

LEED Version 4 and its relevance to tile

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In LEED v4, there are many ways that material selection can have an influence on conformance to relevant criteria. The following is a list of areas in which tile and related installation materials might serve an integral role in the overall design strategy of a building.

Integrative Process

Evaluate interrelationships within a project, identifying opportunities for achieving synergies across disciplines and building systems. When considering tile as an interior finish or building envelope component, its influence and the influence of its setting materials and substrates should be evaluated as part of this integrative sustainability analysis.

Open Space

For the portion of the outdoor plazas and spaces that are permitted to be hardscaped, consider tile as a decorative, durable, and sustainable solution.

Heat Island Reduction

In order to reduce a development's heat island effect, con-

sider hardscaping materials with minimal three-year aged solar reflectance (SR) values and roofing materials with minimal three-year aged solar reflectance indexes (SRI). Light-colored tiles are a great option, and with their inherent color fastness, they are guaranteed to maintain their SR and SRI values for much longer than three years.

Optimize Energy Performance

The inherent thermal mass of a tile installation helps reduce peak heating and cooling loads and shift peak loads to non-peak hours, reducing the size of HVAC systems needed. Radiant floor-heating systems work well with tile, and they can be more energy-efficient than forced-air heating systems. Also, tile is an excellent option for ventilated façades, which can contribute to substantial energy savings.

Building Lifecycle Impact Reduction

Select materials based either on adaptive reuse or a lifecycle assessment of the whole building. When

renovating a building listed under the local, state, or national register of historic places, it's important to understand that the inherent durability of tile makes it one of the few surface coverings that can be reused. For new construction or where new materials are desired, design choices should be made based on a 60-year building lifecycle assessment (LCA). Tile's 60+ year lifespan and resulting minimal environmental footprint means that it outperforms competitive surface coverings when evaluated in this way.

Building Product Disclosure and Optimization – Environmental Product Declarations (EPDs)

If transparency is of priority, consider the use of tile products with publicly available generic or proprietary LCAs and EPDs. For tile products which have both generic and proprietary lifecycle data available, consider those which demonstrate impact reduction below industry average. To learn more about the generic EPD for tiles produced in North America and

manufacturers which participated in this project, contact Tile Council of North America (TCNA).

Building Product Disclosure and Optimization – Sourcing of Raw Materials

When using tile, the following raw material characteristics might be taken into consideration: post-consumer and pre-consumer recycled content which is present in many tiles and installation materials, regionally manufactured products, extended Producer Responsibility (EPR) or “take-back programs” offered by some manufacturers, and reuse or salvaging potential.

Building Product Disclosure and Optimization – Material Ingredients

LEED v4 encourages project teams to select products for which manufacturers have publically disclosed their chemical ingredients with known hazards identified and/or have verified minimal use and generation of harmful substances. Finished tile products are well-known for being inert and made of natural ingredients which are safe. Some tile product manufacturers have chosen or might be willing to participate in voluntary ingredient disclosure programs.

Construction and Demolition Waste Management

Project waste diversion and reduction strategies are encouraged. Tile products can be crushed and recycled into new materials or aggregates. Tile and installation product packaging materials are usually recyclable, which facilitates jobsite waste reduction. A typical tile installa-

tion involves products of standard material lengths and quantities such that off-cuts and scrap are largely eliminated, further facilitating jobsite waste reduction. Moreover, new reduced-thickness tile technologies are allowing tile to be installed over existing materials, eliminating the need for demolition altogether.

Low-Emitting Materials

Tile is inherently inorganic, thus, VOC-free and specifically identified as such by LEED v4 with no testing requirements. Many tile adhesives, grouts and backer boards contain zero or very low VOCs, and when tested, are well within the tolerable levels which are specified.

Construction IAQ Management Plan

To promote the well-being of construction workers and building occupants, a management plan is required which minimizes indoor air-quality problems resulting from materials which are highly toxic, high in VOCs, easily damaged by moisture, or a food source for mold. Tile and related installation materials are non-toxic; tile is inherently VOC-free; tile products are easily protected from moisture during construction; and tile is not a food source for mold.

IAQ Assessment

An air quality assessment is necessary to assure that post-construction indoor air quality is satisfactory. Tile products do not adversely impact air quality assessments as they are VOC-free, formaldehyde-free, and non-toxic. Tile cuts are typically made on wet saws, which helps minimize dust that can affect

indoor air quality assessment. Also, impervious packaging and dust-reducing technologies in cement mortars and grouts can help in the reduction of airborne contaminants which might affect the assessment.

Thermal Comfort

Buildings that provide quality thermal comfort promote occupants’ well-being. If natural conditioning is being utilized (zero-energy strategies such as natural ventilation paths, passive solar heating, and thermal mass), consider that the inherent thermal mass of a tile installation helps moderate indoor temperature swings to create a more stable and comfortable indoor environment.

Interior Lighting

High-quality lighting can help improve building occupant comfort level and productivity. If high-reflectance surfaces are desired as a strategy to improve interior lighting, consider tiles with high light reflectance value (LRV) as per the tile industry standard for determining LRV, ASTM C609.

Innovation

New tile products with green innovations such as photovoltaics, antimicrobial coatings and photocatalytic surfaces continually enter the marketplace. Consult with manufacturers as the use of such products might contribute under LEED v4.

LEED Accredited Professional (AP)

There are more and more LEED APs in the tile industry. Consider reaching out to one of them to gain an in-depth understanding of how to integrate tile into your next LEED project.