



2014

TILE: The Natural Choice

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STANDS THE TEST OF TIME

Ceramic tile has been the preferred choice around the world for centuries for its inherent beauty and durability, and because the natural materials used to make tile are so abundant. And the endless design options truly make each installation a unique work of art to be enjoyed for generations.

INSPIRES DESIGN

Explore unlimited design and customization possibilities. Mix colors, textures, patterns, shapes and styles to make every installation unique.

Get the look of wood, natural stone, wallpaper, even delicate fabrics, but with the durability of ceramic tile. And with tiles following the latest color trends, color matching is a breeze.

You can even take your design to the next level. Find a manufacturer that specializes in custom mosaic murals, waterjet cutting, or hand painting.



UNEQUALED VERSATILITY



Hypoallergenic



Easy to Sterilize



Fire Resistant



Chemical resistant



Enhanced traction products available



Stain resistant, easy to clean



Exteriors, including freeze/thaw climates



Dry, wet, and submerged applications



Durable: withstands heavy foot and wheel traffic

THE OBVIOUS CHOICE FOR BUILDING GREEN TODAY

When it comes to today's green building preferences, ceramic tile excels! Because of its many sustainable attributes, tile contributes points and credits toward several green building standards, including LEED.



Recycled Content and Waste Reclamation

Many factories are effectively closed loop facilities with zero waste, high levels of recycling, and efficient resource management.



Exceptional Life Cycle

Ceramic tile has an exceptional life cycle providing numerous environmental benefits. See LCA on page 7 for details.



Regional Manufacturing and Raw Materials

With tile manufacturers in every region of the U.S., tile and installation products made with local raw materials are widely available, greatly reducing the energy consumption and emissions of long distance shipping. In many cases, the raw materials are mined within a 500-mile radius of both the manufacturing facility and the job site. Plus, the clays and other materials used to make tile are plentiful.



Eco-Friendly Maintenance

No harsh chemicals required!



Best Indoor Air Quality and Zero VOCs

The high firing temperature of ceramic tile — generally more than 2000°F — burns off all organic compounds. Plus, ceramic tile is inhospitable to bacteria, fungi, mold, and other irritants that contribute to allergies and asthma. All this allows ceramic and glass tiles to easily meet low-emitting material requirements, contribute to pre-occupancy air quality plans, and provide superior indoor air quality for building occupants.



Lower Occupant Energy Costs

Tile can reduce the amount of energy needed for heating and cooling because of its exceptional thermal mass, which helps maintain desired room temperature.



Reduced Heat Island Effect

Using light-colored tiles instead of traditional paving materials can lower an area's heat absorption, or heat island effect. Green buildings in urban areas in particular are required to reduce the potential heat island effect.



Building Material Reuse

Tile finishes are among the few surfaces that can be salvaged in a major renovation.



Ceramic tile is an ideal choice for ventilated facade projects.

Tile can provide an aesthetic advantage, due to the wide range of colors, surfaces and sizes, allowing for virtually unlimited design opportunities.

A ventilated tile facade can reduce a building's energy consumption 20-30% due to the natural chimney effect it creates between the structure and the cladding. Hot air is evacuated in summer, and insulation is more effective in winter.

STANDARD REFERENCE GUIDE: TILE AND GREEN BUILDING STANDARDS

In North America, sustainable buildings are defined by several green building standards, codes, and rating systems that recognize a wide variety of sustainable product attributes like recycled content and low VOCs. Ceramic tile can help satisfy conformance requirements, or contribute toward credits and points in many ways, and **Green Squared Certified**[®] products provide additional compliance and points in several systems.

