

Tire-Derived Product Producers Case Studies

Eco-Surfaces

Rubber Flooring Tiles at a Public Library

Introduction to EcoSurfaces Products

Ecore International is a flooring manufacturing company that was established in 1989, and is located in Lancaster, PA. Ecore International is the largest user of scrap tires in the United States, using more than 80 million pounds of tires annually to make commercial rubber flooring. EcoSurfaces rubber flooring is distributed throughout the United States by Gerbert Ltd., an importer and distributor of environmental flooring that was established in 1979. Gerbert, Ltd. maintains relationships with architects and StarNet™ commercial flooring cooperative.



Traditional Commercial Flooring

Other commercial flooring that EcoSurfaces might compete against include cork, carpet (including carpet tiles), wood, vinyl, and ceramic tile. In many settings, carpet is an appealing option due to its ability to absorb sound. Carpet tiles can be a good option for commercial settings, as individual tiles can be replaced when flooring is worn or stained. Vinyl and ceramic tiles can

be attractive in commercial and institutional settings because they are easy to clean.

Reported Benefits of Tire-Derived Products

The primary reported benefits of the tire-derived flooring products materials include:

- Scrap tires are used to manufacture beneficial products – tires that might otherwise be landfilled or incinerated;
- Best management practices are used in product manufacturing and installation to ensure that minimal water is used, no heating is used in the manufacturing of the product, and scrap is reused to minimize waste;
- Product can earn LEED (Leadership in Energy and Environmental Design, a third-party certification program for the design, construction and operation of high-performance green buildings) points, potentially, due to:
 - Low VOC emissions;
 - Product manufactured using recycled content;
 - Scrap tires used are generated within a 500-mile radius;
 - Manufactured materials generated within a 500-mile radius; and
 - Adhesives/sealants meet SCAQMD standards/GreenSeal standards.

Other benefits of tire-derived flooring are that it provides cushioning properties, the flooring is very sturdy and easy to clean, and is low maintenance. Tire-derived flooring is easy to cut when installing, and with tile products, the tiles can be removed individually if needed, for replacement. Another benefit of tire-derived flooring is that, if

desired, inlays can be placed in the tiles relatively easily, adding to the spectrum of design possibilities. The flooring also comes in a variety of colors.

City of Highland, CA Library

The City of Highland, CA recently constructed a new facility, the Sam J. Racadio Highland Library and Environmental Learning Center, which will celebrated its grand opening May 31, 2008. The center spans approximately 30,000 square feet. Most of the flooring is comprised of EcoNight tiles, the EcoSurfaces product type that contains the highest percent of post-consumer recycled content. Joe Hughes, the city manager, states that the flooring “looks great, feels good underfoot, and looks like it’s going to wear well.” He indicates that they were able to make some pathways throughout the Center, adding visual interest. The City also used EcoSurfaces in a weight room across the street, and is considering using EcoSurfaces flooring materials in a new police station.

Marketing Strategy

The City learned of rubber flooring through the architecture firm for the building being constructed, STK Architecture, Inc. Paul Frick, a LEED-accredited professional, serves as project manager for the project, and Camille Acton, partner of STK Architecture, Inc., serves as project architect. The library and learning center building will be a LEED-certified project, under the new construction category. Mr. Frick liked the EcoSurfaces product because of its qualities that will earn LEED points – including:

- 1) Recycled content, and
- 2) Low VOC adhesives.

In addition, he chose the flooring because it is low maintenance and durable. Mr. Frick learned of EcoSurfaces products through a trade magazine. He ordered samples of the product and provided samples to employees at the library. The employees took the product home and tried to “stain” it – they soaked tiles in wine, poured mustard on them, and generally put them through the paces. The tiles held up very well.

Mr. Frick indicates that the fact that EcoSurfaces has identified and documented potential LEED points for their product is helpful.

Mr. Frick also said that having a product representative (Drew Elshoff of Design Materials) was particularly helpful. Drew worked for about 18 months with STK Architecture, answering installation, maintenance, and other technical questions. Whereas traditional commercial flooring might be sold through a distributor, products that are unique in nature benefit greatly from a trained product representative who can fully explain the benefits and applications of the product, as well as differentiate among the different products in the product line.

Advice to Other Producers of Tire-Derived Products

Mr. Frick recommends that product producers be sure that their LEED information is clearly documented and disseminated to architects. He also suggests that producers, if at all possible, utilize a product representative.

