# Concrete Masonry Unit
# Samples 57 & 58

## Please Note:

- Please allow until June 7th 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.
- The CMU specimens are contained in a total of four boxes.
- Two boxes for Sample 57 and two boxes for Sample 58.
- DO NOT mix samples. Each unit is labeled, and the units for Sample 58 have a paint stripe on one end.

## How to Submit Test Results:

- On the CCRL Home Page, enter your lab number and PIN and click on “SIGN IN”.
- Click on “Concrete Masonry Units” 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.
- **Compressive strength specimens should be tested on July 12, 2024**.
- **Closing date for test results is July 19, 2024.**

CCRL
Cement and Concrete
Reference Laboratory

www.ccrl.us

May 17, 2024

**TO: Participants in the CCRL Concrete Masonry Units Proficiency Sample Program**

**SUBJECT: Concrete Masonry Units Samples No. 57 and No. 58**

The current pair of Concrete Masonry Units Proficiency Samples were distributed on May 17, 2024. **Please allow until June 7, 2024 for receipt of these samples (non-receipt date). If these 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.**

There are six units for each sample. Each sample is packaged in two separate boxes each containing three units. These boxes are labeled on the outside as to which sample they contain. Sample No. 58 specimens have a paint stripe on one end to aid in specimen identification. **An effort is made to label each specimen during packaging. However, laboratory personnel must make sure specimens are identified before removal from its box.** The two samples were produced using different concrete proportions and must not be mixed.

Tests are to be conducted separately on each sample. Read the enclosed instructions before proceeding with any testing. It is mandatory that these instructions and ASTM standard C140-23a be followed. These tests should be conducted as soon as possible after the samples are received, and the test results should be promptly reported to CCRL upon completion of testing. Test results should be entered at our website: www.ccrl.us.

Additional samples of CMU No. 57 & No. 58 will be available for sale after the final report is posted. Past samples for other CCRL programs are also available for sale. These samples can be used for research, technician training, and test equipment verification. Contact us for availability and pricing.

Sincerely,

Kent Niedzielski
Program Manager
Proficiency Sample Programs
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 MASONRY UNITS PROFICIENCY SAMPLE PROGRAM
# Samples No. 57 and No. 58

# Instructions

### INSTRUCTIONS FOR TESTING

1 CCRL Concrete Masonry Units Proficiency Samples Number 57 and Number 58 were distributed May 17, 2024. You should receive four boxes, with each box containing three 4x8x8" concrete masonry units. These specimens were manufactured to comply with ASTM C90 Loadbearing Concrete Masonry Units. **If you have not received four boxes by June 7, 2024**, please notify CCRL Proficiency Sample Program, phone 240-436-4800 or email ccrl@astm.org.

2 Each box should be labeled as Sample No. 57 or Sample No. 58. When packaged each specimen was also identified with small labels. In addition to the sample number these labels also contain additional information used during packaging and have no other significance. **Each specimen should be checked for proper labeling with its identity before removal from its box.** In addition, specimens for Sample No. 58 have a paint stripe on one end to aid in specimen identification. The two samples are produced using different concrete proportions and **must not be mixed**.

3 Verify that you have received a total of 12 units, six units of Sample No. 57 and six of Sample No. 58, and that they are in good condition. Notify CCRL of any damaged or missing samples.

4 Immediately after receiving and unpacking the units, determine and record the received weight ($W_r$) for each unit.

5 For each sample divide the six units into two groups of three units so that the average received weight ($W_r$) of each group of three is approximately equal. The first group of three units (units #1, #2, #3), referred to as "Compression Units" on the reporting form, will be used for compressive strength testing. The second group (units #4, #5, #6), referred to as "Absorption Units" on the reporting forms, will be used for dimensional evaluation, and absorption testing by water immersion.

6 Perform all testing in accordance with ASTM Standard C 140-23a. A copy of this edition of the standard, may be obtained directly from ASTM, http://www.astm.org/.
- 6.1 Testing Compression Specimens: Test specimens on the date listed on the first page of the instructions.
- 6.2 Orientation of Specimens for Testing: Compressive strength specimens are to be tested with their cores in a vertical direction.
- 6.3 Calculation of Area and Strength: Area of Compression Units shall be calculated as **net area**. Compressive strength shall be calculated using average net area (C140-23a, section 9.5) and reported as net area compressive strength.

### INSTRUCTIONS FOR REPORTING

7 Report test results on the reporting forms provided, being sure to complete all four pages. Enter your test result at the CCRL website: http://www.ccrl.us/. You will need your Laboratory ID number and PIN. These are found in the “Instructions” email that was sent to your laboratory.

