



3348 Route 208, Campbell Hall, NY 10916
 Phone: 845-496-1600 Fax: 845-496-1398
 25 Hathorn Road, Enfield, NH 03748
 42 Day Farm Road, West Stockbridge, MA 01266
 1813 State Route 7, Harpursville, NY 13787

Client:	Williams Stone Company, Inc.	Project:	Chester Gray Granite
Item:	Chester Gray Granite	Project No.:	120597
Source:	Williams Stone Company, Inc.	Lab No.:	12-0797
Location:	Production	Specification:	ASTM C615
Date Sampled:	Sept. 2012	Sampled By:	Client
Date Tested:	Sept. 2012	Tested By:	Advance Testing Company

EVALUATION OF GRANITE DIMENSION STONE
Specification: ASTM C615

ITEM: Chester Gray Granite
 DESCRIPTION: Fine-grained gray granite with no significant rift or fabric direction.

TEST	TEST METHOD	TEST RESULTS, W/ CONDITION AND ORIENTATION				Specification	Complies?
		Dry, Parallel	Dry, Perpendicular	Wet, Parallel	Wet, Perpendicular		
Absorption, %	C97	0.19	N/A	N/A	N/A	0.40 max.	Yes
Density, lbs/ft ³	C97	166.58	N/A	N/A	N/A	160 min.	Yes
Compressive Strength, psi	C170	30000	N/A	25100	N/A	19000 min.	Yes
Modulus of Rupture, psi	C99	N/A	3034	N/A	2020	1500 min.	Yes
Abrasion Resistance, Ha	C241/C1353	N/A	N/A	N/A	N/A	25 min.	Note 2
Flexural Strength, psi	C880	N/A	1902	N/A	1321	1200 min.	Yes

NOTE 1: The stone had a faintly discernable rift (mineral orientation.) Modulus of Rupture and Flexural Strength tests were performed with the rift parallel to the specimen faces, which is the standard production orientation. Compressive strength tests were performed parallel to the rift, which is typically the weaker direction.

NOTE 2: Not tested. This requirement applies only to stone subjected to foot traffic.

Specimens were saw-cut for testing by the client.

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Client:	Williams Stone Company	Project:	Chester Gray Granite
Material:	Chester Gray Granite	Project Number:	120597
Source:	Williams Stone Company	Lab Number:	12-0797
Location:	Production	Item Number:	N/A
Date Sampled:	Sept. 2012	Sampled By:	Client
Date Tested:	9/13/2012	Tested By:	John Brinsfield

Absorption and Bulk Specific Gravity of Dimension Stone

Test Method: ASTM C97

Sample Number	Dry Weight	SSD* Weight	Weight in Water	Absorption, % of Dry Weight	Bulk Specific Gravity	Unit Weight lbs/cu ft
1	1186.48	1188.58	743.92	0.18	2.668	166.58
2	1178.48	1180.68	738.95	0.19	2.668	166.56
3	1179.19	1181.22	739.40	0.17	2.669	166.62
4	1168.97	1171.09	732.91	0.18	2.668	166.55
5	1168.48	1170.57	732.74	0.18	2.669	166.61
Average				0.18	2.668	166.58

*Saturated Surface-Dry. All weights are in grams.



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Client:	Williams Stone Co. Inc.	Project:	Chester Gray Granite
Item:	Chester Gray Granite	Project #:	120597
Source:	Williams Stone Co. Inc.	Lab #:	12-0797A
Date Sampled:	9/7/2012	Date Tested:	9/20/2012
Sampled By:	Williams Stone Co. Inc.	Tested By:	Kevin Parrish

Report of Compressive Strength of Dimension Stone


Test Method: ASTM C170

Specimen	Fabric Dip	Height	Width 1	Width 2	Area, in ²	Load, lbs	Compressive Strength, psi
A	90	3.048	2.964	2.987	8.85	273760	30900
B	90	3.010	2.970	2.968	8.81	281690	32000
C	90	3.038	2.970	2.982	8.86	264460	29900
D	90	2.979	2.987	2.980	8.90	238570	26800
E	90	2.986	2.973	2.971	8.83	267150	30200
Avg							30000

NOTES

1. All dimensions in inches. Height to width ratio was approximately 1:1.
2. Specimens were tested in an air-dry condition.
3. Rock Type: Fine-grained granite with faintly discernible fabric orientation.
4. The dip of the rock fabric (layering and/or mineral elongation) is the angle between horizontal and the fabric, as tested. Load was applied in a vertical direction.

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Client:	Williams Stone Co. Inc.	Project:	Chester Gray Granite
Item:	Chester Gray Granite	Project #:	120597
Source:	Williams Stone Co. Inc.	Lab #:	12-0797B
Date Sampled:	9/7/2012	Date Tested:	9/20/2012
Sampled By:	Williams Stone Co. Inc.	Tested By:	Kevin Parrish

Report of Compressive Strength of Dimension Stone

Test Method: ASTM C170

Specimen	Fabric Dip	Height	Width 1	Width 2	Area, in ²	Load, lbs	Compressive Strength, psi
A	90	3.032	2.975	2.963	8.81	237960	27000
B	90	3.004	2.975	2.969	8.83	211600	24000
C	90	2.992	2.967	2.966	8.80	233440	26500
D	90	3.017	2.972	2.966	8.81	199900	22700
E	90	3.011	2.994	2.972	8.90	223490	25100
Avg							25100

NOTES

1. All dimensions in inches. Height to width ratio was approximately 1:1.
2. Specimens were tested in a saturated condition.
3. Rock Type: Fine-grained granite with faintly discernible fabric orientation.
4. The dip of the rock fabric (layering and/or mineral elongation) is the angle between horizontal and the fabric, as tested. Load was applied in a vertical direction.