Mr. Elshoff notes that producers should realize that flooring choices are largely “fashion-driven.” While it is a plus to manufacture flooring with recycled content, it is key to also have an attractive product that functions well in the setting. He also advises producers to advertise about their products and educate. While architects typically suggest materials, many end users are also becoming interested in using recycled content products in construction and remodeling jobs, but are simply not aware of the range of product options available.

Modular Rubber Drains

Flexible Drains

Introduction to Modular Rubber Drains

The owners of Modular Rubber Drains formed that company two years ago, after a combined experience at a sister company, APCO Paving, of 26 years. APCO constructs asphalt products, including roads and dikes. In the course of business they realized that there had to be an easier way to construct drains. Constructing asphalt oversight drains is hot, dirty, manual job. They thought about the possibility of installing pre-manufactured drains, and thought about making drains from crumb rubber. They were able to manufacture their own mold, and even a press for test manufacturing, which was a great cost savings over having someone a mold and press custom made for them. They were approached by someone who had a patented process for using post-consumer plastics as a binder, as opposed to resin, and decided to incorporate this technology into their manufacturing process. Modular Rubber Drains began manufacturing their drains in 2004. They use crumb rubber manufactured in California from California tires, and agricultural plastic as a binder.



Traditional Drains

Traditional drains are built on site during the road or dike construction process. The surface must be prepared and shaped for the drain. Made of asphalt, traditional drains tend to crack when the ground shifts, or after flooding or freezing. There is no way to repair such drains – they are generally replaced when the cracking is severe. Traditional drains are constructed manually, which can result in a lack of uniformity among

multiple drains on a single site.

Reported Benefits of Rubber Drains

Modular rubber drains are pre-manufactured using a mold, therefore all drains on a site will be uniform in appearance. The site does not have to be shaped for the drains, simply cleared of debris. Also, the drains are flexible, so they conform to the terrain of the site. Installation of rubber drains is much faster than constructing drains on site. For one job, for example, that MDR estimates would have taken six workers 2.5 days to complete, the same number of modular rubber drains could be installed by three workers in four hours. Modular rubber drains, therefore, are a less costly (approximately 60 percent of the cost) alternative to traditional drains.

Another benefit of rubber drains is that they are flexible, and therefore do not crack when the roadway shifts, floods, or freezes. And because they are modular, they are easy to move and change.

Projects to Date

Modular Rubber Drains has sold their product into state parks, local parks, county highway departments, landfills, and are hoping to obtain Caltrans approval in the near future. The military is also interested in rubber drains for fuel containment. Modular Rubber Drains has expanded its line of products to include large pallets, a new, patented rubber sidewalk panel.

Marketing Strategy

Because MRD was already highly regarded in the construction business as APCO, they already had many contacts in applicable markets. Further, their contacts were receptive to the modular rubber drains because they are a more convenient, less costly alternative to traditional drains. Additional marketing strategies the company undertook included attending a CIWMB-sponsored trade show featuring products manufactured from recycled-content products. Response from that trade show confirmed that their product was appealing in a road application, but also exposed them to other potential markets, such as landfills.

Advice to Other Producers of Tire-Derived Products

Greg Graham of MRD indicates that the company has been successful in part because they didn't develop a product and then find a market. Instead, they developed a better way of manufacturing a product for which there was an existing market. Also, the product they developed provides real benefits over the traditional manufacturing process – so it is more likely to be a sustainable product, not one that requires grants to feed demand. Greg would advise producers of recycled products to be aware of the programs that the state has to offer. His company was able to secure a grant from the CIWMB to help purchase equipment and do testing. They are also eligible for low-interest loans and tax credits through the Enterprise Zone program. He also notes that the company is succeeding because they have simply persevered – when faced with obstacles, they found solutions.



U.S. Rubber

Rubber Flooring Underlayment in Mixed-Use Condominiums

Introduction to U.S. Rubber

U.S. Rubber began in 1984, manufacturing SureStep, a rubber flooring tile made from strips of biased ply truck tires. From there, the company began to manufacture other types of rubber flooring, using crumb rubber. In the 1990s their Survivor™ rolled sports floor became popular among commercial gyms, and they were successful in marketing that flooring product to many national commercial gym chains. Most recently U.S. Rubber has been extremely successful in marketing their Quiet Sound II™ Recycled Underlayment, which can be used under tile, wood, and synthetic turf. Other products manufactured by U.S. Rubber include:

- Super Flexx™ paver tiles – outdoor paver tiles made from high-density urethane-bonded primary buffing crumb rubber;
- Sure Flexx™ sport tiles – sport floor tiles; and
- Weed-Abatement Rolled Matting System (WAR-MS™) – outdoor mat product that inhibits weed growth, eliminating the need for pesticides and other toxic chemicals.

