Why Tile:
Technical Resources

Product Performance: Specifying Tile For Green Construction

Standard and certification program for tile product sustainability

→ Multiple-attribute, balanced approach
→ Includes setting materials

Recommended by U.S. Environmental Protection Agency (EPA) for sustainable purchasing

→ Green Squared Certified

ANSI A138.1 Green Squared® Standard: 5 standards in 1

→ Tiles: Ceramic and Glass
→ Powder Installation Products
→ Paste/Liquid Installation Products
→ Panel Installation Products
→ Sheet Installation Products

→ G2 standard A138.1



www.GreenSquaredCertified.com

For Manufacturers:

→ How to get certified

For Specifiers:

→ How Green Squared products earn points and facilitate compliance
→ Every green building standard/rating system reference to Green Squared

For Purchasers:

→ Where to find Green Squared Certified® products
→ Syndication with government purchasing databases and other purchaser databases

→ Green Squared Certified

Environmental Transparency: Low Life Cycle Environmental Impact

Environmental Product Declaration (EPDs)

How the ceramic tile industry transparently reports environmental LCA data.

Triple Transparency and Recognition in Green Building

Visit https://whytile.com/library/tcna-tile-natural-choice/ for further information.

↓ Tile

Tile Transparency Chart: on page 55

↓ Mortar

Mortar Transparency Chart: on page 55

↓ Grout

Grout Transparency Chart: on page 55

Environmental Transparency: Low Life Cycle Environmental Impact

Global Warming Potential →

Global Warming Potential Graph:

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Fossil Fuel Resource Depletion →

Fossil Fuel Resource Depletion Graph:

page 68

Embodied Carbon: One of the Hottest Topics in Green Building Today

What Is Embodied Carbon?

Greenhouse gas emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of building materials.

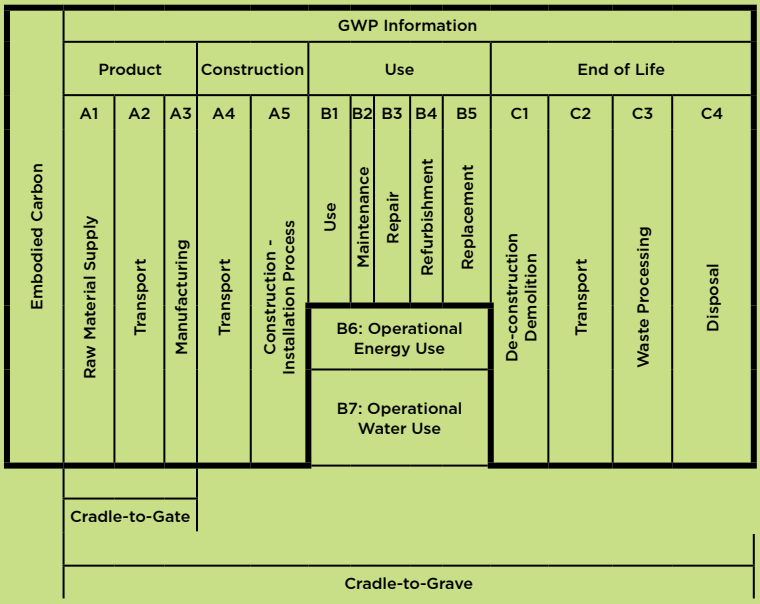


How Is Embodied Carbon Measured?

Kilograms of CO^2 equivalent (CO^2e), which is the global warming potential (GWP) determined from a product life cycle assessment (LCA) in accordance with ISO 14044.

Importance of Cradle-To-Grave Embodied Carbon

Building owners, designers, and carbon accountants need to know the cradle-to-grave embodied carbon of the flooring products they select. A product may have low cradle-to-gate embodied carbon (i.e. emissions attributed to manufacturing), but if its service life is short and/or maintenance protocols are carbon-intensive, cradle-to-grave embodied carbon can be significantly higher, thus resulting in a significant increase to the carbon footprint of the building in which it is installed.



Relevance to Flooring Materials

LCA GWP data can be found in an environmental product declaration (EPD). In North America, EPDs for ceramic tile, wood flooring, resilient flooring, carpet, and laminate flooring are required to meet the North American flooring product category rule (PCR), UL 10010-7. This PCR requires a 75-year cradle-to-grave LCA, which takes into account environmental impacts from manufacturing, installation, maintenance, anticipated replacements, and disposal.

How Does Tile Measure Up?

When comparing TCNA's industry-wide EPD for ceramic tile to EPDs for other types of flooring meeting UL 10010-7, ceramic tile made in North America has the lowest 75-year GWP value. This means, ceramic tile's cradle-to-grave embodied carbon is lower than other flooring options.

