All photos courtesy CaesarStone US

The Qualities of Quartz Surfacing

by Ed Rogers, CSI, and Brenda Little, CSI, JD

Having established itself as a popular choice for kitchen countertops, quartz surfacing is now attracting the attention of designers for applications beyond residential use. Tough enough to withstand the heavy wear of school and commercial buildings, the material also satisfies the strict hygienic requirements of foodservice and healthcare facilities. Moreover, quartz surfacing offers an aesthetic that complements contemporary architectural styles.

This engineered stone consists of crushed quartz particles in a thermoplastic binder. In the two decades since its invention, millions of square feet have been installed worldwide. Quartz surfacing was introduced to North America in the late 1990s, concurrent with the onset of the vogue for granite countertops. While its wide palette of colors and patterns secured a place in the design professional's repertoire, quartz surfacing's continuing popularity stems from physical performance that rivals, if not exceeds, other common surface materials. Moreover, its installed cost is competitive with natural stone and other high quality finishes. The material's sustainability further adds to its appeal.[1]

To be used in residential applications, quartz surfacing had to catch the homeowner's eye, and overcome the stone fabricator's and installer's natural skepticism about a new material. However, in commercial and institutional use, manufacturers have recently conducted extensive testing to demonstrate the material also meets more stringent non-residential building code requirements. Consequently, designers can use quartz surfacing for both horizontal and vertical applications in restaurants, hotels, hospitals, and schools—essentially, any interior where a smooth, strong, high-performance, yet low-maintenance surface is required. Quartz surfacing is not recommended for exterior use because its thermoplastic resin can degrade when exposed to strong ultraviolet (UV) light.

Moving beyond stone

Quartz surfacing is a composite made of approximately 93 percent natural quartz (crystalline silicon dioxide), which is the most abundant mineral that is found in the earth's continental crust. Much like concrete, it consists of a high percentage of well-graded aggregate and a binder—in this case, crushed quartz and silica sand—held together by a thermoplastic polyester resin.

The aggregate and resin are blended with mineral oxide pigments and other fade-resistant colorants. The mixture is formed into a high-density slab through a combination of intense vibration, high pressure, and vacuum. It is then heated until the resin fuses the aggregates. After cooling, the slab is either polished to a smooth surface or given a decorative finish (*e.g.* a honed or matte surface).

Selection of pigmentation and the quartz's color, size, and gradation, can produce an enormous range of visual effects. Some manufacturer models of quartz surfacing resemble granite, limestone, or other natural stones, whereas others emulate high-quality architectural portland cement concrete. Some types of quartz can even look like terrazzo due to the presence of polished stone chips in a colored matrix. Certain models have a distinctive appearance unachievable with other materials.

Depending on the model, the quartz aggregate ranges in diameter from crystals of about 4 mm (0.16 in.) maximum to extremely fine grains of silica sand. The finest aggregate produces an aesthetic similar to grainless stone, yet maintains the luster and light-holding ability of quartz crystal. In contrast to most natural stones marked by veining and variations in coloration, quartz surfacing can be controlled to provide a uniform appearance across a slab and between slabs made within a manufacturer's production run.

Quartz's appearance varies widely, from familiar transparent crystals such as clear (*i.e.* colorless) quartz, rose quartz, smoky quartz, and amethyst, to multi-colored, translucent and semi-translucent agates. Quartz can also come in the opaque earth tones of jasper, or the yellows, reds, browns, and greens of citrines and prasiolites. Like most transparent and translucent crystalline materials, quartz reflects some light at the surface, but also transmits it to the interior where it reflects from internal crystal planes, for a sparkling and glowing effect. The translucent resin in quartz surfacing works well with these properties, and quartz surfacing often produces a sense of depth and light.

