

# T2 Car Park Improvement Works



## PROJECT DETAILS

**CLIENT** The Thistles Centre

**PROJECT** T2 Car Park Improvement Works

**LOCATION** Stirling, Scotland

**START DATE** June 2024

**DURATION** 20 weeks

**END DATE** November 2024

**VALUE** £1.4m

## PROJECT BACKGROUND

The Thistles Shopping Centre is located in the heart of Stirling, Scotland and provides more than 500,000ft<sup>2</sup> of retail space, across 87 units, since its opening in 1977. It has a local catchment of more than 500,000 people and it is estimated that it receives more than 12 million visitors per year.

There are two separate car parks, T1 and T2, since COVID one side (T2) remained closed and unoccupied. The T1 car park remained open, operational and very busy with traffic during the normal working day. The car park spans across six levels and is constructed primarily of a reinforced concrete frame structure with reinforced concrete waffle pot floors, reinforced concrete beam construction and concrete cladding panels.

The car park had fallen into disrepair and as part of ongoing improvement works, the centre invested more than £3.5 million into resurfacing, redecoration, the introduction of energy efficient lighting, a new air extraction system and a new fire detection system to bring the car park back into operational use.

## SUMMARY OF WORKS

McConnell was appointed to undertake the resurfacing works which included addressing the issues of the concrete structure and failings of the existing waterproofing.

As a QA approved installer and applicator of Triflex products we partnered with Triflex to deliver a bespoke solution. Prior to commencing works we undertook core tests and detailed surveys to determine the varying conditions across the car park at every level. Adhesion tests were also carried out on the existing concrete deck to identify any additional requirements for pretreatment or primer.

The car park condition was confirmed to consist of concrete deck to all levels with a migrating corrosion inhibitor and waterproofing coating layer which on Levels One and Two had delaminated and since largely been removed.

The coatings to Level Three and Four mostly remained although there was extensive delamination in these areas. The reason for

## AT A GLANCE

- ▶ Extensive concrete surveys revealed 842 individual repairs covering 3,500m<sup>2</sup> of the car park
- ▶ Effective collaboration with multiple stakeholders including centre management, consultants, retail tenants and members of the public
- ▶ Specialist trades and tools
- ▶ Installation of Triflex Deckfloor system
- ▶ Noise dust and vibration controls

this coating delamination was unclear, but was deemed likely to be from a combination of moisture in the slab from ground water and the blocked, backed up drainage system. The migrating corrosion inhibitor may have also contributed to elevated moisture levels, insufficient primer penetration and contamination of the concrete surface, leading to coating delamination.

Other surface damage across all levels was apparent with considerable concrete repairs required throughout the rest of car park, amounting to 842 individual repairs to approximately more than 3,500m<sup>2</sup>.

To ensure all stakeholders needs were considered and addressed, we took an open, communicative, collaborative approach. This ensured issues were addressed swiftly and prevented delays to the works.



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## PROJECT DELIVERY

Special equipment was used to prepare the deck without damaging the concrete slab. We utilised hydraulic and pneumatic tools including:

- ▶ Bobcat Skidsteer with a Rotary Planer attachment which was used to remove the 6mm of the existing coating without further damaging the concrete below
- ▶ MP6000 Ride On Shot Blasting Machine which was used after the Bobcat Skidsteer to clean the concrete and provide a better key for application of the Triflex Waterproofing System.

The differing conditions across the various car park levels created extensive challenges regarding the preparation to the concrete deck. The Triflex Deckfloor based system achieved very strong adhesion after all concrete treatments were carried out in preparation for the waterproofing coating.

The reinforced liquid applied membrane could easily accommodate the complex forms and details. With elastomeric properties, the system could cope with the various requirements for crack bridging as well as being durable with high impact and abrasion resistance.

Taking cognisance of the volume of traffic that this carpark would endure, Triflex Quartz was utilised on the car parking spaces and Triflex Emery aggregate was utilised on ramps and main drive areas throughout the various levels.

Upon commencement of the project, concerns by retail tenants were raised regarding odour, as the carpark was undergoing a major replacement of the ventilation system at the same time as the car park coating was being installed. We mitigated this by installing heavy duty extraction equipment and established a regime of air quality assurance testing, carried out daily, with readings recorded and issued to the client.

Due to the nature of the works, noise and vibrations were of the highest concern to retail tenants and members of the public. These were addressed by conducting noisy and disruptive works out of normal working hours to ensure that retail stores could continue trading throughout the works. As the T1 car park remained open and operational, traffic management was paramount and was expertly managed by our dedicated Site Management Team to ensure public parking, deliveries and refuse collections were unaffected.

All of these conditions were taken into account when designing our solution, to ensure we delivered a high-quality finish to the works. Additional considerations had to be taken into account as the car park remained open during the works, servicing not only visitors to the centre, but tenants and other contractors.

Due to the successful delivery of works to the T2 car park McConnell was awarded additional works complete outside the scope of the original contract. This included decorating and white lining to the T1 car park.



## SCOPE OF WORKS:

- ▶ Enclosed shot blasting
- ▶ Grinding and planing to remove all coatings, line markings, laitance, boss surfacing in preparation for repairs and new surface finishes
- ▶ Repairs to cracks
- ▶ Concrete repairs and infills
- ▶ Repairs to ramps
- ▶ Triflex Deckfloor RS Waterproof Layer with Quartz and Emery Finish
- ▶ Application of white lining
- ▶ Installation of directional signage
- ▶ Additional decoration works to ceilings, walls and columns and staircases between floors.

*"We had a fantastic working relationship with the management team on and off site and we later gave them additional works to complete outside the scope of the original contract."*

*The final results of the finished carpark has surpassed my expectations and those of the Centre owners and we would not hesitate to work with them again."*

**Gary Turnbull, Centre Director**