Concrete Samples No. 205 & No. 206

Please Note:

- Please allow until December 2nd for receipt of samples. CCRL must be notified by this date of missing or damaged samples to assure replacement samples can be received in time for testing.
- All instructions for mixing the concrete MUST be followed.
- Both coarse and fine aggregate must be oven dried and cooled.
- The cement, fine aggregate, and water must be carefully weighted.
    - Material weights for both mix designs are found on the following pages.
- If you requested to participate in just the concrete sample, you will receive one box each of cement, fine aggregate and coarse aggregate for each sample. If you requested to participate in concrete and flexural strength, you will receive two boxes each of cement, fine aggregate and coarse aggregate for each sample.
- If testing flexural strength specimens, to obtain proper results, the material for both concrete and flexural strength specimens must be mixed as one batch.
- **Please note that compressive strength specimens are to be tested at 7-days, however, flexural strength specimens are to be tested at 14-days.**

How to Submit Test Results:

- On the CCRL Home Page, enter your lab number and PIN and click on “SIGN IN”.
- Click on “Concrete” from the menu on the left.
- Click on “Enter Data”
- Make sure the information at the top of the screen is accurate.
- Carefully enter your data. Round data properly. **Data that is not rounded correctly cannot be submitted until correction is made. You will receive an error saying you have bad data, and the data will not be entered into the website.**
- DO NOT enter “N/A” or zeros for data that you are not reporting, leave this data area blank. Zeros will be interpreted as data.
- Once all data has been entered click on the “Submit” button.
- You should see a confirmation screen. Print the confirmation screen for your records.
- If you have trouble entering or do not receive confirmation visit Data Entry Trouble Shooting or contact CCRL via ccrl@astm.org or by calling 240-436-4800, prior to the closing date. **CCRL cannot make accommodations for data received after the closing date.**
- **Sign out of the website and login again to check that your data was submitted properly.** You may add data or make corrections up to the closing date.
- **Closing date for submitting test results is February 7, 2025**.

CCRL
Cement and Concrete
Reference Laboratory

www.ccrl.us

November 22, 2024

TO: Participants in the CCRL Concrete Proficiency Sample Program

SUBJECT: Concrete Proficiency Samples No. 205 & No. 206

The current set of samples in the CCRL Concrete Proficiency Sample Program has been shipped to your laboratory, the last box was sent around November 22, 2024. The two samples are packaged in a total of six boxes, three boxes for each sample. **If you have added the optional C78 Flexural Strength of Concrete test, the two samples are packaged in a total of twelve boxes, six boxes for each sample.**

Please allow until December 2, 2024, for receipt of these samples (non-receipt date). If the samples have not been received on this date or if the samples you received were damaged, you need to notify us in writing, so please email us at ccrl@astm.org. Replacement samples will be sent. Failure to notify us by this date may result in you not receiving replacement samples in time to perform the necessary testing. Additional shipping charges will be incurred, if contact is not made by the non-receipt date.

Instructions covering the proposed tests and the necessary data sheets for reporting the test results are on the following pages. Please read these carefully before proceeding with tests. The tests should be made as soon as possible, and the results should be promptly submitted to this office, upon completion of testing. The same person, or persons, should perform the same tests on each sample.

CCRL test results should be submitted at our Proficiency Sample Program website: http://www.ccrl.us/. It is very important that you receive confirmation that your results have been submitted without errors by the website on the data submission page. Any errors will be shown in red at the top of the data submission page. Failure to input the correct number of digits and data within the proper range will result in submission errors. Print a copy of your submitted data for your records. If you are unable to submit data without errors, visit "Trouble Data Entry Trouble Shooting Tips" on the Concrete Proficiency Sample web page or contact CCRL at ccrl@astm.org or by calling 240-436-4800 prior to the closing date. **CCRL cannot make accommodations for data received after the closing date.**

Sincerely,

Kent Niedzielski
Program Manager, Proficiency Sample Program
Cement and Concrete Reference Laboratory

4441 Buckeystown Pike, Suite C □ Frederick, Maryland 21704
phone: 240-436-4800 □ fax: 610-834-7066 □ email: ccrl@astm.org

Sponsored by Committees C-1 and C-9 of ASTM International

CEMENT and CONCRETE REFERENCE LABORATORY
CONCRETE Proficiency Sample Program
Samples No. 205 and No. 206

Six packages containing the material for the current pair of Concrete Proficiency Samples have been shipped to you. **If you have added the optional C78 Flexural Strength of Concrete test, you will receive a total of twelve boxes.** Upon receipt of these boxes, check for damaged boxes or ruptured inner bags. If there appears to be any loss, notify us immediately so that we may replace any questionable material.

