

TECHNICAL PERFORMANCE SPECS

This guide defines the general criteria Stone Source uses to rate the performance of materials. This document covers:

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- **ABRASION RESISTANCE**
- **ABSORPTION**
- **ACID SENSITIVITY**
- **FREEZE - THAW**
- **TRAFFIC**

NEW YORK
BOSTON
CHICAGO
LOS ANGELES
NEW JERSEY
WASHINGTON DC

NATURAL STONE
PORCELAIN TILE
GLASS TILE
ENGINEERED STONE
RECLAIMED WOOD

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TECHNICAL PERFORMANCE SPECS: ABRASION RESISTANCE

Abrasion resistance refers to the ability of a material to resist surface wear. Within the finishes industry, several different measures for abrasion resistance may be referenced. Mohs is perhaps the most common, but clients may also see PEI ratings, ASTM or ISO ratings for porcelain or ceramic tile.

Typically, the Mohs scale is applied to minerals, as they are the only geologically pure materials found in nature and are very consistent in their results. Unlike pure minerals, natural stone is comprised of several different types of minerals and will react less predictably than a pure mineral. To accommodate for this range in abrasion resistance, Stone Source adheres to a broader scale rating material performance as Low Abrasion Resistance, Medium Abrasion Resistance or High Abrasion Resistance. The explanations for each are noted below:

1 - HIGH ABRASION RESISTANCE

The material has relatively high abrasion resistance.

- It rates as a 7 or higher on the Mohs scale.
- Quartzite or granite typically fall into this range.
- These materials are less likely to scratch than marble, limestone, onyx or slate, etc.

2 - MEDIUM ABRASION RESISTANCE

The material has medium abrasion resistance.

- It rates as 3.5-6.5 on the Mohs scale.
- It is more resistant to scratching than materials with a low abrasion resistance rating (i.e. certain marbles and limestones, onyx, schist and slate).
- It is not as resistant to scratching as materials with a high abrasion resistance rating (i.e. granite, quartzite and porcelain tile).

3 - LOW ABRASION RESISTANCE

The material has low abrasion resistance.

- It rates as a 1-3 on the Mohs scale.
- Light scratching will occur with exposure to sand and other abrasives.

ABRASION RESISTANCE				
Resistance Rating	Estimated Abrasion Resistance by Material Type	Mohs Rating	Comparable Material	Absolute Hardness
1 High Abrasion Resistance	Granite Quartzite	10	Diamond	1600
		9.5	Boron, Stishovite	
		9	Corundum, Ruby	400
		8.5	Chromium	
		8	Topaz, Aluminum Oxide	200
		7.5	Emerald, Hardened Steel	
		7	Quartz	100
2 Medium Abrasion Resistance	Basalt Sandstone Porcelain Tile	6.5	Hardened Steel, Pyrite	
		6	Titanium, Feldspar	72
		5.5	Pocketknife, Window Glass	
		5	Cobalt, Obsidian, Apatite	48
		4.5	Platinum, Steel	
		4	Iron, Nickel, Fluorite	21
		3.5	Sphalerite	
3 Low Abrasion Resistance	Limestone Marble Schist Slate Travertine	3	Calcite, Copper	9
		2.5	Gold, Silver, Aluminum	
		2	Gypsum	3
		1.5	Tin, Lead, Graphite	
		1	Talc	1
			Soapstone	

- The finish will patina or dull over time as a result of this scratching.
- Always use a cutting board for countertop applications and walk-off mats at entrances in flooring applications.

TECHNICAL PERFORMANCE SPECS: ABSORPTION

Absorption is particularly important in applications that come into regular contact with oils or highly-pigmented liquids. Absorption as it relates to Natural Stone refers to the relative porosity of the material. Materials with moderately absorbent rating are resistant to staining due to low porosity, but not impervious. Materials with highly absorbent rating are prone to staining.

By its very nature, porcelain, ceramic, glass tile and quartz-agglomerate are not considered absorbent materials and are rated as minimally absorbent. While there are tests that measure both water absorption (ISO 10545-3) and stain resistance (ISO 10545-14) these tests are specific to the porcelain tile industry. In general, porcelain tile may be safely applied in a variety of applications. The actual test results may be found on the Series Overview pages on [STONESOURCE.COM](https://www.stonesource.com).

Stone Source adheres to rating scale consisting of: Minimally Absorbent, Moderately Absorbent and Highly Absorbent. The explanations for each are noted below:

1 - MINIMALLY ABSORBENT

The material is virtually non-porous.

- No sealer is required.
- It is less likely to stain
- Typically easier to maintain.

2 - MODERATELY ABSORBENT

The material has a low to moderate absorption rate.

