

New Recyclable LVT Replacement Is PVC Free—and Affordable

Shaw claims its EcoWorx Resilient flooring performs better than vinyl and that the material can—and will—be recycled.

by Elizabeth Waters

There are few commercial-grade drop-in alternatives to luxury vinyl tile (LVT)—a state of affairs that flooring manufacturer Shaw Industries is hoping to change. Shaw has introduced a new PVC-free, polyolefin-based flooring collection called EcoWorx Resilient. The company claims the collection, whose name leverages the well-known brand of its PVC-free carpet backing made of similar materials, outperforms LVT in durability and is cost-competitive with LVT that's made domestically.

EcoWorx Resilient is, as its name suggests, a type of resilient flooring. Currently, LVT is the most popular type of resilient flooring in the U.S. In fact, it has become the most popular type of flooring, period. Its ubiquity comes from its affordability, durability, versatility, and aesthetic appeal.

But LVT flooring is made of PVC, which is made from vinyl chloride, a toxic chemical and known carcinogen that poses health risks to people and the environment up and down its value chain.

So what exactly is EcoWorx Resilient?

EcoWorx Resilient flooring is made of solid polyolefin, which is part of a family of plastics that includes polyethylene and polypropylene. And the surface layer of EcoWorx Resilient is made with 25% post-consumer-recycled polypropylene (#5 plastic) from curbside recycling collection in Germany, said Tim



Image: Shaw Contract/Shaw Industries

Shaw Industries is selling its new PVC-free, polyolefin flooring, EcoWorx Resilient, at a price comparable to that of domestically

Conway, vice president of sustainability at Shaw.

The new flooring is currently available

in glue-down planks, is digitally printed with a woodgrain design, and comes in a variety of colors. Shaw plans to release a click-together, no-glue version in

fall 2024 and to offer terrazzo and other design patterns in future generations of the product, explained Conway.

Before bringing EcoWorx Resilient to



Image: Shaw Contract/Shaw Industries

Shaw claims that EcoWorx Resilient is more recyclable than other PVC-free flooring and has less than half the average global warming potential of LVT.

market, Shaw carried out test installations of the flooring in different climates and markets across the U.S.—including in multifamily housing, corporate facilities, schools, and a Starbucks test kitchen. Conway expects it will be a shoo-in for schools and corporate offices. The click-together, no-glue-down version, he continued, will be thicker and better suited to lower-traffic applications like apartments and hotel rooms.

Maryville University in St. Louis, in partnership with CannonDesign, participated in Shaw's pilot program, installing EcoWorx resilient flooring in a high-traffic, below-grade, interior-design classroom in January 2024. Kirstin Kohm, program director of interior design at Maryville University, told BuildingGreen over email about the university's experience with the product. Unfortunately, BuildingGreen was unable to speak to the flooring installer.

"Our program greatly emphasizes the importance of sustainability in our profession and the responsible choices our students will need to make when they graduate," Kohm wrote, explaining that the university chose to install EcoWorx Resilient to demonstrate to students that "there are healthier material options on the market instead of traditional LVT." That said, according to Kohm, LVT was not among the flooring options the university was considering for the space. The alternatives to EcoWorx Resilient were to resurface the existing concrete subfloor or install carpet.

LVT vs. EcoWorx on circularity

The polyolefin used for EcoWorx Resilient is a thermoplastic, meaning it can be melted down and remade into the same product or similar products. In this way, it differs from most polyurethanes, which are thermoset plastics and typically cannot be recycled. A lot of PVC-free plastic flooring, including many of Shaw's products, are made with polyurethane.

Shaw operates a takeback program, called the re[TURN] Reclamation Program, for EcoWorx carpet-tile backing, and it has expanded the program to include EcoWorx Resilient. Because the chemical makeup of EcoWorx Resilient is similar to that of the carpet backing, explained Conway, recycled material from both products can be fed into the same manufacturing line. "When it gets back" to the manufacturing facility, he said, "it is straight polymer, which makes it easier to recycle."

Conway explained that Shaw can take back as little as 100 square yards of carpet tile and 1,000 square feet of EcoWorx Resilient flooring at a time.

Cost parity and a 25-year warranty (both with caveats)

The company is selling the new flooring as a system with its recommended adhesive (which is, however, manufactured by another company). This is because, according to Conway, many PVC-free products—including some of Shaw's own collections—have been compromised in the market after installers selected incompatible adhesives. When customers purchase the flooring as a system, Conway explained, they will receive a 25-year, non-prorated warranty on both the product itself and its installation.