Quartz surfacing is generally produced in thicknesses of 13, 20, and 30 mm (nominal ½, ¾, and 1-¼ in.), and in slab widths ranging from 1320 to 1435 mm (52 to 56.5 in.) and

A wide range of decorative finishes may be applied to engineered quartz surfaces. Selection of quartz size, color, and resin pigmentation can expand the possibilities beyond what can be achieved with natural stone products.

lengths of 3000 to 3050 mm (118 to 120 in.)—similar to common sizes of sawn natural stone slabs. These dimensions make quartz surfacing compatible with most established stone fabrication and installation techniques. Slabs can be made to project requirements by local or regional stone fabricators equipped with diamond cutting and polishing tools, as well as wet cutting equipment. However, quartz surfacing is much easier to handle than natural stone, because its inherent strength reduces the likelihood of a slab cracking under its own weight when lifted.

Testing quartz

Quartz is harder than natural building stones, as measured by the Mohs scale of mineral hardness. As quartz has a Mohs hardness of 7, only a few materials—such as topaz (Mohs 8), carborundum (Mohs 9), and diamond (Mohs 10)—are hard enough to scratch it. In comparison, most other materials are not hard enough to do so. For example, the average Mohs values for other materials are:

- granite–6,
- marble–4,
- limestone–3 to 4.5; and
- slate–3.

Consequently, many typical household or workplace items cannot scratch quartz in daily use.

The composite retains much of the toughness of quartz, due to the high proportion of stone and the nature of the manufacturing process. Vibration and pressure cause the stone's crystal facets to align, and subsequent grinding and polishing tend to reveal more aggregate on the surface. Scratches in the interstitial resin are short, and generally not visible. The resin's ductility also contributes to the material's impact resistance.

Quartz surfacing tested by the authors passed Section 5.3, "Wear and Cleanability," of American National Standards Institute (ANSI) Z 124.6, *Plastic Sinks*.[2] This test involves 10,000 cycles of scrubbing with abrasive slurry followed by 25 cycles of rubbing with dirt. After subsequent cleaning, light reflectance was reduced by three percent at most—a result well within the five percent reduction acceptable under the standard.

Quartz surfacing is highly stain-resistant, due to the intrinsic impermeability of the quartz aggregate and polymer resin, as well as the manufacturing process that forms the ingredients into a dense slab practically free of gaps and pores.

In accordance with Section 5.2, "Stain Resistance," under ANSI Z 124.6, the authors' tests exposed quartz surfacing for 16 hours to products such as:

- crayon;
- shoe polish;
- ink;
- gentian violet solution (a fungicide used in healthcare);
- beet juice;
- lipstick;
- hair dye;
- iodine; and
- tea.

Only blue ink, gentian violet, and lipstick produced any staining at all, and occurred only in certain extremely light-colored models. Regardless, these slight stains still met ANSI requirements because they could be cleaned with standard scouring powder, alcohol, naphtha, or, if necessary, 600-grit abrasive cloth.

To verify resistance to chemical exposure, the authors also tested quartz surfacing in accordance with Section 5.5, "Chemical Resistance," under ANSI Z 124.6. The material was unaffected when exposed to solutions such as:

- naphtha;
- ethyl alcohol;
- ammonia;
- citric acid;
- urea;
- acetone;
- vinegar,
- hydrogen peroxide;

Quartz surfacing can also be used on vertical surfaces, providing durable, low-maintenance cladding.

Thermal forming creates unique shapes, allowing development of creative designs from a single sheet of material.

- lye;
- sodium hypochlorite (bleach); and
- pine oil.

As acknowledged in "Interpreting Product Data" (page 49), this performance data may not apply to products by all manufacturers. For example, at least two manufacturers of quartz surfacing warn against any exposure to bleach.

Even more stringent is ASTM International C 650, *Resistance of Ceramic Tile to Chemical Substances*, which involves 24-hour exposure to chemicals. In this testing, quartz surfacing remained unaffected by solutions of:

- acetic acid;
- ammonium chloride;
- citric acid;
- lactic acid;
- phosphoric acid;
- sulfamic acid;
- sodium hypochlorite;
- hydrochloric acid; and
- three percent potassium hydroxide solution.

