

Double-Mortared Fruit Juice Plant Floor Resists Chemical Attack, Traffic Loading



LOCATION

Verona,
Pennsylvania



OPERATION

Fruit juice processing
and bottling



PRODUCTS

[THINSET™ Adhesive](#)
[FURALAC™ Green Panel Mortar](#)
Acid-resistant Brick Pavers

Challenge: A required flooring system to withstand heavy floor loading, citric acid, and daily cleaning of equipment with the use of harsh chemical compounds at temperatures of up to 150°F

Solution: Installation of acid-resistant brick pavers with FURALAC Green Panel Mortar as bedding adhesive and FLEXJOINT Joint filler used in between brick side joints

Daily Juice Products, Incorporated had been in business for 25 years. Thirteen of those years had been at its location in Verona, Pennsylvania. About four years after moving into the Verona plant, the epoxy topping on the production room floor began to lift and break up.

The plant operations manager suggested that the failure was probably due to a combination of heavy floor loading, the action of the citric acid in the fruit juice products, and the daily cleaning and hosing down of equipment which involved the use of harsh chemical compounds and 150°F (65°C) water.

Daily Juice Products is a national supplier of bottled fruit juices, fruit drinks, and cocktail mixes.

"We bottle, label, cap and case products in the production room area," said the operations manager. "You always have some spillage, plus a lot of fork lift and foot traffic. It's just too much for the type of flooring we have in the original production room. When it was decided to expand and build a new production area addition, we knew we had to install a different flooring system in it."

The chosen ErgonArmor system consisted of 1 – 3/16 inch double-abrasive red shale pavers set in an epoxy-based, virtually impervious quick-setting bedding medium (THINSET Adhesive)



and mortared with a high-bond strength, chemically-resistant polyfurfuryl alcohol-based resin (FURALAC Green Panel Mortar). The room size was approximately 4,500 square feet, with a turn-up base being used at room perimeters.

The installation was done by Chemsteel Construction Company of Carnegie, Pennsylvania, using the superior bricklayer's method to set the pavers.

The three-component adhesive (epoxy resin, epoxy hardener and silica filler) was troweled onto the concrete substrate after which the pavers were back-buttered with the same material. The paver head and side joints were then buttered with the carbon-filled furan resin cement (FURALAC Green Panel Mortar). The rationale for this double mortar combination was to provide a high-bonding, high density bed joint free of voids, along with highly chemically resistant head and side joints. In this instance, the resilient epoxy-based bed joint acts as a membrane as well as an adhesive.

Properly located and installed expansion joints compensate for the thermal shock of daily hot water hose-downs, and the 18,000-psi bed joint strength assure excellent, long-term performance, even under constant heavy floor loading. Floor drains are placed approximately every 20 feet to ensure adequate runoff.

Completed in just two weeks, the installation met all flooring requirements in one of the busiest areas of Daily's plant.