

Environmental Commitment

Crossville's commitment to the environment

When we take from the earth, we give back. Crossville Porcelain Stone's waste-water policies adhere to the highest quality standards in the industry. We also maximize use of natural gas and employ sophisticated dust collection systems and recycling processes to reclaim and reuse most of the unfired raw waste material generated during manufacturing without sacrificing quality.

- Crossville Ceramics' porcelain tiles are made of naturally occurring clays and minerals mined in Tennessee and neighboring states.
- Most tiles are now shipped in brown kraft paper cartons that are easily recyclable for use in other paper products.
- Efficiency programs maximize the use of natural gas and minimize waste products during manufacturing. Sophisticated dust collection systems and recycling processes reclaim and reuse most of the unfired waste materials from manufacturing.
- Water used during manufacturing is returned clean to its natural habitat. Crossville Ceramics has twice earned citations for its effective waste-water management policies.
- Stringent quality standards are imposed to help eliminate defective products and minimize wasteful firing.
- The company's strategic locations on major U.S. shipping routes further reduces energy used in transporting products.
- Porcelain tile is friendly to the indoor environment: it produces no fumes or gases, will not support mold, mildew or bacterial growth, and can be maintained without the use of harsh chemicals.
- Porcelain tile has a long life cycle that results in fewer replacements and reduced waste. In fact, porcelain may outlast as many as five installations of many other materials.
- When porcelain is replaced, it produces low-volume, environmentally stable material, lowering disposal costs and reducing environmental impact.

We are just as committed to protecting the environment as we are to serving our customers. It's integral to our overall commitment to quality ... quality of life, as well as products and services.

Eco-Cycle

Taking another step forward in its environmental awareness campaign, Crossville Ceramics has introduced the [EcoCycle](#), [EcoCycle Stone Series](#) and [GeoStone EcoCycle](#) porcelain tile, made by reclaiming and reusing unfired raw materials.

More than 95 percent of the EcoCycle tile consists of once-wasted raw materials that are generated during the process of manufacturing standard-color porcelain tiles.

The impact of flooring materials on indoor air quality

Indoor Air Quality Concerns

Indoor Air Quality (IAQ) has become a critical concern to design professionals. Environmental contaminants and microbial growth within buildings and on finishes and in furniture may account for the rise in Sick Building Syndrome, Building Related Illness, and Multiple Chemical Sensitivity. Knowledgeable selection of building materials, finishes, furnishings, and installation methods can dramatically improve the indoor environment.

One of the easiest and most effective ways a design professional can reduce indoor pollution is to research and specify finished products and installation materials that are neither "original sources" of contaminants nor "sinks" or secondary sources of contaminants.

An original source contains contaminants as manufactured, and may discharge the contaminants into the environment during installation, during the product's lifetime in the building, during use or cleaning, or during removal. A "sink" may not contain any contaminants as manufactured, but will absorb contaminants from other sources and may discharge the contaminants later.

Some products are both original sources and "sinks." Materials such as carpet, fabrics, upholstery foam, pressed board products, glues and adhesives, plastics and other porous or soft products may act as "sinks." These materials may absorb contaminants, such as cigarette smoke or maintenance products, under typical indoor environment conditions. Absorption of contaminants may occur only under certain conditions, such as on weekends when the ventilation system allows the temperature to rise and air circulation to slow. Many experts believe after-hours changes in the temperature and air flow exacerbate the problem. For instance, temperatures above 78 degrees cause measurable increases in VOC outgassing.

Damp or humid areas create greater concerns. Studies show that relative humidity above 50 percent contributes significantly to microorganism growth.

These heat or humidity conditions may enhance the ability of a "sink" to absorb contaminants in the building air. Later, when conditions become favorable, a "sink" then may release these contaminants into the surrounding environment, creating potentially large concentration levels in the area immediately around the "sink."

Choose materials wisely

IAQ concerns are but one factor design professionals must consider. Codes and regulations may limit use of original sources and "sinks," but complete avoidance probably is not possible, nor desirable.

