

***ABIC TESTING LABORATORIES, INC.***

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**Evaluation of Snow Marble, According  
to ASTM C97 (Water Absorption), ASTM C170 (Compressive  
Strength) and ASTM C666 (Freeze-Thaw Resistance)**

Attention: Mr. Eric Adelhock

Product Identification:

- Snow Marble: Sandblasted Finish

Test Method: As detailed

Report No.: 5535-04aa

Date: June 27, 2022

Respectfully Submitted



Leonard Mackowiak  
Vice President



ABIC Testing Laboratories, Inc.

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Source: ABIC Testing Laboratories, Inc

## **Introduction**

ABIC Testing Laboratories, Inc was authorized to test the following submitted marble style:

- Snow Marble: Sand Blasted Finish

The marble style was tested according to the following test methods

- Water Absorption: ASTM C97, "Test Methods for Absorption of Dimensional Stone"
- Compressive Strength: ASTM C170, "Test Method for Compressive Strength of Dimensional Stone"
- Freeze-Thaw Resistance: ASTM C666, Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing:

## **Methodology & Results**

### **Water Absorption: ASTM C-97**

Pieces of the stone are cut from the sample, each weighing at least 50 grams. The pieces are oven dried for 48 hours at 212°F and weighed to the nearest 0.01 gram until constant weight is determined. Samples are then immersed in filtered or distilled water for 48 hours, removed and weighed again. The weight increased is noted and the percent weight change is expressed as percent moisture increase.

### **Sample: Snow Marble: Sandblasted Finish**

### **Requirement: Max. 0.20 %\***

<b><u>Sample No</u></b>	<b><u>% Absorption</u></b>	<b><u>Comment</u></b>
#1	0.04	Passes
#2	0.09	Passes
#3	0.09	Passes
#4	0.06	Passes
#5	0.09	Passes

**Average: 0.07%**

\* Requirement according to ASTM C503: Standard Specification for Marble Dimensional Ston

## **Methodology & Results, continued**

- Compressive Strength: ASTM C170, "Test Method for Compressive Strength of Dimensional Stone" Brief description of test method

### **Compressive Strength: ASTM C-170**

Replicate samples of the stone are dried as per the Water Absorption (ASTM C-97) procedure. All samples tested are for dry compressive strength values.

Samples of stone are cut into cubes for pre-determined dimensions and measured to determine their square inch surface area. After measurement, samples are then placed one at a time in an Instron. The force to crush the sample is recorded. Compressive strength is calculated by dividing the crushing force (lbs) by the sample surface area in square inches. Final compressive strength value is expressed as pounds per square (psi)

### **Sample: Snow Marble: Sandblasted Finish**

### **Requirement: 7500 psi\***

<b><u>Sample No</u></b>	<b><u>Compressive Strength (psi*)</u></b>
#1	6000
#2	7400
#3	8000
#4	9000
#5	7300

\*psi: pounds per square inch

**Average: 7540 psi**

\* Requirement according to ASTM C503: Standard Specification for Marble Dimensional Stone

- Freeze-Thaw Resistance: ASTM C666, Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing: Brief description of test method

### **Freeze-Thaw Resistance Testing: ASTM C-666**

Initially the Flexural Strength according to ASTM C880 is determined on a series of stones and an average value is recorded. Another series of the same stone type measuring 3 inches wide x 12 inches long x 1 inch thickness are soaked in lime water for 48 hours before testing. After soaking the length and weight of each sample is recorded. Samples are initially soaked in water. All samples are then manually temperature cycled between 40°F to 0°F in not less than 2 hours nor more than 5 hours. These test conditions are maintained for a total of 20 test cycles. The stone samples are visually examined during this cycle for obvious cracking or other deleterious

**Methodology & Results, continued**

**Freeze-Thaw Resistance Testing: ASTM C-666, continued**

effects on the stone. At the end of cycling the samples are re-measured for weight change and dimensional change. Additionally, the flexural strength is determined on this series of stones and compared to the as received flexural strength of the stones. The percent difference is calculated and expressed as Relative Dynamic % Modulus

**Sample: Snow Marble: Sand Blasted Finish: 20 Cycles**

<b><u>Sample</u></b>	<b><u>Initial Flexural Strength (psi)</u></b>	<b><u>Flexural Strength After 20 Cycles (psi)</u></b>	<b><u>Relative Dynamic % Modulus</u></b>	<b><u>%Weight Loss</u></b>	<b><u>Appearance</u></b>
1	1755	1530	87	0.10	No Change
2	1485	1328	89	0.08	No Change
3	1710	1395	82	0.09	No Change

**DISCUSSION**

The sample of Snow Marble: Sand Blasted finish shows the following:

- Water Absorption according to ASTM C503, Standard Specification for Marble Dimension Stone when tested by ASTM C-97 meets the standard
- Compressive Strength according to ASTM C503, Standard Specification for Marble Dimension Stone when tested by ASTM C-170 meets the standard
- Freeze-Thaw Resistance according to ASTM C666, Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing after 20 test cycles is acceptable