- Always seal this material prior to use.
- To reduce the appearance of stains, always wipe up spills immediately. Oil and highly-pigmented liquids can penetrate and stain the stone and may need poultice to remove the stain.

3 - HIGHLY ABSORBENT

The material has a medium to high absorption rate.

- Always seal this material prior to grouting or use.

- Properly seal the material prior to grouting by applying several coats of sealant or until water beads up on the surface. Use FILA PRW 200 to avoid staining from grout residues.
- Specify a grout color that is similar to the color of the stone to avoid color bleeding into the material.
- Use low moisture setting materials.
- To reduce the appearance of stains, always wipe up spills immediately. Oil and highly-pigmented liquids can penetrate and stain the stone and may need poultice to remove the stain.

TECHNICAL PERFORMANCE SPECS: ACID SENSITIVITY

Materials that contain calcium or magnesium carbonate (marble, limestone and travertine and onyx) will react to acidic foods (i.e. lemons or tomatoes) and acidic liquids (i.e. some cleaners or acid rain). This reaction will result in a dulling in surface sheen and change in texture, otherwise referred to as “acid etching”.

Stone Source adheres to a rating scale of Minimally Sensitive, Moderately Sensitive and Highly Sensitive to indicate the likelihood of the material etching or reacting to the presence of an acid. The explanations for each are noted below:

1 - MINIMALLY SENSITIVE

This material is not sensitive to acids.

- It will not acid etch or lose its surface sheen when exposed to acidic foods such as lemons or tomatoes.

2 - MODERATELY SENSITIVE

This material is moderately sensitive to acids.

- Generally, acid etching will be less visible on lighter stones and honed surfaces.
- The finish will patina over time.
- If acid etching is a concern, select a minimally sensitive material.

3 - HIGHLY SENSITIVE

This material is highly sensitive to acids.

- Acid etching will be highly visible on this material when exposed to acidic foods such as lemons or tomatoes.
- Do not use this material on kitchen countertop applications where acid etching is a concern.
- If acid etching is a concern, select a minimally sensitive material.

TECHNICAL PERFORMANCE SPECS: FREEZE-THAW

Freeze-thaw cycles occur in exterior applications when water seeps into the surface of a material and then freezes. The process of expansion causes the material to crack or spall; repeat freeze-thaw cycles will widen the void until the material breaks.

Stone Source adheres to a rating scale of: Suitable for All Exterior Applications, Suitable for Vertical Exterior Applications or Not Recommended for Exterior Applications. The explanations for each are noted below:

1 - SUITABLE FOR ALL EXTERIOR APPLICATIONS

Due to this material's minimal or moderate absorbent rating, its abrasion resistance, color fastness and tensile strength, this material is suitable for exterior applications where freeze-thaw cycles are a concern.

- Use MIA standards for thickness in exteriors and consult an engineer regarding fastening systems and thickness/tensile strength required for your project.
- These materials will patina.

2 - SUITABLE FOR VERTICAL EXTERIOR APPLICATIONS ONLY

Due to this material highly absorbent rating, its abrasion resistance, color fastness and tensile strength, this material is suitable for vertical exterior applications where freeze-thaw cycles are a concern.

- Use a granite base to prevent wicking at grade and use MIA standards for thickness in exteriors. Consult an engineer regarding fastening systems and thickness/tensile strength required for your project.
- These materials will stain and therefore are not suitable for exterior paving applications.
- These materials will patina.

3 - NOT RECOMMENDED FOR EXTERIOR APPLICATIONS

Due to known material weakness or because this material has not been tested, this material is not approved for use in exterior applications.

TECHNICAL PERFORMANCE SPECS: TRAFFIC

Traffic ratings refer to a material's ability to withstand the anticipated volume of foot traffic through a space.

Stone Source adheres to a rating scale of: Heavy Commercial Traffic, Medium Commercial Traffic, Low Commercial Traffic and Residential Traffic. The explanations for each are noted below:

1 - HEAVY COMMERCIAL TRAFFIC

Shopping malls, retail, hospitality, hospitals and institutional environments with heavy foot traffic.

- Stone materials in this category will patina, but have a history of wearing well over time.
- These materials typically require less care and maintenance than materials rated for Moderate, Light or Residential Traffic.

2 - MEDIUM COMMERCIAL TRAFFIC

Normal commercial, retail, hospitality and light institutional use with moderate foot traffic.

- These materials will patina and require more care and maintenance than materials with a heavy commercial traffic rating.

3 - LOW COMMERCIAL TRAFFIC

Corporate applications such as office spaces or reception areas with low foot traffic.

- These materials will patina and require more care and maintenance than materials with a moderate or heavy commercial traffic rating.

4 - RESIDENTIAL TRAFFIC

Not suitable for commercial use.

- These materials will patina and require more care and maintenance than materials with a light, moderate or heavy commercial traffic rating.