Each concrete sample will consist of three boxes, one containing the cement, one containing fine aggregate, and another containing the coarse aggregate. **If you added the optional C78 Flexural Strength of Concrete test, you will receive two identical boxes of cement, fine aggregate, and coarse aggregate, for a total of 6 boxes per sample. There is no difference between these boxes. (ie. both cements, both fine aggregates & both coarse aggregates are interchangeable)** The material will be in plastic bags. The cement and coarse aggregate will be identified with a card reading "Odd Sample" for Sample 205 or "Even Sample" for Sample 206. The same fine aggregate is being used for both sample pairs. **Please read the following instructions, and the accompanying reporting sheets, thoroughly before opening any of the bags.**

Prior to use, dry the coarse and fine aggregate, preferably in an oven (temperature 105 to 115 degrees C), to a constant weight. Place in a covered container and allow the material to come to ambient temperature before use. There is a small excess of both cement and fine aggregate. The quantities to be used are given in the mix design table. The coarse aggregate is already weighed, and the entire contents of these bags are to be used in the designated batch. For the purpose of this program, the mix calculations were based on the assumption that both the coarse and the fine aggregates have absorption factors of zero percent. Care should be taken not to lose any material from the bags.

TEST INSTRUCTIONS

Test each sample in accordance with the current ASTM Methods designated below. Reported test results should be based on a single test determination and not on the mean of replicate determinations. It is preferred that one operator make the same test on both samples.

Procedure	ASTM Designation
Slump of Concrete	C143-20
Unit Weight of Concrete	C138-24a
Air Content (Volumetric Method)	C173-24a
Air Content (Pressure Method)	C231-24
Temperature of Freshly Mixed Portland-Cement Concrete	C1064-23
Making and Curing Concrete Test Specimens	C192-24
Density of Compressive Strength Specimens	C39-24
Compressive Strength of Cylindrical Concrete Specimens (7-day)	C39-24
Flexural Strength of Concrete	C78-22

Air Content: There is sufficient material to determine air content by both C173 Volumetric Method and C231 Pressure Method (measuring bowl 0.20 - 0.25 ft^3). **For test method C231 use an aggregate correction factor of 0.0%.** Do not reuse the concrete from these tests.

Compressive Strength: In order to have sufficient concrete to make the compressive strength test specimens, it is necessary to reuse the material from the slump tests and the unit weight test (if not used for C231). Prior to making the cylinders, recombine the material from these tests with the unused portion of the batch, and mix thoroughly. You may use either 4x8" or 6x12" specimens to determine compressive strength. When using 4x8" cylinders make three specimens for each sample. When using 6x12" cylinders make two specimens for each sample. Report the total load and diameter for each cylinder, and report the 7-day average strength in psi for each of the concrete samples. **IMPORTANT** - Test results are cylinder size specific and must be entered in the appropriate area of the reporting form.

Flexural Strength: For the test, you will be preparing two 6x6" specimens, for each sample. **There are no means for testing other size specimens.** ***All beams are tested at 14 days***. Report the average width, average depth, and maximum applied load for each beam. Report the span length for each sample and calculate and report the modulus of rupture for each sample. **IMPORTANT** - Test results are beam specific and must be entered in the appropriate area of the reporting form.

Density of Compressive Strength Specimens: Follow Section 7.4 of ASTM C39 to determine the density of specimens. Report the average density of the compressive strength specimens.

CONCRETE MIX DESIGN		
	Sample No. 205	**Sample No. 206**
Water	5,044 g	5,141 g
Cement	9,700 g	9,700 g
Fine Aggregate (oven dried)	19,400 g	19,400 g
Coarse Aggregate (oven dried)	use entire contents of box	use entire contents of box

CONCRETE & BEAM MIX DESIGN		
	Sample No. 205	**Sample No. 206**
Water	10,088 g	10,282 g
Cement	19,400 g	19,400 g
Fine Aggregate (oven dried)	38,800 g	38,800 g
Coarse Aggregate (oven dried)	use entire contents of box	use entire contents of box

MIXING INSTRUCTIONS

The concrete material supplies should provide approximately 0.85 cubic feet of concrete. **If you have added the optional C78 Flexural Strength of Concrete test, the combined material should provide approximately 1.7 cubic feet of concrete.** Prior to mixing the test material, the mixer should be "buttered," using aggregates and a non-air-entraining cement, other than that supplied by the Cement and Concrete Reference Laboratory (see C192 Note 14 – "*Buttering' the Mixer* option). The mixing procedure given in Sections 8.1.1 and 8.1.2 of C192 must be followed. **Hand mixing must not be used.**

REPORTING INSTRUCTIONS

The test results for the Concrete Proficiency Sample Program should be entered at the CCRL Proficiency Sample Program website found at: http://www.ccrl.us/. You will need your laboratory's identification number and PIN to access the data entry form on the website.

