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October 29, 2018

Durango Stone
Mr. Joel Allred
7946 E. McClain Dr.
Scottsdale, AZ 85260

Reference: Dorado Travertine - Vein Cut
Physical Properties Testing

Dear Mr. Allred:

Construction Testing Sciences, LLC (CTS) has completed the laboratory testing of the Dorado Travertine - Vein Cut samples submitted by Durango Stone. This test program included the following tests, performed in accordance with the applicable ASTM test standards.

ASTM C 97, Absorption and Bulk Density of Dimension Stone
ASTM C 99, Modulus of Rupture of Dimension Stone
ASTM C 170, Compressive Strength of Dimension Stone
ASTM C 880, Flexural Strength of Dimension Stone

A summary of the test results is given on the following pages.

This product is also being tested for freeze/thaw durability. The samples will be subjected to 300 cycles of freeze/thaw exposure in accordance with ASTM C 666. Upon completion, results of this test will be issued under separate cover.

We appreciate the opportunity to provide these services and look forward to working with you on this and future projects. If there are any questions concerning the attached test data or we can be of further assistance, please contact us at your convenience.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Jack Gary".

Jack Gary
General Manager





Client: Durango Stone
Material: Dorado Travertine - Vein Cut
Project No.: 101426

Summary of Results

Based on the test results obtained by CTS, the submitted material meets or exceeds the minimum requirement for class I - exterior travertine dimension stone. The table below gives the required values compared to the actual values obtained by CTS.

Test Results			
Physical Property	ASTM C1527 Minimum Requirements	Actual Results	Classification
Absorption by weight, max, %	2.5	0.57	Class I - Exterior
Density, min, lbs/cu ft	144	167.04	Class I - Exterior
Compr. Strength, min, psi	7,500 (Exterior) 5,000 (Interior)	18,668 (Wet) 23,040 (Dry)	Class I - Exterior
Modulus of Rupture	N/A	5,652 (Wet) 6,148 (Dry)	N/A
Flexural Strength	500	1,493 (Wet) 1,860 (Dry)	Class I - Exterior



LIMITATIONS: The test results presented herein were prepared based upon the specific samples provided for testing. We assume no responsibility for variation in quality (composition, appearance, performance, etc.) or any other feature of similar subject matter provided by persons or conditions over which we have no control. Our letters and reports are for the exclusive use of the clients to whom they are addressed and shall not be reproduced except in full without the written approval of



Report of Absorption and Bulk Specific Gravity of Dimension Stone

Client: Durango Stone
Project: Physical Properties Testing
Project No.: 101426

Report No.: 12934
Date of Service: 10/10/18

Material: Dorado Travertine - Vein Cut
Test Method: ASTM C97, Absorption and Bulk Specific Gravity of Dimension Stone
Calculation: Absorption= $((SSD \text{ Weight} - \text{Oven Dry Weight}) / \text{Oven Dry Weight}) \times 100$
 Bulk Specific Gravity= $(\text{Oven Dry Weight}) / (SSD \text{ Weight} - \text{In Water Weight})$
 Density= $\text{Bulk Specific Gravity} \times 62.4$

Sample Identification	Oven Dry Weight (g)	SSD Weight (g)	In Water Weight (g)	Absorption (percent)	Bulk Specific Gravity	Density (lbs./cu. ft.)
1	341.66	343.18	216.17	0.44	2.69	167.9
2	340.33	342.36	214.90	0.60	2.67	166.6
3	342.51	343.27	216.80	0.22	2.71	169.0
4	326.01	330.37	205.70	1.34	2.61	163.2
5	339.81	340.70	214.89	0.26	2.70	168.5
Average				0.57	2.68	167.04

Technician: K. Scarborough





Report of Modulus of Rupture

Client: Durango Stone
Project: Physical Properties Testing
Project No.: 101426

Report No.: 12934
Date of Service: 10/18/18

Material: Veracruz Travertine
Test Method: ASTM C99, Test Method for Modulus of Rupture of Dimension Stone
Calculation: $(3 \times \text{the failure load} \times \text{the span}) / (2 \times \text{width} \times \text{thickness squared})$
Loading: Applied center point with the finished face in tension at 600 psi per minute.
Nominal Dimensions:

Span (inches)	Width (inches)	Thickness (cm)
7	4.0	5.0

Conditioning: Dry: Minimum 48 hours in a heated, ventilated, chamber at 140F (+/-4F)
 Wet: Minimum 48 hours immersion in water at 72F (+/-4F)
Finish: Honed
Rift Direction: Parallel to the direction of loading

