

Pharmaceutical MANUFACTURING

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Polished Concrete Flooring is Clean, Green and Cost-Effective

Eneref Institute examines how the installation process of a polished concrete flooring retrofit keeps dust to a minimum, thereby protecting the medical imaging equipment at Medrad Pharmaceuticals

Stepping into a room with an immaculately clean floor probably goes farther than any other factor in making us feel as though we've just walked into a germ-free environment. Most flooring systems, however, require constant and costly maintenance to stay shipshape. This is one reason why a new flooring trend is afoot for facility managers from manufacturers to retailers. Medrad, an affiliate of Bayer AG, based in Pittsburgh, Pa., is a provider of medical devices and services that enable and enhance imaging procedures of the human body. The company wanted to install a flooring system in their Pittsburgh manufacturing facilities that reflected the company's commitment to environmental consciousness. Medrad recently won the highest possible credits in the innovation and design category for LEED certification for its two most recently constructed buildings.

Industry veteran Bob Thimons, Medrad's Facility Manager, has seen many flooring installations over the years. When it was time to install a new floor that was both clean and green, Thimons found a proprietary flooring system called DiamondQuest that not only met their requirements but was also

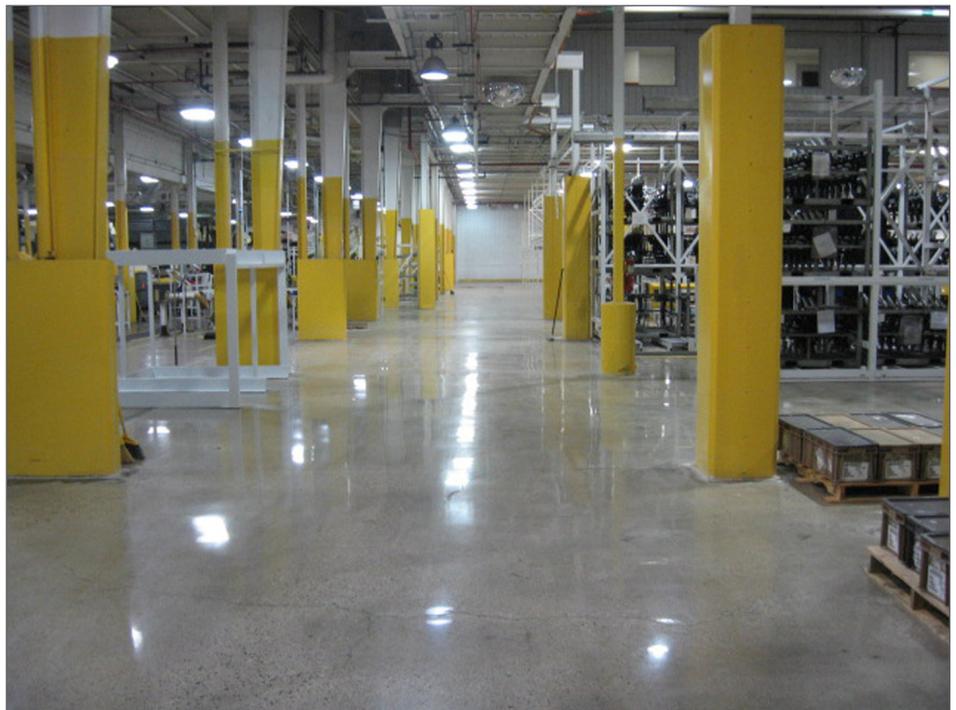
cost-effective to install and easy-to-maintain.

Although concrete has long been relegated to industrial warehouse facilities, it's getting a facelift this year due to a new sustainable flooring technology that turns concrete into something

that looks like polished marble, is easy to keep clean and is good for the environment. Done right, polished concrete can be as bright as a glass mirror.

DiamondQuest is polished concrete; a multi-step fine grinding process that transforms an existing concrete floor surface into an entirely new floor with a stunning sheen. One of the main reasons why polished concrete floors have begun to take off is that they can cost less than half as much to maintain as vinyl composition tile (VCT). That's because VCT requires the laborious process of stripping the old wax off and then hours of buffing and shining the new wax.

For facility managers who need to squeeze every penny they can out of repairs and maintenance budgets, VCT has become a costly burden. Typ-



Medrad's Pittsburgh, PA manufacturing facility exhibits commitment to environmental consciousness by putting in a lustrous easy to clean polished concrete floor.

ically, the coat on top of VCT is burnished, buffed and burnish again to maintain its shine. But periodically the coat builds up and requires that it be stripped off, and the process begins again.