Although some models were moderately etched or discolored by 24-hour exposure to 10 percent potassium hydroxide solution (a concentration present in harsh products such as oven cleaners), it is highly unlikely quartz surfacing or any decorative surfacing would be considered in industrial situations where such prolonged contact could occur. (See Figure 1, page 46, for detailed test results.)

It should be noted these tests were conducted on quartz surfacing unprotected by sealers or waxes. In fact, quartz surfacing does not need to be maintained with sealers, waxes, or polishes. (Some manufacturers of quartz surfacing advise against the use of sealers, as they can dull the factory finish due to wax buildup. Ongoing maintenance issues can also result as the wax or sealer begins to fail.) In contrast, granite and marble are relatively porous and require frequent sealing to resist staining by common substances like cooking oil and wine.

Strength and versatility

Marble and granite have little flexural strength. For example, granite's flexural strength is generally between 6900 and 13,800 kPa (1000 and 2000 psi)—this low strength makes natural stone highly vulnerable to breakage during handling and fabrication. In comparison, quartz surfacing tested according to ASTM C 880, *Flexural Strength of Dimension Stone*, ranges from 44,800 to 74,250 kPa (6500 to 10,770 psi). (See "Interpreting Product Test Data," page 49.) This strength may enable use of thinner materials for reduced weight.

Natural materials are also inconsistent in strength, even across the breadth of an individual sample. No two pieces of granite are the same; any piece may have flaws and weak points. As a manufactured material, quartz surfacing has uniform strength within each piece; its strength is consistent between samples of the same type or model of material.

Thin (20-mm [¾-in.]) natural stone countertops must be installed atop full underlayment support due to the stone's strength limitations. In contrast, quartz surfacing of the same thickness can be installed with only partial underlayment support, such as a wood frame around the

Figure 1

The chart below represents technical data for one manufacturer of quartz surfacing. Test results for other providers will vary.

