

Material Handling

MANAGEMENT

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Safety, Aesthetics Combine in Green Floor Process

Eneref Institute examines the use of polished concrete in a Bayer industrial facility in Warrendale, PA. The flooring system uses industrial diamonds to polish concrete floors to a marble-like sheen.

MEDRAD (Warrendale, Pa.) could have chosen to sit back and celebrate its healthy profits. Instead, it chose to advance environmental efforts in its manufacturing facilities.

With its more than 1,700 employees, MEDRAD supplies medical-imaging equipment and services to hospitals and medical-imaging centers in more than 85 countries from 18 locations around the world.

MEDRAD chose QuestMark Flooring's (Canonsburg, Pa.) DiamondQuest system to support its pursuit of green manufacturing, from roof to floor.

DiamondQuest is a multi-step, fine-grinding process that turns an ordinary concrete floor into a sheen surface and inhibits the penetration of water and other contaminants. It also helps to minimize high spots and rough areas.

INSTALLATION

The concrete was prepared by grinding with metal bonded diamond tooling to remove existing buildup of glue, adhesive, paint or coatings. During this phase, patching and joint filing were also completed.

Following the initial step, several diamond grinds prepared the concrete

for polishing. First, liquid chemical densifiers were applied to harden the concrete floor. QuestMark's densifying impregnator produced a dense, easily maintained surface in the concrete floor's highly polished state. It penetrated the concrete surface through micropores and cracks, then reacted to create calcium silicate crystals that increase mass and hardness strength,

while reducing acid activity and penetration. It also reacted with free calcium and lime in the concrete to form a solid by product that tightens the pores, microcracks and surface of the concrete as well as elevates the pH in older concrete to increase its compression strength.

Polishing was a multi-step process using specialized resin diamond tooling that ultimately produced a finished floor surface.

QuestMark used high-efficiency, HEPA vacuums to contain residue as soon as it was generated. The vacuum system also prevented any contamination of highly sensitive medical equipment manufactured at MEDRAD's facilities.

QuestMark's flooring equipment was able to cover a broad surface area-60,000 square feet in MEDRAD's two facilities. Since no coatings or ad-



Floors that shine like glass are possible with environmentally safe densifiers and special applications

hesives were applied, there was no need to wait for the material to cure. Access to the worked-on floors was permitted as soon as the process was completed.

RESULTS

The most immediate advantage of DiamondQuest over previous clear-coat epoxy was the reduced need for maintenance. “Unlike tile, carpet or vinyl composite tile (VCT), there is no material replacement for DiamondQuest. It doesn’t wear out, so there is no need for anything to be replaced,” says Bob Thimons, facility manager at MEDRAD.

Thimons says he also liked the fact that the process was dust free. “There are no gaps or pits where dirt can collect,” he notes. Dust and molds may be harbored in carpet fibers, causing harm to individuals with allergies.

Another environmental advantage of a concrete floor is that it emits low volatile organic compounds (VOCs).

Besides environmental improvements, there are health and safety benefits associated with polished concrete flooring. Tile and carpet are known to gather dust and tear and can also be damaged by flooding. This often triggers sanitation problems. Also, tiles eventually start chipping, which can cause tripping hazards.

To help address safety concerns, floors can be honed to a variety of finishes-matte to highly reflective. The National Floor Safety Institute has certified DiamondQuest to meet the slip co-efficient of friction for safety.

“When people first saw the floor, they were concerned because it is so

shiny, it might also be slippery when wet. Actually, it isn’t. In fact, the coefficient of friction improves when wet”, says Thimons. ●



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