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3348 Route 208, Campbell Hall, NY 10916
 Phone: 845-496-1600 Fax: 845-496-1398
 42 Day Farm Road, West Stockbridge, MA 01266
 Phone/Fax: 413-232-8566

Client:	Williams Stone Co. Inc.	Project:	Chester Gray Granite
Item:	Chester Gray Granite	Project No.:	120597
Source:	Williams Stone Co. Inc.	Lab No.:	12-0797B
Date Sampled:	Unknown	Sampled By:	Client
Date Tested:	9/14/2012	Tested By:	John Brinsfield


MODULUS OF RUPTURE OF DIMENSION STONE
Test Method: ASTM C99

ITEM: Chester Gray Granite
 DESCRIPTION: Gray Granite.
 NOMINAL DIMENSIONS OF TEST SPECIMENS:
 TEST SPAN LENGTH: 7.00 inches

TEST RESULTS

ORIENTATION: Rift perpendicular to load and parallel to length.
 CONDITION: Wet.

SPECIMEN NO.	WIDTH, IN.	THICKNESS, IN.	BREAKING LOAD, LBS.	MODULUS OF RUPTURE, PSI
1	4.00	2.25	3800	1970
2	4.00	2.25	3640	1887
3	4.00	2.25	3440	1784
4	4.00	2.25	5150	2670
5	4.00	2.25	3450	1789
Average				2020

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Client:	Williams Stone Co. Inc.	Project:	Chester Gray Granite
Item:	Chester Gray Granite	Project No.:	120597
Source:	Williams Stone Co. Inc.	Lab No.:	12-0797A
Date Sampled:	Sept. 2012	Sampled By:	Client
Date Tested:	9/14/2012	Tested By:	John Brinsfield


MODULUS OF RUPTURE OF DIMENSION STONE
Test Method: ASTM C99

ITEM: Chester Gray Granite
 DESCRIPTION: Gray Granite
 NOMINAL DIMENSIONS OF TEST SPECIMENS:
 TEST SPAN LENGTH: 7.00 inches

TEST RESULTS

ORIENTATION: Rift perpendicular to load and parallel to length.
 CONDITION: Dry.

SPECIMEN NO.	WIDTH, IN.	THICKNESS, IN.	BREAKING LOAD, LBS.	MODULUS OF RUPTURE, PSI
1	4.00	2.25	6550	3396
2	4.00	2.25	4400	2281
3	4.00	2.25	6280	3256
4	4.00	2.25	6150	3189
5	4.00	2.25	5880	3049
Average				3034

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Source:	Williams Stone Co. Inc	Lab #:	12-0797B
Date Sampled	Sept. 2012	Sampled By:	Client
Date Tested:	9/14/2012	Tested By:	John Brinsfield

Report of Flexural Strength of Dimension Stone Testing
Test Method: ASTM C 880

Stone Type: Granite
Preconditioning Procedure: Soaked in water for 48 hours.

Sample #	SSD Weight (g)	Span (in.)	Width (in.)	Depth (in.)	Load lbs.	Flexural Strength
1	3312.2	12.50	4.00	1.25	927	1390
2	3185.0	12.50	4.00	1.25	815	1223
3	3257.0	12.50	4.00	1.25	880	1321
4	3314.0	12.50	4.00	1.25	927	1390
5	3197.0	12.50	4.00	1.25	853	1279
Average						1321

Standard Deviation: 72.4

Notes: Specimens were saw-cut for testing by the client.

The rift direction of the stone as tested was perpendicular to the load and parallel to the length of the specimens.

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Item:	Chester Gray Granite	Project #:	120597
Source:	Williams Stone Co. Inc	Lab #:	12-0797A
Date Sampled	Sept. 2012	Sampled By:	Client
Date Tested:	9/14/2012	Tested By:	John Brinsfield

Report of Flexural Strength of Dimension Stone Testing
Test Method: ASTM C 880

Stone Type: Granite
Preconditioning Procedure: Oven dried at 140°F for 48 hours

Sample #	Dry Weight (g)	Span (in.)	Width (in.)	Depth (in.)	Load lbs.	Flexural Strength,
1	3319.0	12.50	4.00	1.25	1324	1986
2	3168.5	12.50	4.00	1.25	1135	1702
3	3202.0	12.50	4.00	1.25	1268	1902
4	3246.0	12.50	4.00	1.25	1235	1852
5	3405.2	12.50	4.00	1.25	1380	2070
Average						1902

Standard Deviation: 139.4

Notes: Specimens were saw-cut for testing by the client.

The rift direction of the stone as tested was perpendicular to the load and parallel to the length of the specimens.

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