8 Test results must be reported in the units and to the nearest significant number indicated for each test on the reporting forms.

# CCRL PROFICIENCY SAMPLE PROGRAM
# CONCRETE MASONRY UNITS - SAMPLES NO. 57 & NO. 58

RETURN TO: Kent Niedzielski, Program Manager
Cement and Concrete Reference Laboratory
4441 Buckeystown Pike, Suite C
Frederick, MD 21704
Website: www.ccrl.us

FROM: _____
_____
_____
_____
e-mail: _____

## Test Results

**COMPRESSION UNITS (units #1, #2, and #3)**

| | | Sample No. 57 | Sample No. 58 | |
|---|---|---|---|---|
| | | **Sample 57** | **Sample 58** | |
| **RECEIVED WEIGHT** ($W_r$) | Unit 1 | | | |
| lb (*nearest 0.1 lb*) | Unit 2 | | | |
| | Unit 3 | | | |
| Average Received Weight ($W_r$), lb (*nearest 0.1 lb*) ..... | | | | [500] |
| | | **Sample 57** | **Sample 58** | |
| **MAXIMUM COMPRESSIVE** | Unit 1 | | | |
| **LOAD** ($P_{max}$) | Unit 2 | | | |
| lb (*nearest 10 lb*) | Unit 3 | | | |
| Average Maximum Compressive Load ($P_{max}$), lb (*nearest 10 lb*) ..... | | | | [550] |
| | | **Sample 57** | **Sample 58** | |
| **NET AREA COMPRESSIVE** | Unit 1 | | | |
| **STRENGTH** | Unit 2 | | | |
| psi (*nearest 10 psi*) | Unit 3 | | | |
| Average Net Area Compressive Strength, psi (*nearest 10 psi*) ..... | | | | [560] |

See Instructions 7.1. Date compression specimens tested: _____

Tests performed by _____ Date _____
Tests reported by _____ Title _____
Phone _____ FAX _____ CCRL laboratory number _____

## CCRL PROFICIENCY SAMPLE PROGRAM
## CONCRETE MASONRY UNITS - SAMPLES NO. 57 & NO. 58

RETURN TO: Kent Niedzielski, Program Manager
Cement and Concrete Reference Laboratory
4441 Buckeystown Pike, Suite C
Frederick, MD 21704
Website: www.ccrl.us

FROM: _____
_____
_____
_____
e-mail: _____

### Test Results

**ABSORPTION UNITS (units #4, #5, and #6)**

| | | Sample No. 57 | Sample No. 58 | |
|---|---|---|---|---|
| | | **Sample 57** | **Sample 58** | |
| **RECEIVED WEIGHT** ($W_r$) lb (*nearest 0.1 lb*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Received Weight ($W_r$), lb (*nearest 0.1 lb*) ..... | | | | [600] |
| | | **Sample 57** | **Sample 58** | |
| **WIDTH** ($W$) inch (*nearest 0.1 inch*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Width ($W$), inch (*nearest 0.1 inch*) ..... | | | | [510] |
| | | **Sample 57** | **Sample 58** | |
| **HEIGHT** ($H$) inch (*nearest 0.1 inch*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Height ($H$), inch (*nearest 0.1 inch*) ..... | | | | [520] |
| | | **Sample 57** | **Sample 58** | |
| **LENGTH** ($L$) inch (*nearest 0.1 inch*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Length ($L$), inch (*nearest 0.1 inch*) ..... | | | | [530] |
| | | **Sample 57** | **Sample 58** | |
| **FACE SHELL THICKNESS** ($t_{fs}$) inch (*nearest 0.01 inch*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Face Shell Thickness ($t_{fs}$), inch (*nearest 0.01 inch*)..... | | | | [532] |
| | | **Sample 57** | **Sample 58** | |
| **WEB THICKNESS** ($t_w$) inch (*nearest 0.01 inch*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Web Thickness ($t_w$), inch (*nearest 0.01 inch*) ..... | | | | [533] |
| | | **Sample 57** | **Sample 58** | |
| **WEB HEIGHT** ($t_h$) inch (*nearest 0.1 inch*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Web Height ($t_h$), inch (*nearest 0.1 inch*) ..... | | | | [534] |

Tests performed by _____ Date _____
Tests reported by _____ Title _____
Phone _____ FAX _____ CCRL laboratory number _____