Material Ingredient Transparency: Human Health/Wellness

→ First of its kind in any industry
→ GreenScreen® toxicological assessments for 34 common tile industry ingredients

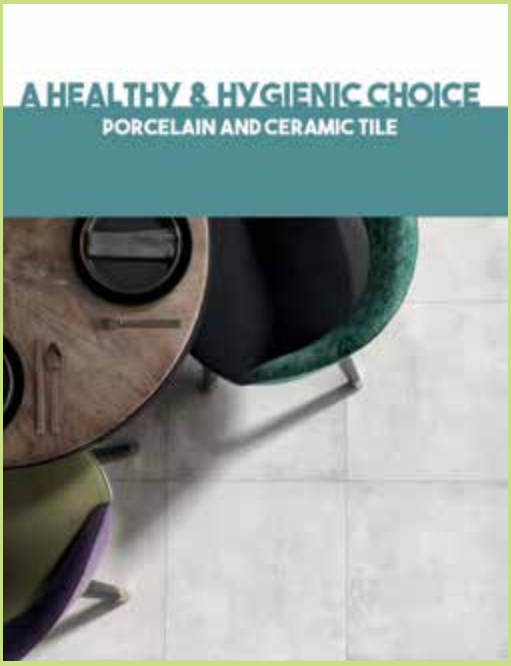
→ Framework for uniform reporting of tile, mortar, and grout ingredients using HPDs or Manufacturer Inventories

→ Tools and guidance for contribution to LEED, WELL, and Living Building Challenge transparency and optimization credits

→ Material Ingredients Guide

Material Ingredient Transparency: Human Health/Wellness

➔ Flooring Ingredient Comparison Chart



➔ Ceramic Tile Hygiene Guide



➔ TCNA Tile The Natural Choice

Life-Cycle Costs for Various Floor Finishes

→ Life-Cycle Cost Chart

Where's your next project?
Anywhere is the perfect place for tile.







Green Building Programs

	Leadership In Energy and Environmental Design (LEED v4.1)	2021 International Green Construction Code (ASHRAE Standard 189.1)	NAHB National Green Building Standard (ICC/ASHRAE 700-2020)	ANSI/GBI 01-2021 Green Globes
Multi-attribute sustainability: conformance to Green Squared®	Pilot Credit—Certified Multi-Attribute Products and Materials	901.4.1.4.3 (9.4.1.4.3) Third-Party Multi-attribute Certification	612.2 Sustainable Products	10.2.1.1 Third-Party Multiple-Attribute Product Certification
LCA or EPD	Environmental Product Declarations	901.4.1.4.1 (9.4.1.4.1) Industry-Wide Declaration 901.4.1.4.2 (9.4.1.4.2) Product-Specific Declaration 901.4.1.4.4 (9.4.1.4.4) Product Life Cycle	611.1 Product Declarations	10.2.1.1 Cradle-to-Gate EPD 10.2.1.2 Cradle-to-Grave EPD
Recycled Content	Sourcing of Raw Materials	901.4.1.1.1 (9.4.1.1.1) Recycled Content	604.1 Recycled Content	10.4.1 Sustainable Material Attributes
Product Reusability / Recyclability	Sourcing of Raw Materials	901.4.1.1.2 (9.4.1.1.2) Salvaged Material Content	603.1 Reuse of Existing Building 603.2 Salvaged Materials 605.3 Onsite Recycling 605.4 Recycled Construction Materials	10.5.1 Reuse Structural/Non-Structural Elements 10.5.2 Reused, Refurbished, and Salvaged Materials
Regional Materials	Building Product Disclosure and Optimization—Sourcing of Raw Materials	901.4.1.2 (9.4.1.2) Regional Materials	609.1 Regional Materials	N/A
Construction/ Design Management	Integrative Process Construction Indoor Air Quality Management Plan Indoor Air Quality Assessment Construction and Demolition Waste Management	901.3.1 (9.3.1) Construction Waste Management 1001.7.2 (10.7.2) IAQ Monitoring	605.2 Construction Waste Management Plan	6.1.2 Integrated Design Process 6.2 Environmental Mgmt. During Construction

→Green Building Credits Table

Green Building Programs

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Indoor Environmental Quality	Low-Emitting Materials Thermal Comfort Interior Lighting	801.4.2.1 (8.4.2.1) Adhesives and Sealants 801.4.2.3 (8.4.2.3) Floor Covering Materials 801.4.2.6 (8.4.2.6) Ceiling and Wall Assemblies and Systems	901.7 Flooring Materials 901.8 Wall Coverings 901.10 Adhesives & Sealants	11.2.1 Volatile Organic Compounds
Heat Island Effect	Heat Island Reduction	501.3.5.1 (5.3.5.1) Site Hardscape	505.2 Heat Island Mitigation	7.3.4 Heat Island Effect
Energy Efficiency	Optimize Energy Performance	701.4.2 (7.4.2) Building Envelope 701.5 (7.5) Performance Option	702.2.2 Energy Performance Levels 703.2 Building Envelope	8.1.1C.1 Building Envelope
Inherent Durability	Building Life-Cycle Impact Reduction	1001.10 (10.10) Service Life Plan	602.1.6 Termite-Resistant Materials 602.1.11 Tile Backing Materials 901.6 Wall-to-wall Carpeting Not Installed	6.3.1B Building Service Life Plan
Other product attributes or manufacturer engagement initiatives	Open Space Building Product Disclosure and Optimization—Sourcing of Raw Materials Building Product Disclosure and Optimization—Material Ingredients Innovation	105.4 Innovative Approaches and Alternative Materials, Design, and Methods of Construction and Equipment 1001.9.5 (10.9.5) Building Green Cleaning Plan	601.3 Building Dimensions and Layouts 601.7 Pre-Finished Materials	10.3 Product Risk Assessment

→Green Building Credits Table