



What to Consider When Specifying Tile for Green Applications

Besides being a highly decorative product, tile can have a positive impact on indoor air quality, especially those that are Green Squared Certified.

Today, it is well understood a wide variety of environmental concepts need to be considered when evaluating product sustainability.

Gone is the need to evaluate single-attribute sustainability claims like recycled content or low VOCs (volatile organic compounds). Rather, many industries have taken it upon themselves to develop standards for both, plus a host of additional properties to ensure balanced, thorough product assessments.

This multi-attribute approach toward product sustainability has led to the creation of industry certification programs

that address the gamut of sustainability impacts of products throughout their entire lifecycle.

For example, about a year and a half ago, the tile industry launched Green Squared, a standard and certification program with requisite and elective criteria for sustainable tiles and tile installation materials.

When developing Green Squared, the tile industry considered a host of sustainability principles, including social and environmental aspects to create a full lifecycle, multi-attribute framework for product sustainability. Green Squared covers tiles and

related installation materials, and products labeled Green Squared Certified have been independently verified by a third party to meet its criteria, which conforms to the ANSI A138.1 standard.

Green Squared is the first product sustainability standard and certification program to encompass a full range of products within an industry and is a valuable tool for specifying sustainable tile systems.

What to Look for in Sustainable Tiles

The following are just some of the qualities typical of Green Squared Certified products:

Durability. Product durability is one of the most

important contributors to the sustainability of a tile installation. When considering the environmental, social and economic sustainability of a product, all relevant impacts are repeated each time that product is replaced within a normalized timeframe (usually, the expected life of a building).

Ideally, a product's expected service life is at least as long as the building in which it is installed, in which case its relative impacts are considered only once. Tiled surfaces can have a perpetual service life, especially if they meet or exceed industry durability criteria such as ANSI, ASTM, and/or ISO tile and installation material product standards,

which is requisite to Green Squared certification.

Recycled content and waste reclamation. Tile and installation material manufacturers offer wide varieties of products with pre- and post-consumer recycled content. This can contribute to overall building recycled content and help achieve compliance with recycled content targets in green building projects.

Additionally, high levels of responsibly recovered waste, including dust, powder, unfired scrap and water are commonly reincorporated into tile and installation material manufacturing. Waste reclamation in such processes is a vital component to minimizing waste and maximizing resources. In fact, many tile factories are so efficient at waste reclamation, they are effectively closed loop facilities. Reducing waste to zero and fully utilizing all inputs is paramount to efficient manufacturing.

Certain levels of recycled content and/or manufacturer waste reclamation are mandatory for products to achieve Green Squared certification.

Indoor air quality (IAQ). Building materials with few or no VOCs are necessary for good IAQ. Because they are manufactured at high temperatures, ceramic and porcelain products have zero VOCs and easily meet the requirements of commonly referenced emission specifications. And, tile and stone flooring with no organic-based coatings or sealants are exempted from VOC emissions testing in most green building standards and rating systems,

Today's tile manufacturers regularly use both pre- and post-consumer waste in their products, making an already green product even greener.



including LEED.

While tile setting materials are not exempted from VOC testing in LEED or other green standards and rating systems, cementitious mortars (both with and without polymer additives) typically have low to no VOC content or emissions. Many of these products, as well as mastics and reactive resins in the North American marketplace, have been tested and are in compliance with VOC content and emission criteria.

Such compliance is requisite to Green Squared certification.

Cleaning, maintenance and sterility. While the use of tile generally eliminates the need for harsh cleaning chemicals and their impact on the environment, tile and grout manufacturers should be contacted to provide additional maintenance recommendations for products used in green buildings.

Manufacturers of Green Squared Certified products are required to make recommendations readily

available which focus on the use of low VOC and environmentally friendly cleaners and sealers.

Additionally, beyond tile's inherent inhospitality to mold, germs and bacteria, several products today have innovative coatings which inhibit microbial growth. These types of innovative qualities can also contribute toward a product achieving Green Squared certification.

Energy reduction. By their nature, tile products have exceptional thermal mass. The incorporation of heavy and dense ceramic and cement-based materials into floor, wall and ceiling installations allows for their storing and slow release of heat.