Category	Test Performed	Test Standard	Results	Remarks
PHYSICAL	Absorption	ASTM C 97	0.02%	Low absorption contributes to stain resistance and sanitation.
PHYSICAL	Density	ASTM C 97	150.45 lb/ft^3 (2.41 g/cm^3)	1/2" = 100.3 lb/ft^3 3/4" = 150.45 lb/ft^3 1-1/4" = 250.75 lb/ft^3
PHYSICAL	Flexural Strength[1]	ASTM C 880	6,500 – 10,770 psi (457.1 – 757.4 kg/cm)	Stronger than most natural stones.
PHYSICAL	Thermal Expansion[1]	ASTM E 228	0.012% – 0.019%	Requires only small clearances for thermal movement.
DURABILITY	Abrasion Resistance[1] (Taber Abraser)	ASTM C 501	216 – 696	Resists wear and abrasion.
DURABILITY	Freeze-Thaw Resistance	ASTM C 1026	No defects	15 freeze-thaw cycles.
DURABILITY	Mohs Hardness	DIN EN 101	Quartz = 7 on Mohs scale.	Quartz can only be scratched by materials as hard as topaz (8), corundum (9), or diamond (10).
DURABILITY	Ball Impact Resistance[1,2] (Fracture)	NEMA LD 3.3.8	114" – 164" (2895 mm – 4166 mm)	Resists damage from falling objects.
STAIN AND CHEMICAL RESISTANCE AND CLEANABILITY	Stain Resistance[1,4]	ANSI Z 124.6	32 – 48 Pass (Maximum passing criterion is 64.)	Tested with 16-hour exposure to crayon, shoe polish, ink, gentian violet solution, beet juice, grape juice, lipstick, hair dye, iodine, and tea.
STAIN AND CHEMICAL RESISTANCE AND CLEANABILITY	Wear and Cleanability	ANSI Z 124.6	Pass	Wear: Passes 10,000 scrub cycles. Cleanability: Loss of light reflectance after 25 cycles is 1%-2%. (Passing criterion is < 5%.)
STAIN AND CHEMICAL RESISTANCE AND CLEANABILITY	Chemical Resistance	ANSI Z 124.6	Pass	No visual damage due to 16-hour exposure to naphtha, ethyl alcohol, amyl acetate, acetone, vinegar, hydrogen peroxide, lye, sodium hypochlorite, trisodium phosphate, and pine oil.
STAIN AND CHEMICAL RESISTANCE AND CLEANABILITY	Resistance to Chemical Substances[1]	ASTM C 650	No effect	24-hour exposure to solutions of acetic acid, ammonium chloride, citric acid, urea, lactic acid, phosphoric acid, sulfamic acid, sodium hypochlorite, hydrochloric acid or 3% potassium hydroxide. Some models were affected by 24-hour exposure to 10% potassium hydroxide.[3]
THERMAL	Boiling Water Resistance	NEMA LD 3.3.5	No effect	While short-term contact with hot materials up to temperature tested will not harm quartz surfacing, hot cookware should not be placed directly on the surface; use insulated hot pads or trivets.
THERMAL	High Temperature Resistance	NEMA LD 3.3.6	No effect	No effect (no change in color or surface finish) when tested at 180C (356F).
SAFETY	Cigarette Test	ANSI Z 124.6	No ignition or glow	Resistant to ignition by cigarettes.
SAFETY	Coefficient of Friction (Slip Resistance)	ASTM C 1028	Type / Heel / Dry / Wet Polished: Neolite: 0.84, 0.51 Leather: 0.44, 0.43 Rubber: 1.21, 0.54 Honed: Neolite: 0.56, 0.72 Leather: 0.54, 0.57 Rubber: 0.80, 0.76	Consult a qualified design or construction professional before using for flooring. Test results show "as received" contact manufacturer for "renovated" test data.
SAFETY	Surface Burning	ASTM E 84	Flame spread = 5 Smoke developed = 25	Class 1 per International Code Council (ICC) and Class A per National Fire Protection Agency (NFPA).
SAFETY	Resistance to Fungi and Bacteria	ASTM G 21	Rating = 0 (no fungal or bacterial growth)	Dense and non-porous, quartz surfacing is inherently resistant to mold.

Test Performed	Test Standard	Results	Remarks
Smoke Toxicity	UPITT	LC 50 = 140.7g	Quartz surfacing meets New York City Building Code requirement that materials have LC 50 greater than 19.7g. The higher the value, the less toxic the material.
Radiation	ANSI/IEE N42.14 1999	^{226}Ra = 1.4 – 6.7 ^{232}Th = 1.4 – 3. ^{40}K = < 3 – 30.3 (Bq/kg dry weight)	The level of radioactivity is relatively low in comparison to similar building materials. Quartz surfacing meets European standards stated in Radiation Protection No. 112 – Radiological Protection Principals concerning the Natural Radioactivity of Building Materials.
CERTIFICATIONS			
Kosher		Certified by rabbinic authority.	Slabs are kosher due to low porosity.
	Certified for "Indoor Air Quality" and "Children and Schools"		Quartz surfacing is a low-emitting material.
New York City Materials and Equipment Acceptance (MEA)		Approved by City of New York	
ANSI/NSF Standard 51	Food Equipment Materials	Listed by NSF	Safe to use in food preparation areas.

Notes: Results are for polished quartz surfacing except where indicated.
[1] Performance varies with size of quartz particles.
[2] Small indentions can occur between 152 and 914-mm (6 and 36-in.) drop height.
[3] High concentrations of potassium hydroxide are in some drain cleaners and other harsh cleaning compounds.
[4] Some models require scrubbing to remove certain stains.

