



CASE
STUDY

Triflex

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CAR PARK INTERNAL DECK REFURBISHMENT

BUTTERCRANE SHOPPING CENTRE

Authorised Contractor:
Larsen Contracts Ltd

Engineering Consultant:
McFarland Consulting Ltd

Area:
5,650m²

Systems
Triflex DeckCoat
Triflex DeckFloor

📞 01785 819119

🌐 triflex.co.uk

✉ info@triflex.co.uk

🌐 Triflex (UK) Ltd

🐦 @TriflexUK

Triflex (UK) Ltd. | Whitebridge Way | Stone | Staffordshire | ST15 8JS

Introduction

The Buttercrane Shopping Centre in Newry, Northern Ireland was opened in 1988. This popular retail destination is served by a linked multi-storey car park (MSCP) with 620 parking spaces over 9 floors, located at the rear of the Buttercrane Shopping Centre. The parking infrastructure required investment to address deck repairs, waterproofing and increase the number of electric vehicle charging points. In addition, the centre wanted to modernise the parking and entrance zones, delivering an aesthetic befitting Buttercrane's profile. The MSCP levels 2 to 5 were addressed under the scope of this project.



The challenge

The Buttercrane MSCP structure is comprised of a cellular steel frame, supporting composite decks formed of precast reinforced concrete floor plates with a structural, reinforced concrete topping. To provide the appropriate project proposal specification, the Triflex team undertook a detailed condition site survey. This highlighted that the concrete was extensively worn with aggregates exposed, which was particularly evident in the higher wear driving lanes. The driving surfaces had not previously been waterproofed, and in some areas a power floated finish and surface hardeners had been installed.

As is common with this type of structure, despite mechanical movement joints and preformed crack control joints, cracks had developed in the structural topping under dynamic loading. Such cracks allow ingress of water and chloride contaminants. The wider refurbishment project therefore included concrete repairs to rectify damage attributed to chloride contamination. In addition, corrosion management was implemented through the use of a hybrid anode cathodic protection system embedded into the composite decks. A robust waterproofing and surfacing system was required to help prevent future deterioration, further securing the long term structural protection.

Some areas of the car park are located directly above the shopping centre units and required a waterproofing, surfacing and protection system befitting over occupied spaces.



The solution



The Triflex Field Testing Team conducted a range of tests to establish condition, pretreatment and priming requirements prior to recommending the most appropriate Triflex systems. The widespread testing included adhesive and cohesive strength testing to establish substrate compatibility, as well as peel adhesion testing to the unknown coatings on upstands. After the extensive on site review a bespoke project specification proposal recommended a solution that met all project requirements for a cost effective, robust waterproofing, surfacing and protection system that could be installed with minimal disruption.

In all areas, the substrate required preparation by light planing to remove all existing coatings and line markings. The Triflex Field Testing Team were able to identify that the smoother power floated surfaces could be easily prepared by surface blasting to remove c.a. 1-2 mm of concrete. Concrete repairs were also undertaken where necessary prior to the installation of the Triflex systems.



To deal with continued structural movement, Triflex's ETA certified, dynamic crack bridging overbanding was applied on all decks directly above precast reinforced concrete plank joints and above support beam lines.

The solution

For the internal decks and ramps, the fast-track, protective PMMA coating, Triflex DeckCoat, provided an ultra-rapid curing solution. The Triflex DeckCoat system has self-priming properties, and no primer was required as verified by on-site testing conducted on all parking levels. For ramps and turning areas subject to higher levels of vehicular forces, an aggressive emery aggregate was selected to ensure a highly robust anti-skid surface.

For the car park areas directly above an occupied area of the shopping centre, Triflex DeckFloor provided the waterproofing and surfacing system. The heavy duty, flexible PMMA system incorporates a high tensile strength reinforcement for dynamic crack bridging in high-risk areas. The EN 1504-2 certified system also delivers high levels of slip and skid resistance.

Triflex PMMA based systems are available in a wide range of finish colours. This means that the Buttercrane car park decks and entrance area could be highly individualised with a range of colours to fit with their aesthetic, and clearly define different parking floors.

