

ASTM C 140-08 Test Report
Sampling and Testing Concrete Masonry Units and Related Units

Job No.: 09-506
 Report Date: 8/7/2009

Client: Grace Construction Products
 Address: 7221 Parkland Court West
 Milwaukee, WI 53223

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

Unit Specification: ASTM C 1319-01 (2006)

Sampling Party: Flagstone Pavers, Inc.

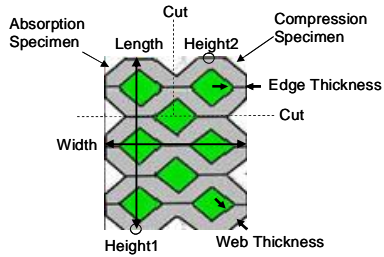
Unit Designation/Description:
 Concrete Grid Paving Unit

Date Samples Received: 8/3/2009

Three full-size specimens were evaluated. Dimensions were determined from the full-size specimens. One cell of each grid paver was removed by saw-cutting for compressive strength testing in accordance with ASTM C 140. A second cell was removed from each grid paver by saw-cutting for absorption testing. The net area of the absorption specimens were determined and the average net area for those three specimens was applied to those specimens tested in compression.

Summary of Test Results

Physical Property	Specified Values	Average Test Results
Net Compressive Strength	5000 min	5750 psi
Density	****	129.1 pcf
Absorption	10 max	5.8 pcf
Percent Solid	50 min	60.1 %
Minimum Web Thickness	1.0 min	2.12 in.
Average Web Thickness	1.25 min	2.15 in.
Minimum Edge Thickness	****	1.62 in.



Individual Unit Test Results

Measurements of Full-Size Specimens		Avg Width	Avg Height	Avg Length	Received Weight	Gross Area	Minimum Web Thickness	Average Web Thickness	Minimum Edge Thickness
Specimen No.	in.	in.	in.	in.	in.	in ²	in.	in.	in.
#1	15.65	3.72	23.55	63.67	368.6	2.08	2.12	1.62	
#2	15.62	3.74	23.60	63.82	368.6	2.13	2.16	1.64	
#3	15.70	3.66	23.58	62.85	370.2	2.14	2.16	1.61	
Average	15.66	3.70	23.58	63.45	369.1	2.12	2.15	1.62	

Reduced-Size Compression Specimens		Avg Width	Avg Length	Received Wt	Net Area*	Max. Load	Net Compressive Strength
Specimen No.	in.	in.	lb	in ²	lb	psi	
#1A	7.84	7.79	10.54	36.96	206530	5590	
#2A	7.86	7.68	10.42	36.96	220700	5970	
#3A	7.85	7.75	10.08	36.96	210220	5690	
Average	7.85	7.74	10.35	36.96	212480	5750	

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

Reduced-Size Absorption Specimens		Received Wt, W _R	Immersed Wt, W _I	Saturated Wt, W _S	Oven-Dry Wt, W _D	Absorp	Density	Net Volume	Net Area
Specimen No.	lb	lb	lb	lb	pcf	pcf	ft ³	in ²	
#1B	10.65	5.78	10.82	10.39	5.3	128.6	0.0808	37.6	
#2B	10.57	5.84	10.75	10.33	5.3	131.3	0.0787	36.4	
#3B	10.21	5.61	10.49	9.96	6.8	127.4	0.0782	36.9	
Average	10.48	5.74	10.69	10.23	5.8	129.1	0.0792	37.0	

Average Net Area of One Cell = 37.0 in²
 Approximate Net Area of Full-Size Unit (one cell times six) = 221.78 in²
 Approximate Percent Solid of Full-Size Unit = 60.1 %

Comments: The tested specimens comply with the absorption, compressive strength, and dimensional requirements of ASTM C 1319-01 (2006).

Nicholas R. Lang
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