Traditional Flooring Underlayment

Traditional flooring underlayment products are made of foam or cork, or sometimes flooring is laid directly on cement. Although cork is touted as being an eco-friendly product because it has a relatively short re-growth period, it is not “green” in the sense that it is sourced from far-away locations. Also, cork can break down over time, as it loses moisture. Cement offers no cushioning or sound dampening benefits. While foam underlayment products can be cost-effective to install initially, they compact over time, reducing their cushioning and sound-dampening qualities.

Reported Benefits of Tire-Derived Products

The primary reported benefits of the tire-derived underlayment include:

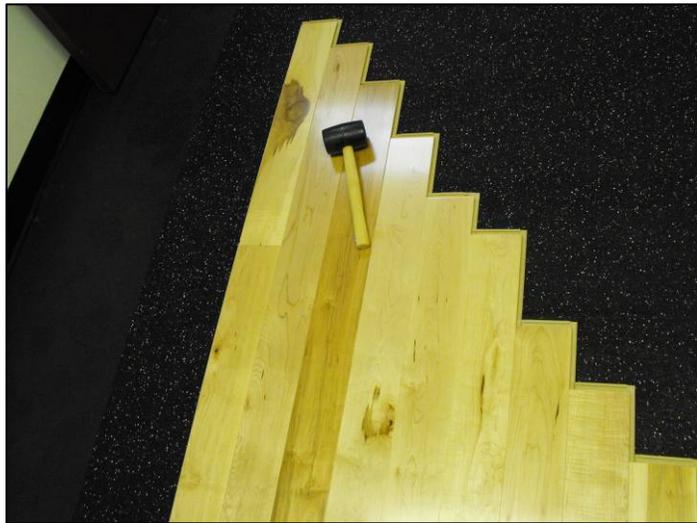
- Post-consumer and post-industrial scrap tires generated in California are used to manufacture a beneficial product – therefore use of the product diverts scrap tires and industrial scrap from being landfilled or incinerated;
- Excellent cushioning qualities;
- Durability – the underlayment does not compact or degrade quickly;
- Low lifecycle cost due to product longevity;
- Excellent sound-dampening qualities;
- Rolled product – easy to install;
- Available in high-density, low-density, and porous versions;
- Product can earn LEED (Leadership in Energy and Environmental Design, a third-party certification program for the design, construction and operation of high-performance green buildings) points, potentially, due to:
 - Product manufactured using recycled content;
 - Scrap tires used are generated within a 500-mile radius;
 - Manufactured materials generated within a 500-mile radius; and
 - SureBond adhesive is non-toxic.

Mixed Use Condominium Project in Downtown Los Angeles

One recent project that U.S. Rubber was pleased to win was the flooring for a mixed use condominium project in downtown Los Angeles. The project is a 23-story building in which 165,000 square feet of QuietSound II was utilized. The general contractor for the project is Bovis Lend. The architect had initially learned about the QuietSoundII product through a direct mailing that U.S. Rubber had sent to Arcehon's librarian. The architect was interested in the product, and called U.S. Rubber for additional information. One of the main reasons the architect selected the QuietSoundII product is because it scored an impressive 54 FIIC, over an eight-inch tension slab under ½-inch engineered hardwood. This more than passed the City's requirement of 50 FIIC. The FIIC stands for Field Impact Insulation Class. The FIIC scale is used throughout the acoustical industry. The rating quantifies the effectiveness of a floor-ceiling construction to reduce footfall-generated noise as measured in the field. Higher FIIC values correspond with better impact insulation.

Marketing Strategy

Many architects know what they want in terms of design, pricing, and utility, however one aspect of product specification that many architects do not become aware of until they work on specific types of projects such as mixed-use condominium projects is sound impacts. U.S. Rubber has found that they can effectively reach the architects/product specifiers through acoustical engineers. Therefore, they have developed a relationship with Kinetics Noise



Control, an acoustical engineering firm that now represents the U.S. Rubber underlayment products. Kinetics finds the underlayment to suit the needs of many of their clients, due to its excellent sound dampening qualities.