Sample Number	Block Number	Dimensions			Failure Load (pounds)	Test Results (psi)
		Span (inches)	Width (inches)	Thickness (inches)		
Wet-1	N/A	7.00	4.03	1.19	2770	5096
Wet-2	N/A	7.00	4.03	1.19	2620	4820
Wet-3	N/A	7.00	4.03	1.19	2910	5354
Wet-4	N/A	7.00	4.02	1.19	3150	5810
Wet-5	N/A	7.00	4.02	1.19	2870	5294
Dry-1	N/A	7.00	4.03	1.19	2800	5152
Dry-2	N/A	7.00	4.02	1.19	2890	5330
Dry-3	N/A	7.00	4.02	1.19	2940	5423
Dry-4	N/A	7.00	4.03	1.19	3270	6016
Dry-5	N/A	7.00	4.03	1.19	3680	6771
Average wet mode:						5275
Standard deviation:						364
Variance:						6.90 %
Average dry mode:						5738
Standard deviation:						662
Variance:						11.54 %
Average wet and dry mode:						5507
Standard deviation:						504
Variance:						9.15 %

Technician: K. Scarborough





Report of Compressive Strength

Client: Durango Stone **Report No.:** 12934
Project: Physical Properties Testing **Date of Service:** 10/15/18
Project No.: 101426

Material: Dorado Travertine - Vein Cut
Test Method: ASTM C170, Compressive Strength of Dimension Stone
Calculation: Applied Load / (Length x Width)
Loading: Load applied at a maximum rate of 100 psi per second.
Nominal Dimensions:

Length (inches)	Width (inches)	Height (inches)
2	2	2

Conditioning: Dry: Minimum 48 hours in a heated, ventilated, chamber at 140F (+/-4F)
 Wet: Minimum 48 hours immersion in water at 72F (+/-4F)

Finish: Sawn

Rift Direction: Perpendicular to the direction of loading

Sample Number	Block Number	Dimensions			Failure Load (lbf)	Compressive Strength (psi)
		Length (inches)	Width (inches)	Area (sq. in.)		
Wet 1	N/A	2.00	1.98	3.96	66,450	16,780
Wet 2	N/A	1.99	1.98	3.94	69,000	17,512
Wet 3	N/A	1.99	1.99	3.96	76,860	19,409
Wet 4	N/A	1.97	2.01	3.96	45,140	11,400
Wet 5	N/A	2.00	2.00	4.00	83,890	20,973
Dry 1	N/A	1.99	2.00	3.98	89,880	22,583
Dry 2	N/A	2.00	1.99	3.98	86,150	21,646
Dry 3	N/A	1.99	1.99	3.96	97,610	24,648
Dry 4	N/A	1.98	1.99	3.94	76,240	19,349
Dry 5	N/A	2.01	1.99	4.00	93,130	23,283
Average Wet Mode:						18,668
Standard Deviation						4604
Variance						24.66
Average Dry Mode:						23,040
Standard Deviation						2478
Variance						10.76

Technician: K. Scarborough





Report of Flexural Strength

Client: Durango Stone
Project: Physical Properties Testing
Project No.: 101426

Report No.: 12934
Date of Service: 10/17/18

Material: Dorado Travertine Vein Cut
Test Method: ASTM C880, Test Method for Flexural Strength of Dimensional Stone
Calculation: (3 x the failure load x the span) / (4 x width x thickness squared)
Loading: Applied quarter point with the finished face in tension at 600 psi per minute.
Nominal Dimensions:

Span (inches)	Width (inches)	Thickness (cm)
12.5	4.0	3.0

Conditioning: Dry: Minimum 48 hours in a heated, ventilated, chamber at 140F (+/-4F)
 Wet: Minimum 48 hours immersion in water at 72F (+/-4F)

Finish: Honed

Rift Direction: Parallel to the direction of loading

Sample Number	Block Number	Dimensions			Failure Load (pounds)	Test Results (psi)
		Span (inches)	Width (inches)	Thickness (inches)		
Wet-1	N/A	12.50	4.01	1.19	747	1233
Wet-2	N/A	12.50	4.03	1.20	750	1212
Wet-3	N/A	12.50	4.03	1.20	1140	1842
Wet-4	N/A	12.50	4.03	1.18	974	1627
Wet-5	N/A	12.50	4.03	1.18	927	1549
Dry-1	N/A	12.50	4.02	1.18	1147	1921
Dry-2	N/A	12.50	4.03	1.22	971	1518
Dry-3	N/A	12.50	4.02	1.19	1143	1882
Dry-4	N/A	12.50	4.01	1.20	1337	2171
Dry-5	N/A	12.50	4.02	1.19	1097	1807
Average wet mode:						1493
Standard deviation:						269
Variance:						18.02 %
Average dry mode:						1860
Standard deviation:						235
Variance:						12.64 %
Average wet and dry mode:						1676
Standard deviation:						238
Variance:						14.20 %

Technician: K. Scarborough

