

Sweet Flavors that Sour Conventional Floors Call for a Three-Component Membrane System



LOCATION

Congers,
New York



COMPLETION

1984



OPERATION

Ice cream ingredient production



PRODUCTS

PENNCOAT™ 101 Membrane
FURALAC™ Red Panel Mortar
FLEXJOINT™ Joint Filler
Acid-resistant brick pavers

Challenge: Protect floor areas from acids and alkalis present in formulations and cleaning operations

Solution: Acid-resistant brick pavers with PENNCOAT 101 Membrane underneath FURALAC Red Panel Mortar bedding adhesive and FLEXJOINT Joint Filler for brick side joints

Fudge Ripple, Marshmallow Twirl, Buttercrunch, Peppermint Patty, Rum Raisin. An ice cream lover will immediately recognize these names as among today's impressive variety of flavors and flavor combinations that are available at just about any ice cream store in the country.

It's very likely that the flavor base, the candy crunches, the "variegates" (ripples and twirls)-all the ingredients that make today's ice cream the versatile and tasty product it is-were produced by Star Kay White, Inc., a firm that had its beginnings in Newark, N.J., back in 1890-and which today is a fourth generation family business, headquartered in Congers, New York. In the 50 years or so before Congers, the company was located in the Bronx, and prior to that, in Manhattan.

The plant manager makes the observation that "you wouldn't think that products that taste so good would be so hard on floors. But we became very good at patching the epoxy flooring in our former Bronx plant." He says the flooring there was constantly being eaten away by the action of the various materials used in the manufacturing process. "We planned the critical floors in our new Congers plant to avoid such problems," he adds.

"Star Kay White produces hundreds of natural extracts, candy coatings, variegates, crunches and flavor bases, and there's no way to avoid some spillage," says the plant manager.

The acids and alkalis present in formulations that call for sugar, butter, salt, pureed fruit, lecithin, milk, and whey powders act powerfully on unprotected or inadequately protected floor areas.

This isn't the only problem. In some instances, the product that may accidentally bubble out of steam-jacketed cooking kettles hits the floor at nearly 300°F, and after each batch of product is cooked, steam is blown from the kettle jackets at 100 psi directly onto the floor at close range.

The floors are hosed down between batches with 180°F – 190°F water. These frequent flushings often include the use of strong cleaning agents. In addition to chemical attack and thermal shock, the flooring must withstand considerable foot traffic and the weight of forklift trucks and equipment.

There are three critical areas in Star Kay White's new 30,000 square foot plant that require flooring that is impervious to chemical action, and to thermal and physical shock: a 200 square foot storage and mixing room, a 1,400 square foot candy manufacturing room, and a 2,700 square foot processing area. It was agreed that 1 – 3/8 inch abrasive surface red shale pavers would provide the necessary strength for floor loads. Perimeter



areas would be finished with 5 inches smooth, round-top coving. To meet the demands of chemical resistance and thermal shock, the installation utilized a three-component asphaltic membrane system (PENNCOAT 101 System) over concrete substrate. A polyfurfuryl alcohol-based mortar (ErgonArmor's FURALAC Red Panel Mortar) was selected for the tile bedding and grouting because of its high resistance to strong acids and alkalis.



Concrete areas were first given a liberal coat of primer (PENNPRIME 101) which serves as the bonding agent for the glass-reinforced, 1/4 inch asphalt membrane. Then the membrane itself—a hot-melt, unfilled oxidized asphalt—was applied in several thin layers to a thickness of 1/4 inch and reinforced with a single-ply of open mesh woven glass cloth saturated with the same asphaltic compound.

The furan mortar was applied over the membrane at a nominal 1/8 inch thickness. The tile setter's method was then used to lay the pavers.

ErgonArmor's FLEXJOINT Joint Filler was used as expansion joints installed at room perimeters and at high points of areas sloped down to floor drains.

Sil-Mar Construction Corporation of Easton, Pennsylvania, described the installation as straight-forward and without problems. It was completed in a month's time. In the years following the Spring of 1984, the plant manager said the flooring system's performance had been completely satisfactory.