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Standard Specification for Travertine Dimension Stone¹

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1. Scope

1.1 This specification covers the material characteristics, physical requirements, and sampling appropriate to the selection of travertine for general building and structural purposes.

1.2 Dimension travertine shall include stone that is sawed, cut, split, or otherwise finished or shaped and shall specifically exclude molded, cast, or otherwise artificially aggregated units composed of fragments, and also crushed and broken stone.

2. Referenced Documents

2.1 ASTM Standards:

C 97 Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone²

C 99 Test Method for Modulus of Rupture of Dimension Stone²

C 119 Terminology Relating to Dimension Stone²

C 170 Test Method for Compressive Strength of Dimension Stone²

C 241 Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic²

C 880 Test Method for Flexural Strength of Dimension Stone²

C 1353 Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic by the Taber Abrader Method²

3. Terminology

3.1 *Definitions*—All definitions are in accordance with Terminology C 119.

3.1.1 *fleuri-cut (cross-cut), adj*—describes stone that is cut parallel to the natural veining.

3.1.2 *vein-cut, adj*—describes stone that is cut perpendicular to the natural veining.

4. Physical Properties

4.1 Travertine supplied under this specification shall conform to the physical requirements prescribed in Table 1.

4.2 Travertine shall be free of minerals that may cause objectionable staining under normal environments of use.

¹ This specification is under the jurisdiction of ASTM Committee C18 on Dimension Stone and is the direct responsibility of Subcommittee C18.03 on Material Specifications.

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² *Annual Book of ASTM Standards*, Vol 04.07.

TABLE 1 Physical Requirements

Physical Property	Test Requirements	Classifications	Test Methods
Absorption by weight, max, %	2.5	I Exterior	C 97
	2.5	II Interior	
Density, min, lb/ft ³ (kg/m ³)	144 (2305)	I Exterior	C 97
	144 (2305)	II Interior	
Compressive strength, min, psi (MPa)	7500 (52)	I Exterior	C 170
	5000 (34.5)	II Interior	
Modulus of rupture, min, psi (MPa)	1000 (6.9)	I Exterior	C 99
	700 (4.8)	II Interior	
Abrasion resistance, min, Ha ^{A,B,C}	10	I Exterior	C 241/C 1353
	10	II Interior	
Flexural strength, min, psi (MPa)	1000 (6.9)	I Exterior	C 880
	700 (4.8)	II Interior	

^A Pertains to foot traffic only. Where two or more stone varieties are combined for color and design effects, there should be no greater difference than five points in abrasion resistance.

^B The supplier of the No. 60 Alundum abrasive, Norton, has indicated that the formula for Norton treatment 138S has been changed. The new abrasive is currently more aggressive, resulting in lower abrasion resistance values (H_a) than when the standard was initially established. As such, care should be taken when interpreting H_a values from tests using the new abrasive, particularly with regard to current ASTM stone standard specification requirements for abrasion resistance, which were developed when the original abrasive was still in use.

^C It is not necessary to perform both tests. Availability of the proper equipment and materials by the testing laboratory may determine which test is performed.

4.3 Voids in travertine are a natural characteristic of the material and shall be considered in assessing the permissible natural variations suitable for a particular application.

4.3.1 Some travertines may not be suitable for exterior use in areas subject to frequent freeze-thaw cycles.

4.3.2 Travertine that is fleuri-cut (cross-cut) rather than vein-cut can be expected to experience certain problems, because some areas of the exposed surface will consist of only a thin layer of stone that covers a void in the stone.

4.4 The desired color and texture, with their permissible natural variations in material characteristics for material to be produced for the project, shall be established by control samples. Representative samples shall be selected prior to production by viewing a sufficient number of samples that show the complete range of variations in color and texture of the travertine specified.

5. Sampling

5.1 Samples, if required, for testing to determine the characteristics and physical properties shall be representative of the travertine to be used.

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