## CCRL PROFICIENCY SAMPLE PROGRAM
## CONCRETE MASONRY UNITS - SAMPLES NO. 57 & NO. 58

RETURN TO: Kent Niedzielski, Program Manager
Cement and Concrete Reference Laboratory
4441 Buckeystown Pike, Suite C
Frederick, MD 21704
Website: www.ccrl.us

FROM: _____
_____
_____
_____
e-mail: _____

### Test Results

**ABSORPTION UNITS (units #4, #5, and #6) - continued**

| | | Sample No. 57 | Sample No. 58 | |
|---|---|---|---|---|
| | | **Sample 57** | **Sample 58** | |
| **IMMERSED WEIGHT** ($W_i$) lb (*nearest 0.1 lb*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Immersed Weight ($W_i$), lb (*nearest 0.1 lb*) ..... | | | | [610] |
| | | **Sample 57** | **Sample 58** | |
| **SATURATED WEIGHT** ($W_s$) lb (*nearest 0.1 lb*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Saturated ($W_s$), lb (*nearest 0.1 lb*) ..... | | | | [620] |
| | | **Sample 57** | **Sample 58** | |
| **OVEN-DRY WEIGHT** ($W_d$) lb (*nearest 0.1 lb*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Oven-Dry Weight ($W_d$), lb (*nearest 0.1 lb*) ..... | | | | [630] |
| | | **Sample 57** | **Sample 58** | |
| **NET AREA** ($A_n$) $inch^2$ (*nearest 0.1 $inch^2$*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Net Area ($A_n$), $inch^2$ (*nearest 0.1 $inch^2$*) ..... | | | | [635] |
| | | **Sample 57** | **Sample 58** | |
| **ABSORPTION** $lb/ft^3$ (*nearest 0.1 $lb/ft^3$*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Absorption, $lb/ft^3$ (*nearest 0.1 $lb/ft^3$*) ..... | | | | [640] |
| | | **Sample 57** | **Sample 58** | |
| **DENSITY** ($D$) $lb/ft^3$ (*nearest 0.1 $lb/ft^3$*) | Unit 4 | | | |
| | Unit 5 | | | |
| | Unit 6 | | | |
| Average Density ($D$), $lb/ft^3$ (*nearest 0.1 $lb/ft^3$*) ..... | | | | [650] |

Tests performed by _____ Date _____
Tests reported by _____ Title _____
Phone _____ FAX _____ CCRL laboratory number _____

## CCRL PROFICIENCY SAMPLE PROGRAM
## CONCRETE MASONRY UNITS - SAMPLES NO. 57 & NO. 58

RETURN TO: Kent Niedzielski, Program Manager
Cement and Concrete Reference Laboratory
4441 Buckeystown Pike, Suite C
Frederick, MD 21704
Website: www.ccrl.us

FROM: _____
_____
_____
_____
e-mail: _____

### Test Results

**ABSORPTION UNITS (units #4, #5, and #6) - continued**

| | | Sample No. 57 | Sample No. 58 | |
|---|---|---|---|---|
| | | **Sample 57** | **Sample 58** | |
| **Net Volume ($V_n$)** | Unit 4 | | | |
| $ft^3$ (*nearest 0.0001 $ft^3$*) | Unit 5 | | | |
| | Unit 6 | | | |
| Average Net Volume ($V_n$), $ft^3$ (*nearest 0.0001 $ft^3$*) ..... | | | | [652] |
| | | **Sample 57** | **Sample 58** | |
| **Percent Solid** | Unit 4 | | | |
| percent (*nearest 0.1%*) | Unit 5 | | | |
| | Unit 6 | | | |
| Average Percent Solid, % (*nearest 0.1 %*) ..... | | | | [654] |
| | | **Sample 57** | **Sample 58** | |
| **Normalized Web ($A_{wn}$)** | Unit 4 | | | |
| $in^2/ft^2$ (*nearest 0.1* $in^2/ft^2$) | Unit 5 | | | |
| | Unit 6 | | | |
| Average Normalized Web ($A_{wn}$), $in^2/ft^2$ (*nearest 0.1* $in^2/ft^2$) ..... | | | | [656] |
| | | **Sample 57** | **Sample 58** | |
| **EQUIVALENT** | Unit 4 | | | |
| **THICKNESS** ($T_e$) | Unit 5 | | | |
| inch (*nearest 0.1 inch*) | Unit 6 | | | |
| Average Equivalent Thickness ($T_e$), inch (*nearest 0.1 inch*) ..... | | | | [660] |

Tests performed by _____ Date _____
Tests reported by _____ Title _____
Phone _____ FAX _____ CCRL laboratory number _____