The results of this proficiency sample are based on consensus values. There are no predetermined right answers. Replicate determinations when not specified by the test method, collusion between laboratories, or results biased by previous proficiency sample results can affect the outcome of the proficiency sample program. Collusion between laboratories is contrary to professional, scientific conduct and only nullifies the benefits of proficiency testing.

CCRL PROFICIENCY SAMPLE PROGRAM
Portland Cement CONCRETE Sample Nos. 205 & 206
REPORTING FORM

RETURN TO:
Kent Niedzielski, Program Manager, PSP
Cement and Concrete Reference Laboratory
4441 Buckeystown Pike, Ste C
Frederick, Maryland 21704
FAX: 610-834-7066

FROM: _____
_____
_____
_____
e-mail: _____
Check here if name or address has changed _____

Test Results

Report Results as Indicated in [ ]

	Sample No. 205	Sample No. 206	**CCRL Test ID**
SLUMP: Inches *[nearest 0.25 inch]*			2
AIR CONTENT - C173 Volumetric Method: Percent *[nearest 0.25 percent]*			1
AIR CONTENT - C231 Pressure Method: Percent *[nearest 0.1 percent]*			6
UNIT WEIGHT: lbs/ft^3 *[nearest 0.1 lb/ft^3]*			3
TEMPERATURE OF FRESH CONCRETE: Fahrenheit *[nearest 1°F]*			5
DENSITY OF CONCRETE TEST CYLINDERS: Average density, lb/ft^3 *[nearest 1 lb/ft^3]*			7

CCRL Laboratory Number _____

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Frederick, Maryland 21704
FAX: 610-834-7066

FROM: _____

e-mail: _____

Check here if name or address has changed _____

COMPRESSIVE STRENGTH

COMPRESSIVE STRENGTH - 4 x 8" specimens:			Sample No. 205	Sample No. 206	CCRL Test ID
Report only 4 x 8" here (see note below)	Sample No. 205	Sample No. 206			
Cylinder #1, diameter *[nearest 0.01"]*					
Cylinder #2, diameter *[nearest 0.01"]*					
Cylinder #3, diameter *[nearest 0.01"]*					
Average cylinder diameter *[nearest 0.01"]*					
Cylinder #1, 7-day total load *[nearest lbf]*					
Cylinder #2, 7-day total load *[nearest lbf]*					
Cylinder #3, 7-day total load *[nearest lbf]*					
Average compressive strength, 7-day *[nearest 10 psi]*					4
COMPRESSIVE STRENGTH - 6 x 12" specimens:			Sample No. 205	Sample No. 206	CCRL Test ID
Report only 6 x 12" here (see note below)	Sample No. 205	Sample No. 206			
Cylinder #1, diameter *[nearest 0.01"]*					
Cylinder #2, diameter *[nearest 0.01"]*					
Average cylinder diameter *[nearest 0.01"]*					
Cylinder #1, 7-day total load *[nearest lbf]*					
Cylinder #2, 7-day total load *[nearest lbf]*					
Average compressive strength, **7-day** *[nearest 10 psi]*.....					4

Note: You may report either 4 x 8" or 6 x 12" specimens but not both.

CCRL Laboratory Number _____

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Cement and Concrete Reference Laboratory
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Frederick, Maryland 21704
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FROM: _____
_____
_____
_____
e-mail: _____
Check here if name or address has changed _____

Flexural Strength (14-day)

BEAMS			Sample No. 205	Sample No. 206	CCRL Test ID
Average Width (b)	Sample No. 205	Sample No. 206			
Beam #1, width [nearest 0.05”]					
Beam #2, width *[nearest 0.05"]*					
Average Beam Width (b), [nearest 0.05”]					[1100]
Average Depth (d)	Sample No. 205	Sample No. 206			
Beam #1, depth [nearest 0.05”]					
Beam #2, depth [nearest 0.05”]					
Average Beam Depth (d), [nearest 0.05”]					[1110]
Span Length (L), [nearest 0.1”]					[1120]
Average Maximum Applied Load (P)	Sample No. 205	Sample No. 206			
Beam #1, *[nearest 1 lb.]*					
Beam #2, *[nearest 1 lb.]*					
Average Maximum Applied Load (P), [nearest 1 lb.]					[1130]

CCRL Laboratory Number _____

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Cement and Concrete Reference Laboratory
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Frederick, Maryland 21704
FAX: 610-834-7066

FROM: _____

e-mail: _____

Check here if name or address has changed _____

BEAMS	Sample No. 205	Sample No. 206	CCRL Test ID

Average Modulus of Rupture (R)	Sample No. 205	Sample No. 206			
Beam #1, *[nearest 5 psi]*					
Beam #2, *[nearest 5 psi]*					
Average Modulus of Rupture (R), *[nearest 5 psi]*					[1140]

CCRL Laboratory Number _____