboratory personnel who will be taking an active role in the inspection.

Scope of Inspection

The inspection covers the demonstration of each test method presented and a review of the equipment associated with each test.

The following ASTM test methods are included during a CCRL Concrete Inspection:

- C31 Making and Curing Concrete Test Specimens in the Field
- C39 Compressive Strength of Cylindrical Concrete Specimens
- C138 Unit Weight of Freshly Mixed Concrete
- C143 Slump of Portland Cement Concrete
- C172 Sampling Freshly Mixed Concrete
- C470 Molds for Forming Concrete Test Cylinders
- C511 Moist Cabinets, Moist Rooms, and Water Storage Tanks
- C1064 Temperature of Freshly Mixed Portland Cement Concrete
- Air Content (**one or both**)
 - C173 Air Content of Freshly Mixed Concrete by the Volumetric Method
 - C231 Air Content of Freshly Mixed Concrete by the Pressure Method
- Capping Cylinders (**one or both**)
 - C617 Capping Cylindrical Concrete Specimens
 - C1231 Use of Unbonded Caps in Determination of Compressive Strength
- C1077 Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation

There are various additional test methods (listed on the request form) that the laboratory may wish to add on to the scope of their inspection. Additional quality systems include R18 (required for AASHTO accreditation) and E329. The laboratory must request these quality systems or indicate to the inspector that they will be presented **prior to the inspection**. Any additional tests that the laboratory might wish to include for inspection should be clearly conveyed to the inspector **prior to the scheduled inspection date**.

How to Prepare for Your Inspection

- Have two cylinders set aside to cap and break.
- If you are presenting C78 as an additional test method, you must have a beam **prepared and cured prior to the inspector's arrival**. You will also need a storage tank filled with lime saturated water and at the correct temperature available for the inspector to check.
- If you are presenting C42 as an additional test method, you must also present either C174 or C1542 along with C42. Be prepared to present one of these methods of measuring the length of a core.

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- If you are presenting C780 Annex 6 (Compressive strength of molded masonry cubes and cylinders) as an additional test method, you must also present C780 Annex 1 (Consistency by cone penetration). This requires special equipment that **MUST** be available during the inspection.
- The laboratory should **be prepared to mix fresh concrete** to demonstrate field tests. Bag mix in a wheel barrel is acceptable unless also presenting C192 as an additional test method.
- A sample of dry coarse aggregate (No. 57 or No. 67 stone) should **be made available** to the inspector for verifying cylinder molds.
- Equipment should be clean and free of debris from laboratory testing, in working order, and in an accessible location. Any equipment that requires calibration/verification should be marked with accurate identification numbers.
- The demonstrations of these procedures should be made in accordance with the requirements of the applicable **ASTM test methods**, and **special laboratory practices should be avoided**. Technicians performing these tests should be certified to do so according to applicable requirements of the quality systems being presented.
- The following checklists are not all inclusive and should be used along with careful review of the applicable standards to prepare the laboratory for the concrete inspection.

Those pieces of equipment which the laboratory would like to present for inspection should be cleaned, in working order, and in an accessible location for the inspector's examination. Have the following equipment ready and available:

	Field Testing of Freshly Mixed Concrete (C1064, C143, C138, C173 and/or C231)	At least one complete set of in-service field equipment must be presented with accompanying accessories (i.e., tamping rods, mallet). This equipment should be inventoried and calibrated. Aggregate correction factors (either lab or supplier determined) should be available for review per C231.
	Molding Cylinders (C31)	Three of each type of cylinder mold the laboratory is presenting must be made available to the inspector for verification. The inspector will also need to see cylinder transportation containers.
	Capping Cylinders (C617)	Sulfur should be warmed to temperature prior to the inspector's arrival. All accessories for cylinder checks should be available.
	Unbonded Caps (C1231)	All accessories for cylinder checks should be available.
	Cylinder Compressive Strength (C39)	Compression machine should be in safe operating condition. The inspector will need to take apart and examine the spherical head; be prepared to remove the spherical head from the compression machine.
	Moist Storage (Cabinet, Room, and/or Tanks) (C511)	Moist/water storage facilities should be in operating order for the inspection. Indicate to the inspector where the temperature recorder(s) is located, as well as retained records for weekly data evaluations. Specimens for demonstration should stay in appropriate storage until testing. Make available a reference thermometer with accompanying calibration paperwork.

Be prepared to demonstrate the following procedures:

	Field Testing of Freshly Mixed Concrete (C1064, C143, C138, C31)	The laboratory will mix fresh concrete and demonstrate all aspects of field testing for which it wants accreditation. Be prepared to demonstrate all tests in full.
	Air Content of Freshly Mixed Concrete (C173 and/or C231)	Using the freshly mixed concrete, the laboratory will demonstrate one or both methods for which it wants accreditation. Presentation of at least one air content method is required for C1077.
	Capping Cylinders (C617)	Cap both ends of one cylinder and perform all daily checks. Presentation of at least one capping method is required for C1077.
	Use of Unbonded Caps (C1231)	Perform procedural checks. Presentation of at least one capping method is required for C1077.
	Cylinder Compressive Strength (C39)	The laboratory will be required to break one cylinder completely to failure. Typically C39 is performed along with C1231. Additional test methods may require additional cylinders.

C1077 Quality System Requirements:

	Equipment Inventory, Calibration, Maintenance	A current inventory with appropriate records. The inspector will review all calibration/verification records for all equipment requiring calibration/verification. Have current and previous records available for review. Have calibration/verification procedures for applicable pieces of equipment available for review.
	Human Resources	Training, evaluation, and certification records for all supervisors and technicians. Records documenting education and experience for all supervisors and technicians.
	Operations	Office and laboratory procedures including procedures for customer complaints, identifying and transferring specimens, recording test results, and amending reports.
	Reports and Records	A completed cylinder break report as it would be issued to a client, including a cover letter if applicable. Also prepare a test record for review.
	Quality Control	Proficiency Sample records (3 years), ASTM (and AASHTO, if applicable) standards.