Quartz surfacing uses crushed quartz reclaimed from existing mining operations' waste material, and is a low-VOC material. It is durable, reducing maintenance and repair costs, and can be recycled at the end of its service life.

top of base cabinets. Quartz surfacing is also strong enough to permit cantilevered countertop installations—with full perimeter support at the cabinet edge, 20-mm (¾-in.) thickness quartz surfacing can sustain a 300-mm (12-in.) unsupported overhang with ordinary residential loads, and a 30-mm (1-¼-in.) thickness can support an overhang of 400 mm (16 in.). With corbels or brackets every 600 mm (24 in.), this overhang can increase to 500 mm (20 in.) for 20-mm material, and 600 mm for thicknesses of 30 mm at typical residential loads.

Quartz's strength also makes it practical for load-bearing applications. For example, sheets of quartz surfacing can be set into extrusions similar to those used for glass railing systems, and employed to support handrails and banisters.

For flooring, quartz surfacing can be installed in larger pieces that offer new aesthetic options. As natural stone and ceramic tile are brittle, pieces of these materials in large sizes are likely to crack if a floor exceeds flatness or deflection tolerances. As quartz surfacing is naturally ductile due to its thermoplastic matrix, it can span many substrate irregularities. However, the specifier must be cautious about using the polished material for flooring, as its coefficient of friction may not meet *Americans with Disabilities Act (ADA)* criteria and other industry guidelines under all conditions of use (*e.g.* when floors are wet). Quartz surfacing is available in different finishes, including polished, honed (matte), and specialty textured. Slip resistance varies among different manufacturers and models. For use as a floor surface, test results for the specific make, model, and finish of material should be requested.

As the material contains a thermoplastic, heat resistance is a concern. Tests prove quartz surfacing can resist 20 minutes of exposure to a 177-C (350-F) vessel, or to boiling water, without changing color or surface finish. Nevertheless, most manufacturers caution against placing hot cookware directly on quartz surfacing, and recommend using insulated hot pads or trivets.

Safety factors

Material safety is an important issue, especially in institutional applications. On the basis of surface burning characteristics, the authors found quartz surfacing qualifies as Class 1 by the International Code Council (ICC) and Class A per the National Fire Protection Association (NFPA), permitting its use in buildings with stringent life safety requirements. Moreover, quartz surfacing resists damage from burning cigarettes. Its emissions under fire conditions are only one-seventh as toxic as those of burning wood, easily passing New York City code requirements.

The material is naturally resistant to fungal growth and its dense, non-porous surface offers little room for bacteria to flourish. Consequently, many quartz surfacing products are accepted under NSF International 51, *Food Equipment Materials*, as 'splash zone'-approved for areas subject to food spattering and spills (*e.g.* backsplashes and other vertical surfaces). Certain models are also 'food zone'-approved for direct food contact, such as countertops and serving lines. In commercial food venues, only NSF-listed products should be selected. [3]

Concerns about radioactive radon emissions have induced some quartz surfacing manufacturers to test their materials. Testing conducted by Israel's Soreq Nuclear Research Center (NRC) using the procedure set forth in ANSI/Institute of Electrical and Electronics Engineers (IEEE) N 42.14-1999, *American National Standard for Calibration and Use of Germanium Spectrometers for the Measurement of Gamma-ray Emission Rates of Radionuclides*, found the product fulfills the European Commission's standard "Radiation Protection No. 112, Radiological Protection Principles Concerning the Natural Radioactivity of Building Materials."

Green quartz

Quartz surfacing can be considered a sustainable material. Extraction processes have relatively minimal environmental impact, as quartz's raw material is rarely mined expressly for use as a surfacing product. Instead, crushed chips and chunks of quartz are generally reclaimed waste products of other mining operations—for example, gold is found in quartz veins. Fine aggregate is produced naturally—silica sand is an abundant resource.

It is also a low-volatile organic compound (VOC)-emitting material, with several manufacturers qualifying for both Greenguard's Indoor Air Quality Certification and its more stringent Children & Schools Certification, which tests performance against the standards set forth in the California Department of Health Services Standard Practice CA 01350–Special Environmental Requirements.

