



## Remote Concrete, Aggregate, and Quality Systems Inspection Checklist

This checklist is intended to represent preparation for the special circumstances required for presenting Concrete, Aggregate, or Concrete and Aggregate in a remote inspection during the COVID-19 Pandemic.

**It is advised that a careful review of the following be undertaken in order to best prepare for these special circumstances, as the preparation requirements for a remote inspection should be expected to differ significantly from previous inspections.**

### Scope of Inspection if Presenting Concrete:

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

### Scope of Inspection if Presenting Aggregate:

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

- C40 Organic Impurities in Fine Aggregate of Concrete
- C117 Amount of Material Finer than 75 ( $\mu\text{m}$ ) (No.200) Sieve in Aggregate by Washing
- C127 Specific Gravity and Absorption of Coarse Aggregate
- C128 Specific Gravity and Absorption of Fine Aggregate
- C136 Sieve Analysis
- C566 Total Moisture Content of Aggregate by Drying
- C702 Reducing Field Samples to Testing Size

There are several additional test methods that the laboratory may wish to add on to the scope of their 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 Remote Inspection

- **IMPORTANT: Please make sure that background noise levels are kept at a minimum during procedure demonstrations.**
- Any additional test methods not covered here should be discussed with your inspector ahead of time to understand how to prepare
- 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.**
- Only one technician may perform any single test, and **no assistance is permitted.**
- Procedures are open-book, and the demonstrating technician may use any reference materials desired including, but not limited to: ASTM standards, personal notes, and special laboratory checklists.
- Equipment during demonstrations should be positioned in a way that the video camera has a clear and close enough view of actions being performed.
- Technicians are encouraged to explain what steps they are doing or are about to do. This is ordinarily not required, but will help your remote inspector to better understand your actions.
- Laboratory staff responsible for moving the video camera during observation of demonstrations must be able to follow instructions of the inspector to adjust the field of view to better observe details of the procedure.
- **Upon starting the video conference with your inspector for demonstrations, the laboratory should be prepared to take the camera on a brief “tour” of the demonstration area so that the inspector can confirm all equipment and accessories needed for demonstration are available.**

**The Cement and Concrete Reference Laboratory and its Inspectors appreciate your patience and understanding as we work to provide you with the best experience possible in these difficult times.**

*If presenting Concrete, be prepared to demonstrate the following:*

- The laboratory must have two (2) hardened cylinders prepared in advance for demonstration.
- If presenting Additional method C78, the lab must have one (1) beam prepared and cured in advance available for breaking demonstration.

	Field Testing of Freshly Mixed Concrete (C1064, C143, C138, C31) (C173 and/or C231)	The laboratory will need to prepare enough fresh concrete to demonstrate all standard field tests, as well as enough to create a beam if presenting the additional method C78. If the lab is presenting the additional method C192 the inspector will need to observe that mixing, otherwise the inspector will not need to see mixing.
	Capping Cylinders (C617)	Cap one cylinder and perform all daily checks. <b>Sulfur should be confirmed at the correct temperature prior to starting video conferencing with your inspector.</b> Presentation of at least one capping method is required for C1077.
	Use of Unbonded Caps (C1231)	Perform all daily and 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. Additional test methods may require additional cylinders.

***If presenting Aggregate, be prepared to demonstrate the following:***

- It is recommended that different stations be established for each test with the proper sized sample and equipment ready to use.

	Organic Impurities (C40)	Have a sample of sand of appropriate moisture condition prepared. Water may be used in place of NaOH for demonstration purposes only.
	Minus No. 200 Wash (C117)	Have a sample prepared for demonstration.
	Specific Gravity (Coarse) (C127)	The sample should be soaked in water prior to demonstration.
	Specific Gravity (Fine) (C128)	The fine aggregate sample should be brought close to SSD condition prior to demonstration of the cone test and filling the flask.
	Sieve Analysis (C136)	The laboratory may use a coarse, fine, or mixture of coarse and fine material.
	Moisture Content by Drying (C566)	Know or be able to reference test sample requirements.
	Reducing Field Samples (C702)	(Splitting, Quartering, and/or Miniature Stockpile) The lab should be prepared to demonstrate the methods typically employed. At least one method must be demonstrated for C1077.

**Quality Systems**

This checklist is not intended to be a complete list of CCRL inspection items or AAP Accreditation requirements. Specific concerns and questions should be directed to your inspector.

- **IMPORTANT:** Records documentation will require **two “cycles” of records**, meaning that the laboratory will be required to present the most recent record, and the record immediately before that. For example, a C231 pressure meter “two cycles” may look like complete records from 5/1/2020 and 2/1/2020.
- **All documentation listed below must be provided to the inspector in a digital format.** The inspector will not be able to read or inspect paperwork shown during video conferences.