Polished concrete, on the other hand, is inherently easy-to-clean. That's because the polishing process reduces the surface area, or pores, that dirt can get trapped in. The floor has a flat, smooth surface texture, so the dirt stays on top. It even requires less soap.

"Over half of the floors we install are going from tile to polish concrete" according to Joseph Urbanic, President of QuestMark DiamondQuest Flooring. The company initiated the concept and is now the nation's leading polished concrete flooring company in the US. Retailers, who have long known that a gleaming, clean floor helps customers feel better about a store, are also climbing onboard the new green flooring trend, as are restaurateurs, who prefer polished concrete because it's more sanitary. Other types of flooring, such as VCT, can hold dirt and bacteria in the joints between tiles. Polished concrete has no seams to hold dirt.

Despite the floor's shine, it's safe to walk on. Thimons noted, "When people first saw the floor, they were concerned that because it is so shiny it might also be slippery when wet, but actually it isn't. In fact, the coefficient of friction improves when wet." This is backed up by the National Floor Safety Institute (NFSI) which has certified DiamondQuest to meet the slip co-efficient of friction (SCOF) for safety.

Both the installation and maintenance of polished concrete floors have positive environmental benefits. According to the Eneref Group (www.eneref.org), polished concrete floors contribute to potential LEED points in at least three categories. In the Energy and Atmosphere category, polished concrete could contribute to LEED points because it doesn't release VOC vapors into the atmosphere and because the sheen actually increases the

room's ambient light. In the Materials and Resources category, the technology increases the lifespan of the already existing concrete floors. And Innovation in Design may offer a third potential credit.

Because of the shiny surface, a pol-

“DiamondQuest is polished concrete; a multi-step fine grinding process that transforms an existing concrete floor surface into an entirely new floor with a stunning sheen.”

ished concrete floor actually holds up better to wear and tear than straight concrete. One reason the floor is so resilient is that the concrete is treated with chemical densifiers to resist the absorption of liquids. The resulting surface has an increased mass and compression strength and elevated pH levels that reduce acid activity and penetration.

Because Medrad manufactures sensitive equipment that will eventually be used in medical offices, it was important to reduce floor dust to a minimum during the installation process. To maintain air quality during installation, QuestMark used high efficiency HEPA vacuums while grinding.

That way, virtually no dust was released into the building, preventing any contamination as well as keeping the work environment healthy and dust free.

Epoxy is one option to consider instead of polished concrete. Epoxy, however, is less durable and can begin to chip with normal use. Further, epoxy needs time to cure; manufacturing operations are not able to get back on the floor right away, as they are with polished concrete. A night installation of polished concrete still allows a facility to open in the morning. Even large polished concrete floors can be completed in just days, and operations are never really interrupted during the flooring

process.

The big dollar savings comes in the form of reduced maintenance. Polished

concrete requires less care to keep it clean and shiny, especially when compared to floors like VCT. Typically, polished concrete floors are swept and mopped every few days, depending on the environment. The annual estimates for cleaning and maintaining a bright shine on polished concrete run as little as .09 to 25 cents per square foot, depending on what level of shine you want to maintain, compared with 60 cents to \$1.05 for VCT. The payback for installation, therefore, is recovered quickly because of the low maintenance cost.

Thimons was especially proud to show off the green qualities of the floor. "Unlike carpet or VCT, there is no material replacement for DiamondQuest. It doesn't wear out so there is no need for anything to be replaced like for other products. QuestMark polished it one time and we were done," Thimons said.

Water is much friendlier to polished concrete than to tile, as one facility realized after several water pipes broke and flooded the floor. The moisture began to wreck havoc on the tile. During a flood, tiles begin to push upward and eventually the tiles needed to be replaced.

Even if it discount the obvious environmental attributes, Medrad enjoys other manufacturing benefits from its new flooring. The company now has a safe, easy-to-maintain floor that didn't interrupt its manufacturing process-

es during installation. With 1,200 employees in its Pittsburgh facility alone, having a dust-free, hardened floor surface has proved invaluable, according to Bob Thimons, Medrad's Facility Manager. Would he recommend this floor for other manufacturers' facilities? "Absolutely. In fact, we have standardized DiamondQuest as the specification for future flooring." ●



This article is an excerpt of the future Eneref report which assesses the impediments to building zero-energy urban communities in the U.S. A companion film documentary, the Eneref Project, will seek to demonstrate to key decision-makers how zero-energy communities can be commercially viable.