



Construction Testing Sciences
4069 S. Shiloh Rd. Garland, TX 75041
Phone: 214.789.3472
www.ctsciences.com

October 29, 2018

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

Reference: Bacelo Travertine
Physical Properties Testing

Dear Mr. Allred:

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

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: Bacelo Travertine
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
Flexural Strength	500	1,178 (Wet) 1,510 (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 Construction Testing Sciences, LLC.



Report of Flexural Strength

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

Report No.: 12964
Date of Service: 10/18/18

Material: Bacelo Marble
Test Method: ASTM C880, Test Method for Flexural Strength of Dimensional Stone
Calculation: $(3 \times \text{the failure load} \times \text{the span}) / (4 \times \text{width} \times \text{thickness squared})$
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	4.02	1.22	755	1183
Wet-2	N/A	12.50	4.02	1.22	742	1163
Wet-3	N/A	12.50	4.02	1.22	765	1199
Wet-4	N/A	12.50	4.01	1.21	861	1375
Wet-5	N/A	12.50	4.01	1.20	598	971
Dry-1	N/A	12.50	4.03	1.19	942	1547
Dry-2	N/A	12.50	4.02	1.21	935	1489
Dry-3	N/A	12.50	4.03	1.21	989	1571
Dry-4	N/A	12.50	4.02	1.22	930	1457
Dry-5	N/A	12.50	4.02	1.21	932	1485
Average wet mode:						1178
Standard deviation:						143
Variance:						12.14 %
Average dry mode:						1510
Standard deviation:						48
Variance:						3.18 %
Average wet and dry mode:						1344
Standard deviation:						101
Variance:						7.51 %

Technician: K. Scarborough