Choose materials that will create a space that is warm, attractive, and well designed, in addition to being healthy and wise. When good alternatives exist, choose one that fosters IAQ. Because flooring materials form one of the largest surface areas in any space or building, choosing an appropriate flooring material creates enormous potential for improving the indoor environment.

Crossville Ceramics Porcelain Tile offers several advantages over "soft" flooring materials, such as carpet or resilient flooring, and other "hard" flooring materials, such as stone or agglomerate tile. Crossville tile can create a well-designed space while also acting as a positive influence on the indoor environment, because Crossville Porcelains do not emit or absorb pollutants.

Careful selection of building products is one way to address IAQ concerns. However, proper maintenance and housekeeping are necessary to maintain a clean indoor environment and to prevent the build up of particulate and microbial contaminants.

Cleaning or maintenance materials may contribute to the IAQ problem. Cleaning products may emit VOCs or other chemical contaminants. Some cleaning materials leave behind residues that trap other contaminants or break into the air as particulates. Sealers or other finishes for resilient flooring or other materials also may contribute to contamination, and also may create harmful waste materials when stripped and reapplied.

Reduce contaminants from cleaning and maintenance products and procedures

Simplicity is the key. Specify materials that are easy to clean with simple, basic products. Materials which require very low maintenance automatically contribute a lower volume of contaminants than those requiring high maintenance and frequent cleaning. Select materials that are durable, easy to clean, and that do not require any sealers, waxes, or other protective coatings. Materials that do not trap or absorb dirt or contaminants generally are the simplest and lowest to maintain.

Manufacturers of cleaning and maintenance products generally have several programs suitable for a variety of materials, finishes, and furniture. Discuss each program recommended, and question the impact of each product on IAQ. If one product is questionable, effective substitutes may be available.

Choose a holistic approach. Products may require significant maintenance at the initial installation and periodically throughout the anticipated lifespan, using certain materials and procedures. Daily or normal maintenance may call for other materials and procedures. Frequency of cleaning is as important as the type of cleaning required. Maintenance affects not only IAQ, but our planet's environment as well. Balance each of these factors to arrive at an appropriate solution for your individual project.

The Advantages of Crossville Tile

- Crossville Ceramics Porcelain Tile is not an original source of contaminants. Crossville's environmentally sensitive raw materials and manufacturing processes and its simple, inert installation materials and procedures.
- Crossville Porcelain therefore does not compromise IAQ during initial installation.
- Crossville Porcelain will not act as a "sink" to absorb VOCs or other chemicals from surrounding materials. After Crossville Ceramics tile is installed, it forms a completely inert flooring system.
- Crossville porcelain will not support bacterial or fungal growth, nor will it absorb or release other contaminants.
- Crossville Ceramics Porcelain Tile also offers ease of maintenance with simple, water-based cleaning materials.
- Crossville porcelains do not require solvent-based cleaners or sealers. Simple, water-based products keep Crossville tile well maintained and also protect our environment. Thus, Crossville porcelains offer significant advantages for indoor air quality during installation, and for the lifetime of the tile's use in the building.

Where to go for more information

As the previous CROSSTALK noted, standards and recommendations for IAQ are changing rapidly. The design professional must always research the current regulations and develop requirements appropriate for each installation.

Doesn't Indoor Air Quality depend primarily on adequate ventilation?

Much IAQ research focuses on HVAC systems and ventilation sources. Design and engineering professionals are addressing these ventilation issues. Particularly in buildings twenty years old or older, improvements in ventilation can bring significant changes in air quality.

Isn't Indoor Air Quality less of a problem in newer buildings?

Recent studies indicate that IAQ may be a bigger problem in newer buildings, but may be caused by other factors. These studies imply that ventilation plays far

less of a role in indoor air contamination for buildings less than 20 years old. Newer buildings contain more formaldehyde, glues, resins, plastics, and other chemicals. Experts now hypothesize that these contaminants, as well as microbial growth on finishes and in furniture, may account for the rise in Sick Building Syndrome, Building Related Illness, and Multiple Chemical Sensitivity. Thus, newer buildings may pose a far greater hazard to our health.

What sources of indoor environmental contamination should the Design Professional consider?