Advice to Other Producers of Tire-Derived Products

Rick Snyder of U.S. Rubber indicates that it is important to clearly identify your target audience when it comes to marketing. It is important to identify the benefits of your product and understand to whom those benefits will be appealing. In his case, the flooring underlayment may be of interest to all architects, but it is especially appealing to architects and developers that design and construct mixed use and high-density condominiums. Therefore, he identified a more direct approach to reaching this audience, rather than relying on a broader, scattershot approach. He finds that librarians at large-scale architectural firms can be a good point of contact, as they are often a crucial resource and “screener” for products that might appeal to architects for particular projects. It is important to differentiate your product, however, and really stand out, as companies are inundated with product representatives wanting to market their materials.

Progressive Design Playgrounds Case Study

Pour-in-Place Playgrounds at Camp Pendleton

Introduction to Progressive Design Playgrounds

Progressive Design Playgrounds, a California company that originated in 1991, offers turnkey playgrounds from the planning stages to installation of playground surfacing and equipment. Progressive Design offers traditional mulch playground surfacing, as well as pour-in-place surfaces and rubber tiles.

PDP has been installing pour-in-place playgrounds with their own crews since November 2006. Prior to that date, they subcontracted the pour-in-place work to other businesses, such as TotTurf or Sport Surfaces Specialties.

Traditional Playground Surfacing

Traditional playground surfacing includes sand, dirt, and ground wood mulch. While sand and mulch can be relatively low cost to install, these products can blow or wash away into surrounding areas, as well as become a nuisance as they are tracked outside of the play area. These materials are relatively high maintenance, as the material needs to be replaced periodically, and the surrounding area cleaned fairly frequently. In addition, these materials are not wheelchair friendly, and therefore are not ADA-compliant. Sand can also attract animals that often use sand as a litter medium.

Reported Benefits of Using Tire-Derived Product

Pour-in-place surfacing is more costly to install than traditional materials, but has the benefit of superior cushioning over traditional playground surfacing materials. While it requires some maintenance for maximum performance, such as vacuuming (if near sand) or application of new top coats on a periodic basis, it does not require replenishment, and does not migrate into surrounding surfaces, or become embedded in clothing. The pour-in-place product can be manufactured in a variety of colors, making it easy to incorporate into attractive designs and theme playgrounds. In addition, the surfacing is ADA-compliant. Because the material is not tracked everywhere, nor does the surface attract animals, the playground and surrounding areas remain clean and attractive, relative to those using loose surfacing materials.



Camp Pendleton Projects

PDP has completed several projects for Camp Pendleton, including pour-in-place surfaces at on-base child development centers, as well as artificial grass (without extra padding) in areas beyond the playground equipment. In addition, PDP has constructed other playgrounds at Camp Pendleton – for schools and housing play areas (which currently use wood chips for surfacing). PDP has provided, in total, 15,300 square feet of poured-in-place rubber surfacing, for 11 playgrounds located in four areas on the base. Camp Pendleton also uses Pour-in-place surfacing at its firing ranges (provided by another vendor).

Marketing Strategy Utilized

The Progressive Design Playgrounds was asked to bid on Camp Pendleton projects by Camp Pendleton. PDP describes the process as a “typical competitive bid process.” They became aware that a new general contractor had been awarded base housing contracts, and was interested in bidding on playground jobs. PDP approached the contractor to discuss their interest in helping the contractor with the playgrounds. The base also had been working with an out-of-state service provider in the past, and a local congressman approached the base purchasing director, asking to consider supporting California businesses instead. PDP indicates that no database of military base jobs exists, to their knowledge. To their knowledge, general contractors, to a large degree, “invite” subcontractors to bid on the jobs. Therefore, establishing relationships with contractors, and educating them about your products’ performance benefits is key. Marine Corps Community Services, the purchasing department for PDPs products, must issue a request for bid for all jobs over \$2,000 in value.

Advice to Other Producers of Tire-Derived Products

PDP recommends that companies wishing to do business with military bases contact the base purchasing division and encourage them to support local businesses. Also, providing a high-quality product and excellent service has helped PDP retain and gain additional business from Camp Pendleton.