According to Conway, EcoWorx is being sold at a price comparable to that of U.S.-manufactured LVT—although imported LVT is often less expensive than domestically made LVT. But project teams should be wary of cheap products with opaque supply chains and should take action to reduce the risk of sourcing from supply chains associated with human rights violations. Until recently, a significant amount of imported LVT came from China's Xinjiang Uyghur Autonomous Region (XUAR) and was produced using forced labor. In 2023, the U.S. added PVC products to the Uyghur Forced Labor Prevention Act (UFLPA)

list of banned imports from the region.

Shaw is currently manufacturing EcoWorx Resilient at full scale in Germany but plans to start making it in the U.S. within the next two years.

LVT vs. EcoWorx on performance and aesthetics

Unlike LVT, EcoWorx Resilient does not have a separate wear layer, instead relying on an acrylic coating called ExoGuard+. This coating, in addition to the product's PSI rating—which is higher than that of LVT (2,500 PSI for EcoWorx Resilient vs. 1,400–1,700 PSI for the average LVT)—means EcoWorx Resilient is designed to prevent telegraphing, the transfer of imperfections in the subfloor to the flooring, better than LVT. And any scratches can be buffed out, said Conway, noting that it's also a stiffer material.

Furthermore, he pointed out, EcoWorx Resilient doesn't require regular chemical treatment to maintain, a process that is necessary for vinyl composition tile (VCT) and can release potentially harmful emissions into occupied spaces. Instead, Shaw's new product can be cleaned using pH-neutral vinyl cleaner and water.

In Kohm's view, the flooring has held up "very well" since it was installed in January. She shared that, per the university's maintenance plan, the floor is dryswept and lightly mopped one to two times per week—though she acknowledged that daily sweeping would be ideal.

Kohm pointed out that the flooring the university selected, due to its light grain color, does show dirt and scuff marks, including black scuffing from the casters on the chairs. But, she clarified, these are easily removed. "It is worth noting," she explained, "that these drawbacks would be the case with any light-colored LVT or other resilient flooring," so these are not issues specific to EcoWorx Resilient. But if the institution were to do

it again, Kohm reflected, it would likely select a darker flooring color.

The university, Kohm continued, is "very satisfied with the aesthetic of the flooring. The width of the plank has a contemporary look, and the grain repeat varies nicely between planks. The topcoat has a nice matte appearance instead of the typical shiny wear layers you find with most LVTs on the market." Plus, she said, it performs just like LVT.

Transparency and certifications

Both EcoWorx Resilient and its recommended adhesive meet the California Department of Health (CDPH) Standard Method and Greenguard Gold, two standards for evaluating indoor emissions of volatile organic compounds (VOCs), said Conway.

According to its [environmental product declaration](#), which Shaw completed in June, EcoWorx Resilient has a relatively low carbon footprint, with a global warming potential (GWP) of 5.3 kilograms of CO₂ equivalent per square meter. That's less than half the GWP of U.S.-made LVT, which stands at 11.9 kg CO₂e/m², [according to the Carbon Leadership Forum](#). But the carbon footprint of the click-together, no-glue flooring will likely be higher than that of the gluedown because it requires more material, Conway noted.

On top of its lower GWP, Shaw is promoting the product as "carbon neutral," a claim, Conway explained, based on the company's assertion that it is purchasing offsets for the total life-cycle emissions of the product. Although this is an admirable effort, the quality and credibility of carbon offsets is uneven, and no carbon offset purchase can actually undo a product's carbon or life-cycle impacts.

The flooring also has a [health product declaration \(HPD\)](#), measured at 1,000 parts per million, along with a [Declare Label](#) showing it is Living Building Chal-

parts per million, along with a Declare Label showing it is Living Building Challenge (LBC) Red List Approved. It did not achieve LBC Red List Free due to Shaw's decision not to disclose all its ingredients. The company is also pursuing Cradle to Cradle certification, Conway told BuildingGreen.

The recommended adhesive, which owners are required to use to receive the flooring's warranty, does not currently have transparency documentation—something that users will probably want to see. As Kohm told BuildingGreen, the university would like to be able “to ensure that the adhesive method has an equal material health as the flooring.”

“Once we get the flooring certified, we'll work with the adhesive manufacturers to get HPDs,” said Conway, emphasizing that doing so is still a ways off.

Overall, Kohm wrote, the university “would definitely recommend” [the flooring] to others. “We love it and have recommended it to our facilities department to consider for larger campus projects.”

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