This means in the summer, tiled surfaces capture and store heat from interior environments without significantly changing temperature, keeping interiors cool during the hottest parts of the day. During the winter, tiled surfaces are able to store

heat and radiate it back to an interior environment in a comfortable and energy-efficient fashion.

Some tile manufacturers are beginning to add photovoltaic cells to the surfaces of some of their specialty products. Such technologies are becoming more sophisticated and could potentially introduce a new variety of renewable energy solutions.

Innovative product technologies, investigative studies of product lifecycle impacts pertinent to energy and efforts to increase general awareness are all options manufacturers can consider when having their products Green Squared Certified. Additionally, requisite to Green Squared certification are several manufacturing parameters, which focus on energy conservation.

Corporate governance and social sustainability. Mandatory for conformance to the Green Squared standard, manufacturers shall have

Tile is not just a decorative, green product for interior designs, its durability makes it is perfectly suited for outdoor environments as well, specifically porcelain.



written and implemented social responsibility strategies which address at least the following: Labor law compliance; forced labor prohibitions; child labor prohibitions; environmental regulation compliance; health and safety regulation compliance, and community involvement.

Green Squared focuses on several other voluntary steps toward social sustainability, including participation in voluntary safety programs as well as voluntary transparency reports on how companies are operating.

Who's asking for Green Squared products?

Green building programs are increasingly taking advantage of the fact many industries have go-to standards and certification programs for multi-attribute product sustainability such as Green Squared. Several green building standards and rating systems already offer points for the use of conforming products.

For example, Green Squared is referenced in its entirety by the National Association

of Home Builders' National Green Building Standard and ASHRAE 189.1 where points are awarded for the use of Green Squared Certified products. The National Institute of Building Sciences speaks to the importance of multi-attribute standards and certification programs in its Whole Building Design Guide (wbdg.org/resources/sustainabilityassessments.php), specifically recommending the use of Green Squared when considering tile in sustainable buildings.

Additionally, USGBC has been considering different strategies for specifying such standards and/or certification programs in LEED. In fact, the wheels are already in motion to make this happen.

Recently, LEED MR Pilot Credit 80 (Environmentally Preferable Products and Furnishings) was established, under which a point can be earned for the use of products with third party multi-attribute sustainability certification. Currently, USGBC is seeking

Developed by TCNA, Green Squared is a nationally recognized standard and certification program for sustainable tiles and tile installation materials.



input on which representative program to include from each industry.

While Green Squared Certified products already satisfy many of the current LEED MR requirements, the tile industry is hopeful Pilot Credit 80 will eventually provide an additional opportunity for the use of Green Squared Certified products to contribute toward points in LEED.

What else is the tile industry doing?

Today, it is becoming increasingly important manufacturers make available product lifecycle environmental data for their products. One way to achieve this is through an environmental product declaration (EPD). An EPD is a report of quantified environmental impacts of a product, based on its life cycle assessment (LCA). Similar in concept to a nutrition label, an EPD tells a product's full environmental story in a familiar reporting format so an end user can make an informed decision.

EPDs have been common worldwide for quite some time, but they have just recently began making their way into North America. It can be expected EPDs will be in high demand in the years ahead, especially since requirements for them are

already written into green building standards and rating systems, including LEED.

Currently, the tile industry is working on an industry-wide EPD, i.e. a generic EPD for tile, which will provide an in-depth report of current industry lifecycle data, summarizing the generic environmental footprint of North American tile. This effort will be helpful in establishing baseline data and a common foundation upon which future EPD and LCA initiatives can grow in a consistent and organized fashion. **ft**



Bill Griese is the manager of standards development and green initiatives for the Tile Council of North America (TCNA), an industry trade association representing North American manufacturers of tile, tile installation materials, tile equipment, raw materials, and other tile-related products. Through its role as Secretariat of ANSI ASC A108, TCNA facilitated the development of the Green Squared standard, ANSI A138.1. In addition to managing Green Squared, TCNA is involved in the development of an industry-wide initiative to develop a generic EPD for tile. For a full breakdown of the Green Squared standard and certification process, visit greensquaredcertified.com. For more about TCNA, call (864) 646-8453, or visit tcnatile.com.