



CASE STUDY

Triflex

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REPURPOSING FOR ENERGY GENERATION:
COMPLIMENTARY WATERPROOFING

THE THEATRE ROYAL CAR PARK PLYMOUTH

Authorised Contractor:
Concrete Repairs Ltd (CRL)

Area:
2,840m²

Specifier company / name:
Plymouth City Council

Systems
Triflex DeckFloor

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Introduction

As part of Plymouth City Council's car park modernisation and refurbishment programme, some 5 car parks were identified for renovation. The Theatre Royal car park on Old George Street was recently refurbished as part of the programme. Built circa 1980, the concrete car park required maintenance works to safeguard the structure and future parking revenue generation. The Theatre Royal Plymouth is the region's largest theatre, attracting a wide range of productions and audience which the car park serves.

Triflex provided a range of waterproofing, surfacing and protection systems to the external decks of the 5 car parks in Plymouth city centre. At the Theatre Royal car park the Triflex DeckFloor system not only protected the fabric of the building, but also provided a versatile surface for subsequent PV panel installation.

A backdrop of climate emergency

Plymouth City Council declared a climate emergency in March 2019. With a pledge to make Plymouth carbon neutral by 2030, innovative solutions are at the forefront of the council's approach. The Theatre Royal car park rooftop has been repurposed for energy generation helping meet net zero goals.



The challenge

The external parking decks 11 and 12 form the roof of the Theatre Royal car park 's 612 space parking facility. These decks had been coated in the past but were now at the end of their life, with delamination and wear evident. A robust, durable solution was required for the top two car park decks and connecting ramps that allow access to deck 11 and further to deck 12.

The Triflex Technical team undertook a condition survey and testing, to provide a bespoke project specification proposal for a heavy duty, thick layer waterproofing and surfacing solution. Assessment included adhesive and cohesive strength testing over the concrete substrate.

Meeting the challenges of changing use

With the changes to shopping and working habits, multi-storey car parks are now often rarely fully utilised. This means that owners and operators face challenges as to repurposing these valuable assets. Plymouth City Council recognised that the car park roof could be repurposed to provide an area for PV panels to help fulfill their decarbonisation goals.





The solution

Triflex DeckFloor with Quartz was proposed for the external car park decks, with Triflex DeckFloor with Emery aggregate for the access ramps. The flexible system was locally reinforced providing dynamic crack bridging to vulnerable areas identified during survey. The cold liquid applied system provided highly durable waterproofing coupled with anti-skid properties with high retention of PTV over time. The Triflex DeckFloor with Emery solution offers an even tougher surface capable of withstanding the higher forces of vehicles traversing the access ramps.

The Triflex waterproofing systems are highly compatible with a wide range of substrates. Whilst they can be used to overlay existing coatings, in this case the existing coating was in such poor condition it was removed in full prior to installation of the Triflex DeckFloor system. The Triflex solvent and isocyanate free resin technology can be supplied in bulk containers further supporting the sustainable aims of the refurbishment project. Rapidly curing, the system was quickly installed and completed to a high standard by Triflex Authorised Contractor, Concrete Repairs Limited (CRL).

PV installation

The Triflex solution provided flexibility in a changing world. The robust car park systems are designed for the toughest environments. The car park level 12 was subsequently identified for phase 1 of a PV panel installation. The 222 PV panels were installed by ZLC Energy Ltd, with a ballasted system that sat on top of the waterproofing layer without compromising its integrity. The new associated electrical plant and wiring was installed in cable trays that were also ballasted.

The PV panels currently provide some 90KW power to the car park with a longer-term goal to feed into the nearby Plymouth Guildhall cluster of buildings. There is additional space available to house further PV panels on level 12 of the car park for a planned second phase. With the wiring infrastructure already in place for expansion, any new energy supply can be efficiently integrated.

The installed Triflex car park surfacing system stands ready to provide outstanding waterproofing and protection under the PV panels static loads, or continue to be trafficked by vehicles parking as the future dictates. Whatever lies ahead Triflex offers long term waterproofing protection to the Theatre Royal car park.

Alastair Gets, Net Zero Delivery Officer, Plymouth City Council:

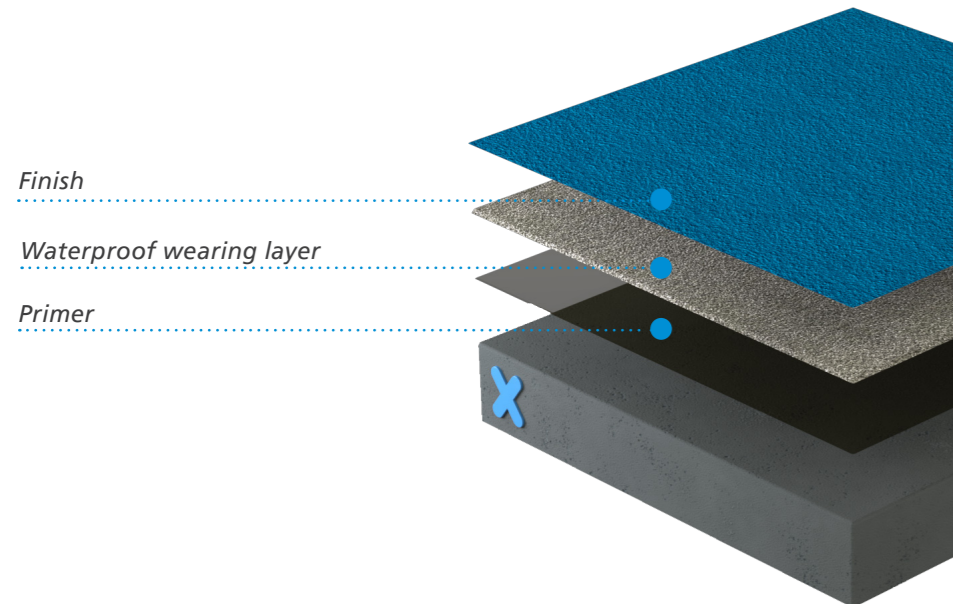
“The provision of solar energy is part of the sustainable approach to energy provision for Plymouth city’s public buildings. We are utilising roof spaces that might otherwise lie idle, such as multi-storey car park top decks at the Theatre Royal car park. Here its estimated to save some 17 tonnes of CO2 emissions every year, helping on our journey to carbon neutrality. The refurbishment of the multi-storey car park means that they are waterproofed for the long term, and the robust Triflex coating means that we can utilise these car park decks flexibly for the future.”



System benefits

Triflex DeckFloor

- PMMA system for external and internal 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



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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