



ELM SURFACES

Tumbled Bluestone Cobblestone Multisize



Collection Frontier Bluestone

Material Porcelain

Size 24x24

Thickness 2cm

Finish Natural, Tumbled

Wear Layer N/A

Applications



Commercial Exterior & Interior Wall

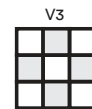


Residential Exterior & Interior Floor



Wet Areas and Outdoor

Material Data



Color Variation

Cleaning and Maintenance



Damp cloth and a gentle soap

3. TECHNICAL DATA

Physical Properties	ASTM Test	Industry Standards	Results
Water Absorption	C373	Impervious <0.5%	≤ 0.1%
Thickness Dimension	C499	Range ±0.04in Max.	≤ ±0.04 in
Facial Dimension	C499	±0.25%	≤ ±0.25%
Warpage Average	C485	± 0.40% on any edge	≤ ± 0.40%
Warpage Average	C485	± 0.40% on diagonal	≤ ± 0.40%
Wedging Average	C502	± 0.25%	≤ ± 0.25%
Bond Strength	C482	≥ 50 psi	≥ 200 psi
Breaking Strength	C648	≥ 250 lbf	≥ 400 lbf
Hardness (Mohs)	Scratch Test (No regulated)	Range 0 - 10	≥ 7
Visible Abrasion Resistance for Glaze Tile	C1027	No requirement Range 0 - 5	Class 4
Frost Resistance (Freeze/Thaw)	C1026	No sample must show alterations to surface	No evidence of damage
Chemical Resistance	C650	No Requirement Range E - A	Class A
Stain Resistance	C1378	No Requirement Range E - A	Class A*
Coefficient of Friction (Dynamic)	DCOF Acutest sm (wet)	≥ 0.42	≥ 0.50*
Aesthetic Classification	Visual Evaluation Shade & Texture	No Requirement Range V0 - V4	V2

* All values given are for matte or honed material. No values are given for polished material. Iris U.S. does not recommend polished surfaces in area subject to exposure from grease, oil or water.

For level interior spaces to be walked upon when wet (see ANSI A137.1 section 6.2.2.1.10 - Section 9.6 for test procedure).

4. INSTALLATION

All installation work using ELM Surfaces tiles will conform to the standards set forth in the latest version of ANSI A108/118 and/or the TCNA Handbook for Ceramic Tile installations.

Installation or setting materials:

Movement joints shall be provided throughout the tile and work will conform to ANSI Specification A108.01-3.7; A108.02 - 4.4. and TCNA Details EJ171.

Setting materials used will conform to the ANSI 118.4 or greater and be recommended by the selected manufacturer for the installation & setting materials for ceramic or porcelain tile based on the application requirements.

5. WARRANTY

ELM Surfaces guarantees that its products will be free of manufacturing defects and they will meet or exceed the performance specifications set forth in ANSI 137.1.

6. MAINTENANCE

Care and Maintenance Recommendations Guide

Please refer to **ELM Surfaces Care and Maintenance Recommendations Guide** for all technical information as to the care of this collection.

7. TECHNICAL SERVICES

Technical Assistance

Guide Specifications, literature, MSDS, tile samples, details and installation procedures are all available for your use or libraries.

Please contact your nearest Iris US representative for catalogues, physical samples, or architectural binders.