BROTIS WAREHOUSE
Project Spotlight

BUILDING OWNER: BROTIS d.o.o.
GENERAL CONTRACTOR: Inzijnering Jelaj d.o.o.
CONTRACTOR: Plavi Servis d.o.o.
DISTRIBUTOR: BROTIS d.o.o.
ARCHITECT: Dejan Kvesiv
LOCATION: Bosnia Herzegovina
**Situation**

Located in the Balkan Peninsula in southeastern Europe, the country of Bosnia and Herzegovina is home to BROTIS, a distributor of LATICRETE® products and systems in the region.

To meet the demands of its expanding business, BROTIS purchased a 1,300 m² (14,000 sq ft²) warehouse, as well as a state-of-the-art, electronically guided, 5,900 kg (6.5 ton) high rack stacker (forklift) machine to easily and effectively move products throughout the warehouse.

Unfortunately, the BROTIS team quickly discovered that cracks and an improperly poured, uneven floor interfered with the machine’s advanced technology that allows it to take preventative, anti-tip measures when it senses an imbalance.

As a result, the machine continuously blocked itself from picking up BROTIS’ high shelf items. With the machine’s high sensitive to balance, BROTIS needed to achieve a flatness level under 5 mm (0.2”) per 1 m (39 3/8”) to be able to pick all necessary items up and operate at full capacity.

“With such a large area of cracked, uneven floors to repair in a short period of time, we chose to use the DRYTEK® self-leveling system with a SPARTACOTE™ GUARD™ system for the finish because of its speed of install and durability,” said Bozo Pavlovic, Area Manager and Technical Advisor from Plavi Servis, the SPARTACOTE flooring contractor chosen for the project.

**Challenges**

- **Cold Temperatures** - The main jobsite challenge was the low winter temperatures preceding and during the installation. Curing rates for cement-based materials are highly sensitive to both ambient and substrate temperature, with colder temperatures slowing setting times.

- **Tight Timeframe** - The contractors leveling the floors needed to begin the preparation and installation process in as little time as possible to allow more time to cure. The team only had four days total to complete their portion of the BROTIS Warehouse renovation, so this extra step would prove necessary to meet the demanding deadline.

**A LATICRETE Solution**

To begin the nearly 600 m² (6,458 ft²) of the warehouse in need of repair, the general contractor, Inzinjering Jelah, shot blasted the floor to a CSP 3 prior to the arrival of Plavi Servis, the contractor responsible for the SPARTACOTE floor preparation. In addition, the company saw cut all joints and random cracks, as well as cut 45 degree angle chips at predetermined spots where the self-leveling would terminate. This step proved helpful to create a deeper fill where the self-leveling would otherwise be at feather edge and prevent future cracking or spalling.

Upon arrival, Plavi Servis began by filling the cracks in the concrete floor with silica sand to reduce the amount of product needed and topped with fast-drying SPARTACOTE FAST FIX™ material. Movement joints were left open as the team liberally applied DRYTEK LEVELEX® Primer to the entire warehouse floor and allowed to cure. This was followed by wooden pour stops being glued with silicon adhesive at the termination points of the self-leveling to prevent any overflow.
After the floor preparation was complete, a survey had to be conducted to evaluate critical points of the job such as the aisles where the racks were located. To achieve the desired flatness, each aisle was measured separately using a Nivcomp Digital Liquid Leveling tool to determine differences in elevation. Plastic millimeter level pegs were then cut and placed on either side of each aisle, at approximately every one meter.

After DRYTEK LEVELEX was mixed in a small batch mortar mixer with an attached pump, the entire floor was poured continuously with one person mixing, two carrying the hose and one finishing with the float tool. The product was allowed to cure for two days and three nights (approximately 60 hours) and then the entire floor was sanded using an 80-grit sandpaper screen on a buffer machine.

Plavi Servis proceeded with the installation of the first coat of grey pigmented SPARTACOTE FLEX™ SB using the ribbon and roll technique with one back roll, cutting in the edges ahead of the ribbon. The prime coat was allowed to dry for 90 minutes and then a second coat was applied using a seal coat broom followed by two back rolls. Thanks to the fast-drying technology of LATICRETE products, after another 90 minutes the final coat was applied using the same method. To enhance traction and safety, 60 grit SPARTACOTE GRIP™ NonSlip Traction Additive was added to the second and third coats.

Although the cold temperature proved challenging, it also provided a unique opportunity to showcase the distinctive low-temperature curing ability of SPARTACOTE. Where standard epoxy material will not cure below 10°C (50°F) curing at cold temperatures even below freezing was easily achieved by SPARTACOTE.

Finally, Plavi Servis designed diagonal safety strips for the entrance area using 25 mm (1”) wide 3M tape to make a stencil and SPARTACOTE FLEX SB™ with safety yellow pigment to paint the stripes.

The BROTIS Warehouse now meets a floor flatness tolerance of 3 mm (1/8”) per 3 m (10 ft) or better, enabling the electronically guided high rack stacker machine to function at its full capability.