

August 12, 2013

Terry Popham
Texas Building Products
3261 State Highway 108
Strawn, TX 76475-2706

Mr. Popham

Enclosed please find a report of testing performed by the National Concrete Masonry Association Research and Development Laboratory on the following products:

Report Number	Unit Description
13-329	4 x 8 x 16 Inch Concrete Masonry Unit Mark "Burnished"

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 are constantly improving our services and would greatly appreciate any feedback regarding your experience with NCMA's Research and Development Laboratory. We have set up an online survey which can be found at www.ncma.org/lab/Pages/LaboratorySurvey.aspx. After taking the online survey, make use of the many resources available at our website, www.ncma.org, including the latest industry news and events, a searchable directory of products and services, a vast collection of literature on the design, implementation, and marketing of manufactured concrete products and hardscape systems, as well as a list of available laboratory services for future testing.

The National Concrete Masonry Association Laboratory is dedicated to the scientific testing and research of concrete masonry products and systems. We take pride in meeting your product certification and 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 703-713-1900 or nlang@ncma.org.

Sincerely,



Nicholas R. Lang
Manager, Research & Development Laboratory

May 10, 2013

Terry Popham
Texas Building Products
3261 State Highway 108
Strawn, TX 76475-2706

Please find enclosed a copy of a test report that we performed at your request on the following product that you supplied to the NCMA Research and Development Laboratory:

4 x 8 x 16 Inch Concrete Masonry Unit
Mark "Burnished"

NCMA Job Number: 13-329

We are pleased to report that the tested properties from this report comply with the applicable requirements of ASTM C 90-12, Standard Specification for Loadbearing Concrete Masonry Units.

The attached report includes the tested compressive strength of the concrete masonry unit. The compressive strength of masonry 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 602-11 / ACI 530.1-11 / ASCE 6-11). In accordance with this method, the compressive strength of masonry is a function of unit strength and mortar type. As shown in the attached test report...

Net Area Compressive Strength of 4 x 8 x 16 Inch Concrete Masonry Unit Mark "Burnished"	3430 psi
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Therefore, the net area compressive strength of masonry when these units are used, can be considered to be the following:

<u>When used with:</u>	<u>Net Area Compressive Strength of Masonry</u>
Type M or S mortar	2330 psi
Type N mortar	2190 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 has been documented.

The Unit Strength Method is acknowledged to be a conservative method for determining compliance with the specified compressive strength of masonry. A second method, the Prism Test Method can also be used. The results from the Prism Test Method will likely not be the same as the results of the Unit Strength Method above, and a higher compressive strength of masonry value will usually be obtained from the Prism Test Method.

Sincerely,



Nicholas R. Lang
Manager, Research & Development Laboratory

ASTM C140-12a Test Report
Sampling and Testing Concrete Masonry Units and Related Units

Job No.: 13-329
Report Date: 5/10/2013

Client: Texas Building Products
Address: 3261 State Highway 108
Strawn, TX 76475-2706

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

Standard Specification: ASTM C90-12

Sampling Party: Texas Building Products

Unit Description:
4 x 8 x 16 Inch Concrete Masonry Unit
Mark "Burnished"

Date Samples Received: 4/29/2013

Summary of Test Results

Physical Property	ASTM C90-12 Specified Values	Average Test Results	Physical Property	ASTM C90-12 Specified Values	Average Test Results
	Net Compressive Strength	1900 min		3430 psi	Min. Faceshell Thickness (t_{fs})
Gross Compressive Strength	****	2580 psi	Min. Web Thickness (t_w)	0.75 min	1.04 in.
Density	****	118.7 pcf	Equivalent Web Thickness	****	3.19 in.
Absorption	15 max	11.1 pcf	Normalized Web Area (A_{wn})	6.5 min	35.2 in. ² /ft ²
Percent Solid	****	75.3 %	Equivalent Thickness	****	2.70 in.
Net Cross-Sectional Area	****	42.44 in. ²	Max. Var. from Spec. Dimensions	.125 max	0.125 in.
Gross Cross-Sectional Area	****	56.38 in. ²			

Individual Unit Test Results

Compression Units	Specimen No.	Received Weight lb	Cross-Sectional Area *		Max. Load lb	Compressive Strength	
			Gross in ²	Net in ²		Gross psi	Net psi
			#1	22.80		56.38	42.44
#2	22.58	56.38	42.44	146090	2590	3440	
#3	22.04	56.38	42.44	140830	2500	3320	
Average	22.47	56.38	42.44	145540	2580	3430	

* Unit areas determined as the average of the three absorption units and are assumed to be the same as those units tested in compression.