Quartz surfaces are highly resistant to staining by many household compounds, and resist damage from harsh chemicals. Some models are also certified for use in food preparation areas.

These indoor air quality (IAQ) certifications qualify quartz surfacing products to contribute to earning credits in U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design–Commercial Interiors (LEED–CI) program, such as Indoor Environmental Quality (EQ) Credit 4.5, *Low-emitting Materials–Systems Furniture and Seating*, the Collaborative for High Performance Schools (CHPS) *Best Practices Manual for K–12 Schools*, and other green building programs.

Furthermore, quartz surfacing does not require application of sealants, helping maintain air quality. Other surfaces, such as natural stone and concrete, need to be resealed frequently; the VOC-emitting sealants used have negative environmental impacts over the materials' service lives. Unless misused or subjected to abuse, quartz surfacing can be expected to retain its good looks indefinitely; lifetime limited warranties are available from some manufacturers.

Interpreting Product Test Data

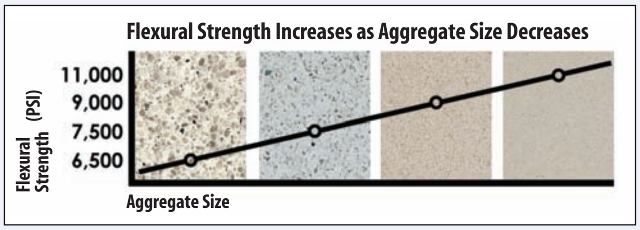
In most applications, close examination of quartz surfacing test data is unnecessary—the product's performance in common applications is well-documented and many of its salient characteristics (*e.g.* scratch resistance) can be easily established.* Yet whenever a designer uses a material in a creative new way, professional standards require critical assessment of claims published by various manufacturers.

This point was evident when the authors compared results of their testing to published product performance data. As mentioned in "The Qualities of Quartz Surfacing," the flexural strength of quartz surfacing was found to lie between 44,800 and 74,250 kPa (6500 and 10,770 psi), a significantly broad range. On examination, the authors determined this spread could be explained by the quartz aggregate's size in the model tested. The flexural strength of quartz surfacing varies inversely with aggregate size—smaller-aggregate materials have higher flexural strength.

Although it now seems obvious, this characteristic of quartz surfacing was not acknowledged in most manufacturers' literature. For example, one producer says its product has a flexural strength greater than 36,542 kPa (5300 psi), whereas another states its product has one of 40,265 kPa (5840) psi—without regard for grain size. Both figures appear conservative and are sufficient to design a countertop. However, failure to divulge the full story about product performance limits a specifier's ability to make informed choices. With these new test results, a designer has greater latitude to use the higher strength models for banisters, freestanding partitions, and other load-bearing fabrications.

Another reason to critically evaluate published test data is to vet its accuracy or completeness. The importance of such examination was illustrated during the authors' recent test program, when an internationally known testing laboratory reported quartz surfacing had a hardness of Mohs 9. This result was absurd—quartz, by definition, only has a hardness of Mohs 7 and the resin is softer still. Fortunately, this error was caught and corrected before it was published by the quartz surfacing manufacturer. Nevertheless, it serves as a reminder that reliance on test data does not obviate the need for common sense. When possible, a specifier should read the standard/protocol for the test to gage its significance to conditions likely to occur in actual construction and use.

Testing according to ASTM International C 650, *Resistance of Ceramic Tile to Chemical Substances*, discloses 10 percent potassium hydroxide solution can etch quartz surfacing. However, one manufacturer publishes literature claiming its product remains unaffected by the ASTM tests. A careful reading of its report reveals the company excluded results of testing with this reagent. If the specifier did not read the ASTM standard, he or she might assume the material is resistant to all reagents that should have been tested under it.



Additionally, test procedures are sometimes altered. One manufacturer stated it passed five cycles under ASTM C 484, *Standard Test Method for Thermal Shock Resistance of Glazed and Ceramic Tile*. However, the test specifies the samples should be cycled 10 times, then inspected for damage. Does this mean the material failed at six cycles?

