NCMA LAB
RESEARCH & DEVELOPMENT

National
Concrete Masonry
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July 30, 2021

Matt Perreault
Best Block
2088 FM 949
Alleyton, TX 78935

Please find enclosed the test report conducted in accordance with ASTM C140/C140M-20a, *Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units*, that we performed at your request on the following product that you supplied to the NCMA Research and Development Laboratory:

NCMA Project Number: 21-314-7
6x8x16 in. CMU
ID: Normal Weight No. 7

The attached report includes results documenting the tested compressive strength of the concrete masonry units submitted for evaluation. The compressive strength of a masonry assembly constructed using these units can be calculated using the Unit Strength Method as outlined in Section 1.4 B.2.b of *Specification for Masonry Structures* (TMS 602-13/ACI 530.1-13/ASCE 6-13) as referenced in the 2015 *International Building Code*; or as outlined in Section 1.4 B.2.b of *Specification for Masonry Structures* (TMS 602-16) as referenced in the 2018 *International Building Code*.

The net area compressive strength of these concrete masonry units is: 4,770 psi

Using the Unit Strength Method, the net area compressive strength of masonry constructed with these units can be considered to be the following for projects designed under either the 2015 or 2018 *International Building Code*:

Net Area Compressive Strength of Masonry When Used with Type M or S Mortar =	3,000	psi
Net Area Compressive Strength of Masonry When Used with Type N Mortar =	2,500	psi

The values provided above can be compared directly to the specified compressive strength of masonry, f'_m. If these values exceed f'_m, compliance with the specified compressive strength of masonry has been demonstrated. Please note that the contents of this report are not to be reproduced, except in full, without the written approval of the NCMA Research and Development Laboratory.

We take pride in meeting your product evaluation requirements and look forward to continuing to service your testing needs for years to come. Thank you for choosing NCMA's Research and Development Laboratory. Please feel free to contact me directly with any comments or questions at: 571-224-0924 or tjones@ncma.org.

Sincerely,

Timothy Jones
Manager, Research and Development Laboratory

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ASTM C140/C140M-20a Test Report
Sampling and Testing Concrete Masonry Units and Related Units

NCMA Project Number: 21-314-7
Report Date: 7/30/2021

Client: Best Block
Address: 2088 FM 949
Alleyton, TX 78935

Testing Agency: National Concrete Masonry Association
Research and Development Laboratory
Address: 13750 Sunrise Valley Drive
Herndon, VA 20171-4662

Standard Specification: ASTM C90-16a

Sampling Party: Best Block

Sample Description: 6x8x16 in. CMU
ID: Normal Weight No. 7

Date Samples Received: 6/3/2021

Summary of Test Results

Physical Property	ASTM C90-16a Specified Values	Average Test Results		Physical Property	ASTM C90-16a Specified Values	Average Test Results	
Net Compressive Strength	2,000 min	4,770	psi	Min. Face Shell Thickness (t_{fs})	1.00 min	1.01	in.
Gross Compressive Strength	****	2,790	psi	Min. Web Thickness (t_w)	0.75 min	1.04	in.
Density	****	131.4	pcf	Equivalent Web Thickness	****	2.41	in.
Absorption	13 max	8.9	pcf	Normalized Web Area (A_{wn})	6.5 min	27.0	$in.^2/ft^2$
Percent Solid	****	58.6	%	Maximum Variation from			
Net Cross-Sectional Area	****	27.52	$in.^2$	Specified Dimensions	.125 max	0.09	in.
Gross Cross-Sectional Area	****	46.97	$in.^2$				

Individual Unit Test Results

Compression Units	Specimen No.	Received Weight lb	Cross-Sectional Area* Gross in^2	Cross-Sectional Area* Net in^2	Maximum Load lb	Compressive Strength Gross psi	Compressive Strength Net psi
Date Tested:	1	28.9	47.0	27.5	132,830	2,830	4,830
6/22/2021	2	29.0	47.0	27.5	136,380	2,900	4,960
	3	28.1	47.0	27.5	124,480	2,650	4,520
	Average	28.7	47.0	27.5	131,230	2,790	4,770

* Compression and absorption units were reduced in size in accordance with ASTM C140/C140-20a. Unit areas determined as the average of the three reduced-size absorption units and are assumed to be the same as those units tested in compression.

Absorption Units Full-Size Unit Measurements	Specimen No.	Average Width in.	Average Height in.	Average Length in.	Minimum Web Height in.	Avg./Min. Face Shell Thickness** in.	Min. Web Thickness in.	Minimum Web Area $in.^2$	Normalized Web Area $in.^2/ft^2$
Date Tested:	4	5.62	7.67	15.56	7.67	1.01	1.04	23.89	26.9
6/10/2021	5	5.63	7.72	15.60	7.72	1.00	1.05	24.29	27.3
	6	5.56	7.70	15.55	7.70	1.01	1.04	23.94	26.9
	Average	5.60	7.69	15.57	7.69	1.01	1.04	24.04	27.0

**Where the thinnest points of opposite face shells differ in thickness by less than 0.125 inches, their measurements are averaged.

Reduced-Size Absorption Specimens Date Tested:	Specimen No.	Received Weight lb	Immersed Weight lb	Saturated Weight lb	Oven-Dry Weight lb	Absorption pcf	Density pcf	Net Volume ft^3	Percent Solid %
6/22/2021	4	16.4	9.6	17.2	16.1	9.1	131.3	0.123	58.6
to	5	16.3	9.5	17.2	16.1	8.9	131.3	0.122	58.4
6/23/2021	6	16.3	9.5	17.2	16.1	8.6	131.7	0.122	58.8
	Average	16.3	9.5	17.2	16.1	8.9	131.4	0.122	58.6

Timothy James
Manager, Research and Development Laboratory

Jason J. Thompson
Vice President of Engineering

Representative Test Specimen