International Green Construction Code (IgCC)-2012	Standard for the Design of High-Performance Green Buildings (ASHRAE 189.1-2011)	NAHB National Green Building Standard (ICC 700-2012)	Green Globes for New Construction 2014 (v1.3)
505.2.2 Recycled Content Building Materials	9.4.1.1 Recycled Content	604.1 Recycled Content	3.5.1.1 Building Core/Shell Path A 3.5.2.1 Interior Fit-outs Path A
N/A	N/A	603.1 Reuse of Existing Building 603.2 Salvaged Materials	3.5.3.1 Reuse of Building Facades 3.5.3.3 Reuse of Non-Structural Elements
505.2.5 Indigenous Materials	9.4.1.2 Regional Materials	11.609.1 Regional Materials	3.5.1.1 Building Core/Shell Path A 3.5.2.1 Interior Fit-outs Path A
804.2 Pre-Occupancy Baseline IAQ Testing	10.3.1.4 IAQ Construction Management Plan	N/A	3.1.1 Integrated Design Process 3.1.2 Environmental Management During Construction
806.2 Adhesives & Sealants 806.4 Flooring 806.5 Ceiling & Wall Systems	8.4.2.1 Adhesives & Sealants 8.4.2.3 Floor Covering Materials 8.4.2.6 Ceiling & Wall Systems	901.7 Hard-Surface Flooring 901.8 Wall Coverings 901.10 Adhesives & Sealants	3.7.1 Volatile Organic Compounds
408.2 Site Hardscape	5.3.2.1 Site Hardscape	505.2 Heat Island Mitigation	3.2.2.4 Heat Island Effect
605 Building Envelope Systems	7.4.2.1 Building Envelope Requirements	702.2.2 Energy Cost Performance Analysis 703.1 Building Envelope	3.3.2.1 Passive Demand Reduction 3.3.4 Building Opaque Envelope
General Conformance to A108 Committee Standards for Baseline Code Compliance	10.3.2.3 Service Life Plan	602.1.6 Termite-resistant Materials 602.1.11 Tile Backing Materials 901.6 Wall-to-wall Carpeting Not Installed	3.5.5 Building Service Life Plan
N/A	N/A	601.3 Building Dimensions and Layouts 601.7 Pre-Finished Materials	3.5.9.2 Rainscreen Wall Cladding
303 Whole Building Life Cycle Assessment	9.5.1 Life Cycle Assessment*	610.1 Life Cycle Analysis	3.5.1.2 Building Core/Shell Path B 3.5.2.2 Interior Fit-outs Path B
Green Squared Certified products will help fulfill several of the above-listed criteria	New credit for multi-attribute product certification approved for inclusion in 2014 Version	611.2 Sustainable Products	3.5.1.2 Building Core/Shell Path B 3.5.2.2 Interior Fit-outs Path B

*Separate EPD credit to be included in 2014 Version

LEED v4

Changes implemented in Version 4 of LEED, which was released in late 2013, reflect increasing demands for life cycle-based information for sustainable building materials. The completely revamped rating system takes a new, more flexible approach to building green. LEED v4 acknowledges product contribution not just by allocating points for specific attributes like recycled content, but also through increased perspective on the role products have in achieving a host of traditionally desired outcomes, such as energy efficiency, occupant comfort, and whole building performance. With more tile product life-cycle information becoming readily available, design teams have the tools they need to creatively integrate tile installations into projects that meet performance-based credit requirements.

Leadership In Energy and Environmental Design (LEED v4)	
Building Product Disclosure and Optimization - Sourcing of Raw Materials	RECYCLED CONTENT
Building Life-cycle Impact Reduction Building Product Disclosure and Optimization - Sourcing of Raw Materials	PRODUCT REUSABILITY
Building Product Disclosure and Optimization - Sourcing of Raw Materials	REGIONAL MATERIALS
Integrative Process Construction Indoor Air Quality Management Plan Indoor Air Quality Assessment Construction and Demolition Waste Management	CONSTRUCTION/DESIGN MANAGEMENT
Low-Emitting Materials Thermal Comfort Interior Lighting	INDOOR ENVIRONMENTAL QUALITY
Heat Island Reduction	HEAT ISLAND EFFECT
Optimize Energy Performance	ENERGY EFFICIENCY
Building Life-cycle Impact Reduction	INHERENT DURABILITY
Open Space Building Product Disclosure and Optimization - Sourcing of Raw Materials Building Product Disclosure and Optimization - Material Ingredients Innovation	OTHER PRODUCT ATTRIBUTES OR MANUFACTURER ENGAGEMENT INITIATIVES
Building Product Disclosure and Optimization - Environmental Product Declarations	LCA OR EPD
Green Squared Certified products will help fulfill several of the above-listed criteria	MULTI-ATTRIBUTE SUSTAINABILITY: CONFORMANCE TO GREEN SQUARED®

