STONHARD Solutions

Ensuring Sanitary, Easy-to-Clean Surfaces for a World-Class Pharmaceutical Manufacturer

Maintaining a sanitary environment is critical in theresearch, development and manufacture of pharmaceuticals. Very few commercially available floor and wall systems have characteristics that keep with this philosophy. Whether through seams, grout lines or cracks, many systems allow for recesses that harbor dirt and bacteria.

The environmental conditions present in a pharmaceutical manufacturing facility can also be very harsh on floors and walls. Chemical and stain resistance are critical, in addition to smooth, sanitary surfaces that are easy to clean.

In addition, the aesthetic values of the floor are important in projecting the high tech, state-of-the-art image of the company. Finding this unique combination of features in floor and wall systems from a reliable manufacturer that guarantees both the product and the installation is the challenge.

Customized Solutions for Specific Problems

Merck Sharp Dohme in Riom, France is Merck's largest ophthalmology research laboratory. Their entire facility is 376,000 square feet/35,000 square meters and houses a research center and production and packaging areas. In 1994, this pharmaceutical giant decided to make some improvements to their sanitary surfaces.

One of the areas slated for refurbishing was the research center, which icluded laboratories and animal holding areas. The requirements for these areas included a smooth, slip-resistant floor that could handle high traffic and resist scratches. In addition, the system would have to be completely horizontal as well as vertical with a smooth transition between floor and wall. On top of this, chemical resistance and aesthetics were absolutely essential.

Cage area: The need for hygienic conditions and sanitary surfaces are of paramount importance in the animal holding areas at Merch Sharp Dohme.

Seamlessness was important to Merck Sharp Dohme because they did not want to create any safe havens for dirt, bacteria or water due to frequent wash-downs at the facility. Chemical resistance was necessary to prevent degradation of the system by the CIP chemicals present, and scratch resistance was important to stand up to the abrasion caused by cages and foot traffic in the holding areas.

Stonhard designed an integrated floor and wall system for Merck. It is a 3/16 in./5 mm high performance polymer system consisting of a two-component, penetrating, moisture tolerant epoxy primer; a three-component, troweled mortar base of epoxy resin, curing agent and colored quartz silica aggregate; a two-component, clear, UV resistant epoxy sealer and two-component, non-reflective, aliphatic polyurethane coating. The final product has a tweed appearance with a matte finish for a decorative look.

This system covers both the floors and the walls up to a height of 6.5 feet/2 meters to ensure a completely seamless system that would not harbor dirt, bacteria or water. Above the 6.5 foot/2 meter cove, a chemical resistant epoxy glaze coating was applied to the walls. Making the floor and wall one monolithic, continuous surface is the best defense against collection of dirt, bacteria, water or any other debris that impedes sanitary conditions.

To ensure a proper bond and optimal system performance, strict standards were followed for the preparation of the concrete substrate as well as for the installation. First, the existing substrate was mechanically prepared using a self-contained Blastrac machine. This unit cleaned and profiled the substrate surface to provide exceptional adhesion. The moisture tolerant, penetrating, epoxy primer was applied to the prepared substrate to provide a bond between the overlayment and the substrate. Then, the mortar base was

trowel applied over the wet primer. The mortar application process compacts the mortar into a dense, smooth surface with exceptional physical strength characteristics.

After an eight hour cure period, the mortar was coated with a clear, UV resistant epoxy sealer to eliminate any porosity in the mortar surface. This grout coat was allowed to cure over a twelve hour period. Finally, two coats of a non-reflective, aliphatic polyurethane coating were applied to provide a tough, resilient surface which resists scratching and increases the overall mar resistance of the floor.

In addition to the research center, the floors in the packaging area needed some help. The existing terrazzo floor was badly cracked, risking the sanitary conditions critical for the area. Merck Sharp Dohme needed a solution that would cover the cracks and would not crack itself. Again, wear-resistance was desired in this heavy traffic area and, as always, aesthetics were important.

Again, the first steps involved mechanical preparation to the existing terrazzo surface. After the Blastrac preparation, numerous cracks and imperfections were observed in the substrate. In order to prevent propagation of these cracks through the overlayment, it was necessary to pre-treat them using a fiberglass reinforced, elastomeric membrane. The cracks were routed out and cleaned, then filled with this elastomeric material. A ten ounce fiberglass veil was imbedded in the membrane then encapsulated with a second layer of membrane. This crack treatment allows for movement within the substrate but prevents the propagation of the cracks to the finished system. The crack treatment was allowed to cure and the installation proceeded as in the research center.

Finally, a new 32,000 square foot production area was slated for a protective overlayment before being put into use. As with other areas, Merck was looking to avoid concrete degradation, cracking and entrapment of dirt and bacteria. Knowing this would be done, the walls were notched to a depth of 1/8 in./3 mm and a height of 2 3/4 in./ 7 cm to provide a completely seamless and smooth transition between the floor and wall. Commonly available PVC coves that adhere to wall surfaces allow for a seamed, sharp corner and cannot come close to providing the level of protection obtained from Stonhard's integrated floor/wall cove systems.

Positive Results

Since 1986, Merck Sharp Dohme has invested over $400 million in their research center. Currently, there are 131 scientists working in the center on ophthalmology and AIDS research.

Four years after the initial installation of the Stonhard floor and wall systems, the customer is still thrilled with the results. The system is easy to clean, highly sanitary and still looks brand new.

The Stonhard Difference

Stonhard is the unprecedented world leader in manufacturing and installing high performance polymer floor, wall and lining systems. Stonhard maintains 300 product engineers and 175 application crews worldwide who will work with you on design specifications, project management, final walk through and service after the sale. And, Stonhard's single source warranty covers both products and installation.