Absorption Units	Specimen No.	Avg Width in.	Avg Height in.	Avg Length in.	Avg./Min. Face Shell Thickness in.	Min. Web Thickness in.	Minimum Web Area in. ²	Normalized Web Area in. ² /ft ²								
									#4	3.61	7.51	15.68	1.11	1.04	31.19	35.1
									#5	3.59	7.50	15.70	0.99	1.02	30.58	34.4
#6	3.59	7.52	15.69	1.05	1.07	32.18	36.2									
Average	3.59	7.51	15.69	1.05	1.04	31.32	35.2									

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

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 %										
										5/5/2013	#4	22.68	12.68	24.26	22.26	10.8	120.0	0.1856	75.6
										to 5/6/2013	#5	22.14	12.30	23.84	21.70	11.6	117.3	0.1849	75.6
	#6	22.08	12.25	23.64	21.66	10.8	118.7	0.1825	74.6										
	Average	22.30	12.41	23.91	21.87	11.1	118.7	0.1843	75.3										

Comments: These units meet or exceed the compressive strength, absorption and dimensional requirements of ASTM C90-12.



Nicholas R. Lang
Manager, Research & Development
Laboratory

ASTM C426-10 Test Report
Linear Drying Shrinkage of Concrete Masonry Units

Job No.: 13-329B
Report Date: 8/12/2013

Client: Texas Building Products
Address: 3621 State Highway 108
Strawn, TX 76475-2706

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

Unit Specification: ASTM C90-12

Sampling Party: Texas Building Products

Unit Size and Description:
4 x 8 x 16 inch Concrete Masonry Unit
Mark: 'Burnished'

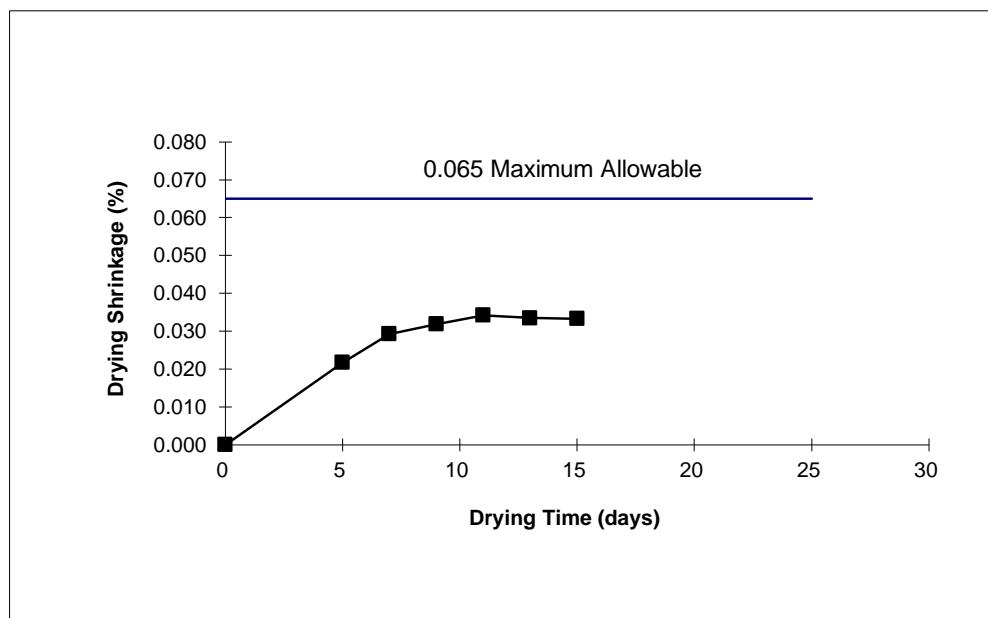
Date Samples Received: 4/29/2013
Date Testing Started: 7/26/2013

One face shell from each of three units was saw-cut from submitted specimens for the purpose of testing in accordance with ASTM C426-10. Each reported value represents an average of calculated shrinkage values from measurements taken on each of two sides of the three specimens.

	Unit #1		Unit #2		Unit #3		Average	
	Weight (lbs)	Linear Drying Shrinkage (%)	Weight (lbs)	Linear Drying Shrinkage (%)	Weight (lbs)	Linear Drying Shrinkage (%)	Weight (lbs)	Linear Drying Shrinkage (%)
Saturated	13.83	---	13.84	---	13.38	---	13.68	---
5 Days	12.88	0.021	12.87	0.023	12.49	0.020	12.75	0.022
7 Days	12.84	0.029	12.83	0.029	12.46	0.029	12.71	0.029
9 Days	12.83	0.032	12.82	0.031	12.45	0.032	12.70	0.032
11 Days	12.83	0.034	12.82	0.034	12.45	0.035	12.70	0.034
13 Days	12.83	0.034	12.82	0.033	12.45	0.033	12.70	0.033
15 Days	12.83	0.034	12.82	0.033	12.45	0.033	12.70	0.033

Final Linear Drying Shrinkage, S (%)

Unit #1	Unit #2	Unit #3	Average
0.034	0.033	0.034	0.034



Note: Final linear drying shrinkage, S, is calculated by averaging the final length measurement at equilibrium with the previous two measurements for each specimen.



Nicholas R. Lang
Manager, Research & Development Laboratory

Comments: These units comply with the drying shrinkage requirements of ASTM C90-12.