For buildings constructed since the mid-1970s, the Design Professional should examine three primary sources of indoor environmental contamination:

1. Building Systems: including HVAC/ventilation standards and plenum design, and environmental tobacco smoke.
2. Products and Installation Materials: such as finish materials, including paints, carpeting, glues, adhesives and sealants, architectural coatings; furnishings; and fireproofing systems.
3. Housekeeping and Maintenance Products and Procedures.

How do Products and Installation Materials affect Indoor Air Quality?

Finish products and installation materials may be sources of indoor air pollutants such as bioaerosols, including bacterial, viral or fungal growth; particulates, including dust, paint chips, and fibers; volatile organic compounds (VOCs); and other contaminants and chemicals. These materials may become "sources" in two different ways: the material may be an "original source" or it may be a "sink."

An original source contains these pollutants as manufactured and may discharge the pollutants into the environment during installation, during the product's lifetime in the building, during use or cleaning, or during removal. A "sink" may not contain any pollutants as manufactured, but will absorb pollutants from other sources and may discharge the pollutants later.

What can the Design Professional do to reduce these hazards?

One of the easiest and most effective ways a Design Professional can reduce indoor pollution significantly is to research and specify finish products and installation materials that are neither original sources nor sinks, and that are easy to clean with simple, basic products. One great way to start is with flooring materials. Flooring materials form one of the largest surface areas in any space or building. Flooring materials, therefore, have enormous potential for aiding in good indoor air quality or for contributing to poor indoor air quality.

How do carpet and other soft materials affect Indoor Air Quality?

Many "soft" forms of flooring raise three concerns: Soft flooring may be an original source. For instance, carpet may contain formaldehyde, fiber contaminants or particulates, or dye chemicals which may contribute to indoor air pollution. Resilient flooring may be made with plasticizers. Carpet and resilient flooring also may permit bioaerosol growth, such as mold, bacteria, or viruses. Adhesives used to install soft flooring materials also may contain VOCs or other chemicals. Many soft flooring materials also are "sinks" and may require maintenance products and procedures that result in further indoor air pollution. The next issue of CrossTalk examines how the Design Professional can control and reduce indoor environmental contaminants from sinks and from maintenance products and procedures.

What Indoor Air Quality advantages does Crossville Ceramics Porcelain Tile offer?

Ceramic tile, and Crossville Ceramics Porcelain Tile in particular, offers several advantages over both "soft" flooring materials, such as carpet or resilient flooring, and over other "hard" flooring materials, such as stone or agglomerate tile. Crossville Ceramics Porcelain Tile is not an original source of contaminants. Crossville Ceramics uses environmentally sensitive manufacturing processes to make high-quality porcelain tile from simple, non-toxic, minerals and clays. Common cement-based setting and grouting materials for installing Crossville Ceramics Porcelain Tile generally do not contain VOCs or other suspect chemicals. After Crossville Ceramics Porcelain Tile is installed, it forms a completely inert flooring system. Crossville Porcelain will not support bacterial or fungal growth. Crossville Porcelain will not act as a sink to absorb VOCs or other chemicals from surrounding materials. In fact, a properly designed ceramic tile system can be used to "contain" other hazardous materials, such as vinyl asbestos flooring, further protecting the building occupants from environmental hazards.

Crossville Ceramics Porcelain Tile also offers ease of maintenance with simple, water-based cleaning materials. Crossville Porcelains do not require solvent based cleaners or sealers. Thus, Crossville Porcelains offer significant advantages for indoor air quality during installation, and for the lifetime of its use in the building.

Where can the Design Professional go for more information?

Standards and recommendations for IAQ are changing rapidly. The Design Professional must always research the current regulations and develop requirements appropriate for each installation. For further information on how Crossville Ceramics Porcelain Tile can assist in reducing indoor air pollution, contact your local representative or Crossville Ceramics.

CrossTalk deals with issues of interest to the design and specification community. This information summarizes general product knowledge and is provided as a service to the Design Professional. However, this information does not substitute for each professional's own research and verification concerning specific product uses and project requirements. For more information on this or other issues concerning ceramic tile, contact your local representative or Crossville Ceramics.

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