It is important to define terms used for data evaluation. For instance, National Electrical Manufacturers Association (NEMA) LD 3-2005, *High-pressure Decorative Laminates*, Section 3.8 "Ball Impact Resistance," involves a test in which a steel ball is dropped on the sample; it then calls for reporting "the actual height of impact-resistance." However, the term "resistance" is undefined, leaving it to be interpreted by the laboratory and manufacturer. One lab defined it as the height at which slightly visible indentation occurred and reported 152 mm (6 in.). Another manufacturer defined it as the height at which samples shattered, and reported a figure in excess of 3962 mm (13 ft). The difference between indentation and shatter resistance is significant and could easily lead to confusion about specifications. Therefore, the meaning of test results should be clarified.

The quartz surfacing industry has not developed uniform levels of disclosure about its products' properties. As it is impractical to review test data for all characteristics of products, specifiers must decide when to request test reports and how to interpret their findings . In applications where performance is critical, model-specific proprietary specifications or detailed performance specifications should be used as the basis for construction documents.

—*Michael Chusid, RA, FCSI, CCS*

* *Despite quartz surfacing's scratch resistance, manufacturers warn against cutting on it. Further, quartz can dull implements such as knives. Such tools can also leave behind a steel residue, which may be mistaken as scratches.*

In addition to being durable, quartz is also recyclable at the end of its service. One manufacturer has recently started a program to collect and recycle scraps produced during local fabrication of quartz surfacing or following building decommissioning. Neither the quartz mineral nor the thermoplastic resin suffers any degradation during recycling, and the energy needed to crush and reuse the materials is minimal. The number of recycling programs in effect is expected to increase rapidly in the coming years.

Scratching the surface…

Where quartz surfacing can be used is largely a matter of vision. The material itself is versatile and suitable for various applications. As a countertop, it is a good choice for the hospitality industry—it can endure hard wear with little maintenance, cutting costs both in hotel rooms and public areas. It is also suitable for food-handling areas. Furthermore, easy cleaning and resistance to fungal and bacterial infestation make it a strong possibility in medical and educational environments.

In vertical applications, the lighter-weight, 13-mm (0.5-in.) thick material has strong potential. As wall cladding, wainscoting, baseboard, or doorframe trim, quartz surfacing can provide a unique contemporary touch or traditional stone-like look. It can even be used in fireplace surrounds with proper attention to sufficient isolation from heat, as defined in NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-burning Appliances*.

In restrooms, quartz surfacing is an excellent choice for shower and bath enclosures.[4] It also provides a distinctive option for toilet compartment partitions that can coordinate with quartz surfacing on walls and countertops to create an integrated suite of finishes.

Decorative applications abound. The material can be finished on one or both sides and perforated, offering an intriguing look for railings and balusters. Indoor water features can be constructed or decorated with one or more varieties of quartz surfacing, creating an optical interaction of water and crystal. Wall surfaces can be etched with custom designs. Undoubtedly, the various characteristics of quartz surfacing offer endless possibilities in the design/construction arena.

Notes

1 See the August 2008 issue of *Consumer Reports* for a cost and performance comparison of 10 types of countertop materials based on testing performed by the independent nonprofit group, Consumers Union.

2 Testing cited was conducted by independent laboratories.

3 For a list of approved models, visit www.nsf.org.

4 For plumbing fixtures, check with the authority having jurisdiction (AHJ) during design. Some codes require approval of the local fabricator instead of the material manufacturer.

Additional Information

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Abstract

Quartz surfacing is a type of engineered stone of approximately 93 percent crushed quartz particles in a thermoplastic binder. Frequently used for kitchen countertops, this finish is now being considered for applications beyond residential use. Quartz surfacing's hardness, strength, versatility, and sustainability enable it to perform well in schools and commercial buildings, as well as foodservice and healthcare facilities. The material's aesthetic also makes it a good candidate for a variety of decorative applications.