✓	Section Reviewed	General Requirements	R18	C1077	E329
	AASHTO Accreditation	Technicians performing tests must be certified in testing.	✓	✓	✓
	Organization	Legal information, management and ownership structure documentation.	✓	✓	
	Position Descriptions	Descriptions for each technical operational position.	✓		
	Management Qualifications	Biographical sketches for supervisory staff, and confirmation that staff members have required experience, certification, and education.	✓	✓	✓

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✓	Section Reviewed	General Requirements	R18	CI077	E329
	Laboratory and Field Qualifications	Records documenting experience and education of supervisory staff, certifications of supervisory staff and technicians.		✓	
	Training and Evaluation Procedures	Procedures specifying responsibility and process of training and evaluating technician proficiency.	✓	✓	
	Training and Evaluation Records	Records of training for all technicians, and <b>two cycles</b> of evaluation records.	✓	✓	
	Internal Reviews	Procedures for implementing Internal Audit and Management Review as required. Copies of <b>two cycles</b> of Internal Audits and Management Reviews.	✓		
	Corrective Actions	Procedures for responding to customer complaints and implementing corrective action when deficiencies are discovered.	✓	✓	
	Record Retention	Demonstrate records maintained for minimum time period required by applicable standards.	✓	✓	
	Standard Operating Procedures	Procedures for sample, test record, test report, and document management.	✓	✓	
	Test Reports	Present a completed test report <b>as it would be issued to a client</b> , with cover letter if applicable.	✓	✓	✓
	Test Records	Present a completed <b>test record</b> (e.g. field report, daily break sheet) for the <b>test report</b> given to the inspector for review.	✓	✓	✓
	External Services	Procedures for assuring subcontractor quality, list of external services, and other information as required.	✓	✓	
	Monitoring Test Results	Procedures for monitoring the validity of test results (e.g. CCRL Inspection and PSP) and related documentation.	✓		
	Proficiency Sample Program	Records of <b>two cycles</b> of participation in all required Proficiency Programs	✓	✓	
	Standard Practice and Test Method Availability	Show ownership of the most recent edition of AASHTO R18 and current copies of ASTM methods, and corresponding AASHTO test methods, if desired for accreditation	✓	✓	
	Inventory List	Present the inspector with a copy of your <b>most recent</b> inventory.	✓	✓	
	Calibration List	Present the inspector with a copy of the calibration list.	✓		
	General Equipment Procedures	Procedures for handling equipment and ensuring calibrations are performed on time and as appropriate, with records demonstrating these procedures are followed.	✓	✓	✓
	Other E329 Requirements	Purchase and history records for equipment. Procedures for data integrity, document control, and additional policies and procedures as required.			✓

✓	Section Reviewed	General Requirements	R18	C1077	E329
	Calibration Equipment and Reference Standards	Documentation for calibration equipment used such as: <ul style="list-style-type: none"> <li>• Reference thermometers</li> <li>• Calipers used for verifying equipment</li> <li>• Rulers used for verifying equipment</li> <li>• Reference weights for verifying scales</li> <li>• Load cells for verifying compression machines</li> </ul>	✓	✓	
	Maintenance	Procedures and records for <b>two cycles</b> of maintenance as applicable: <ul style="list-style-type: none"> <li>• Compression Machines</li> <li>• Moist Rooms</li> <li>• Storage Tanks</li> <li>• Sieve Shakers</li> </ul>	✓		
	Concrete Equipment Calibration Records	Calibration, maintenance, and verification records for <b>two cycles</b> for all in-service equipment: <ul style="list-style-type: none"> <li>• Compression machines</li> <li>• Bearing blocks</li> <li>• Unbonded C1231 retainers</li> <li>• C617 capping material</li> <li>• Pressure meters</li> <li>• Volumetric meters</li> <li>• Unit weight (field) scales</li> <li>• Unit weight measures</li> <li>• Slump cones</li> <li>• Concrete (field) thermometers</li> <li>• Recording (moist room) thermometers</li> <li>• Calipers</li> <li>• Cylinder molds</li> </ul>	✓	✓	
	Aggregate Equipment Calibration Records	Calibration, maintenance, and verification records for <b>two cycles</b> for all in-service equipment: <ul style="list-style-type: none"> <li>• Balances</li> <li>• Drying ovens</li> <li>• Sieve shakers</li> <li>• Sieves</li> <li>• Conical mold and tamper</li> <li>• Specific gravity flasks</li> <li>• C127 and C128 Qualification</li> </ul>	✓	✓	