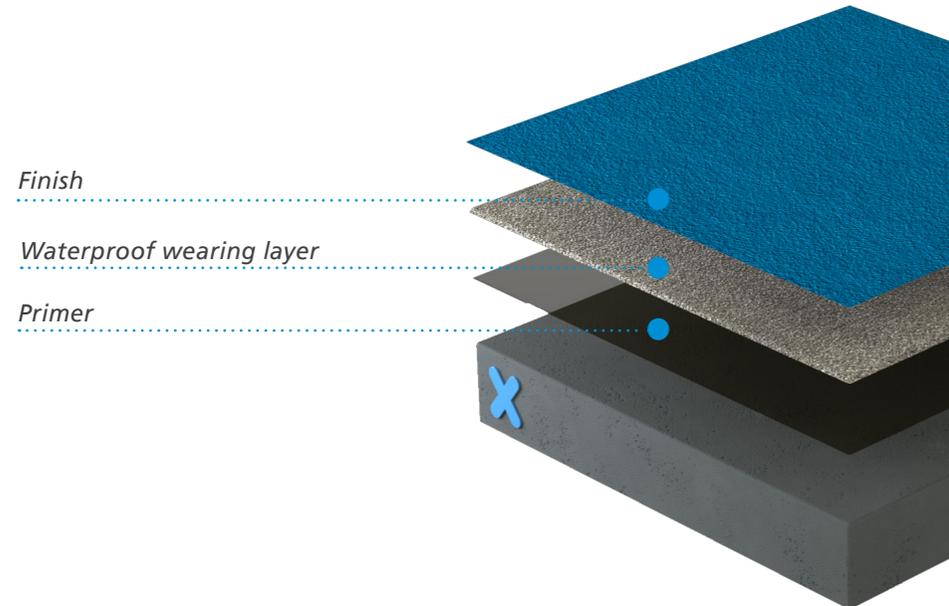
With a project aim to minimise disruption, the rapidly curing PMMA based systems meant that the car park could remain open throughout works and areas could be quickly re-opened to traffic when complete. With some car park levels only having a single access route, the Triflex DeckCoat could be installed in critical areas such as ramps in just a few hours overnight, and quickly re-opened to traffic.

All works were carried out to a high standard by Triflex Authorised Contractor Larsen Contracts Ltd. The Buttercrane multi-story car park now has a waterproofing and surfacing solution that contributes to the long term protection of the structure, complementing the use of the hybrid anode cathodic protection system.



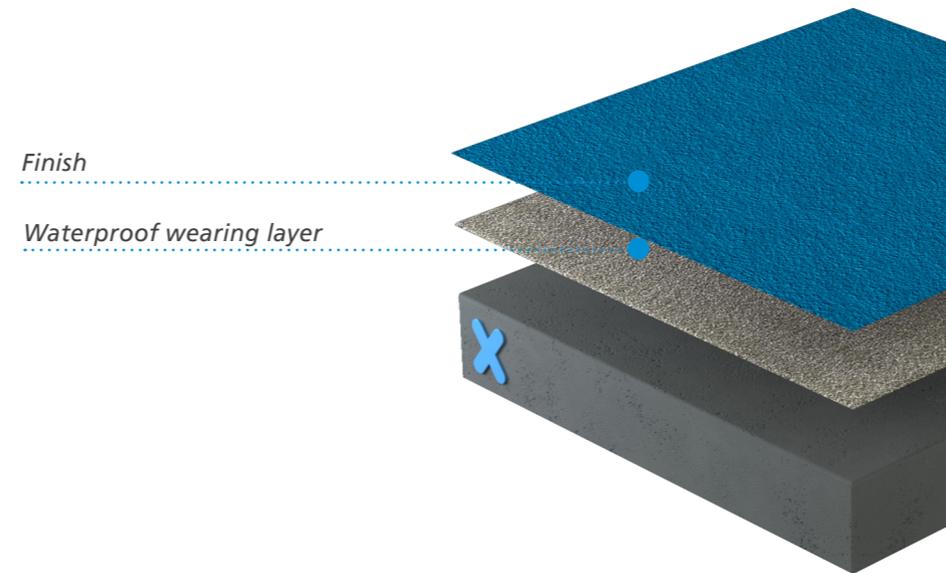
System benefits Triflex DeckFloor

- PMMA system for internal and external decks and ramps
- Compatible with a wide range of substrates, including asphalt and concrete
- Locally reinforced with dynamic crack bridging membrane
- High levels of long term skid resistance
- Exceptionally rapid curing, even at low temperatures
- Solvent and isocyanate free
- Totally cold applied, with no risk from hot works



System benefits Triflex DeckCoat

- Durable, protective PMMA coating for internal decks
- Compatible with concrete substrates
- Locally reinforced with dynamic crack bridging membrane
- High levels of long term skid resistance
- Exceptionally rapid curing, even at low temperatures
- Solvent and isocyanate free
- Totally cold applied, with no risk from hot works



Triflex

Delivering solutions together.

Triflex is the leading European specialist in cold liquid applied waterproofing, surfacing and marking resins. Our high-quality systems provide reliable and lasting waterproofing, surfacing, protection and markings for roofs, walkways, balconies, terraces, car parks, roads and infrastructure.

We are a family owned and operated company that provides tailored solutions worldwide. From our production facilities based in Minden, Germany, we have been researching and developing solutions designed to protect and repair the built environment for more than 40 years.

From our UK and Ireland headquarters based in Stone, Staffordshire we pride ourselves on providing our clients with tailored solutions and exceptional levels of service and support throughout all stages of their project. From conducting in-depth site surveys to our comprehensive testing and off-site and on-site support, Triflex delivers the highest standards.

Triflex solutions are certified to the highest standards and are backed up by long-term meaningful warranties, ensuring peace of mind for years to come.

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