PRODUCT SUSTAINABILITY: GREEN SQUARED AND LIFE-CYCLE BENEFITS

GREEN SQUARED CRITERIA

General Environmental Characteristics	Recycled Content/Reclaimed Waste Content
	Indigenous Raw Goods
	Environmental Packaging
	Durability
	Low Emissions
	Environmental Cleaning & Maintenance
	Solar Reflectance Index (SRI)
	Light Reflective Value (LRV)
	Sound Abatement
	Third Party LCA & EPD
	Participation in LCA Database Initiatives
	Environmental Product Manufacturing
Combustion and Fuel Usage	
Raw Goods Sourcing & Extraction	
Outsourced Packaging & Manufacturing Services	
Environmental Management Plans & Systems	
Utility Usage	
Renewable Energy	
Manufacturer Waste Diversion/Minimization	
Shipping Material Waste Minimization	
End of Life Product Management	Manufacturer Guidelines on Clean Fill Usage
	Post-Life Material Waste Minimization
Progressive Corporate Governance	Social Responsibility Strategy
	Labor Law Compliance
	Environmental Regulation Compliance
	Health & Safety Regulation Compliance
	Voluntary Participation in Health/Safety Programs
	FTC Green Guides Compliance
	Continuous Community Involvement
	Public Disclosure
	Sustainability Reports
Certified "Green" Facilities	
Innovation	"Above & Beyond" Standardized Criteria
	Innovative Sustainability Technologies
	Carbon Footprint Awareness/Reduction Strategy

Specify tile and installation products that meet ANSI A138.1 (Green Squared), and you'll be specifying the total package!

Green Squared is the world's only multi-attribute sustainability standard for tile and all the associated products needed to install it. Criteria are established for the important aspects of product sustainability, from raw material extraction to end of product life management, eliminating the need to evaluate single-attribute sustainability claims. To be in conformance, mandatory requirements and electives must be fulfilled.



Only products independently evaluated by an approved certification body may bear the **Green Squared Certified** mark. **Green Squared** conforms to ISO

Type 1 environmental labeling and declaration requirements (ISO 14024) for products verified by an independent third party. Product certification is available worldwide through NSF International, SCS Global Services, and UL Environment.

You can find **Green Squared Certified** products and additional details at our website — www.greensquaredcertified.com.



EPDs

Green building is fast evolving, with new environmental goals being set every day. Environmental Product Declarations (EPDs) are already being crafted for tile, to meet the growing demand for them. EPDs will provide important, quantifiable environmental impacts of tile products, enabling apples-to-apples product comparisons, so end users can make informed decisions.



Because a tile installation will last as long as the building it's installed in, its environmental and social impacts are minimal when compared to other surface coverings that would have to be replaced numerous times over the life of the building. This also means tile costs less per square foot over the long haul, whereas carpet, vinyl, and other floor coverings are significantly more expensive due to their replacement, maintenance, and refinishing requirements.

LIFE-CYCLE STUDY

Construction cost consulting firm Scharf-Godfrey compared the life-cycle costs of various flooring types. The per year cost for each flooring type includes installation, maintenance, and removal costs. Their comparison, provided below, shows why ceramic tile is the natural choice for sustainable design and long-term value.

Life-cycle Costs for Floor Finishes (per square foot)				
Floor Finish	Installed Cost	Life-cycle Cost	Expected Life (y)	Cost Per Year
Quarry Tile	\$ 6.83	\$16.13	50	\$0.32
Glazed Ceramic Floor Tile	\$ 7.00	\$16.30	50	\$0.33
Glazed Porcelain Tile	\$ 8.34	\$17.64	50	\$0.35
Mosaic Tile	\$ 8.20	\$17.50	50	\$0.35
Unglazed Porcelain	\$ 8.30	\$17.60	50	\$0.35
Natural Hardwood	\$ 9.31	\$20.80	50	\$0.42
Travertine-Turkish	\$12.50	\$21.80	50	\$0.44
Marble	\$21.00	\$30.30	50	\$0.61
Laminate	\$ 8.84	\$17.77	25	\$0.71
Man-Made Hardwood	\$ 9.58	\$18.51	25	\$0.74
Portland Cement Terrazzo	\$14.88	\$24.27	30	\$0.81
Stained Concrete	\$12.40	\$24.60	25	\$0.98
Carpet	\$ 3.22	\$ 6.50	6	\$1.08
Resin Terrazzo	\$ 8.50	\$16.53	15	\$1.10
Sheet Vinyl	\$ 6.90	\$13.90	10	\$1.39
Poured Epoxy	\$ 8.18	\$15.18	10	\$1.52
VCT	\$ 3.91	\$18.35	10	\$1.83

