

TATA STEEL



Union Square

ComFlor® with Colorcoat FD® case study

Union Square Shopping Centre Car Park, Aberdeen

Client: Hammerson

Architect: Miller Construction

Steelwork contractor: Severfield Reeve Structures

Decking system: ComFlor® 80 with Colorcoat FD®

Union Square in Aberdeen is an exciting £250 million retail-led regeneration project around the harbour in the city centre.

Housing more than 60 shops, 12 restaurants, a hotel and a 10-screen, 2,300 seat cinema, it is one of the largest city centre shopping developments in the United Kingdom and the second largest ever delivered in Scotland.

Its 200,000 sq. ft. car park, with spaces for 1,700 vehicles, features 40,000m² of ComFlor® 80 composite floor decking, to ensure the structure can withstand a heavy vehicle flow.



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Creating a vibrant and diverse retail and leisure destination, Union Square is a modern, mixed-use scheme centrally positioned around the main bus and train stations.

An integral part of the development was the construction of the 200,000 sq. ft. car park.

With spaces for 1,700 vehicles, the car park has been designed and constructed to accommodate a large volume of traffic movement.

In order to ensure the structure could withstand the heavy flow of vehicles passing through it, over 5,100 tonnes of structural steel was specified.

Not only does structural steel provide advantages from a technical and cost point of view, it also guarantees commercial viability throughout the whole life span of the car park structure.

As part of the new build programme, Tata Steel specified 40,000 m² of its ComFlor® 80 with Colorcoat FD®.

ComFlor® 80 is a shallow composite floor profile that can create typical unpropped spans of 4.2m simply supported and, in the continuous condition, spans of 5.0m can be achieved.

This results in less structural steel being required and has the added benefit of providing significant savings to the overall construction cost.

The ComFlor® 80 soffit is pre-finished with Colorcoat FD® in white, eliminating the need for costly post-painting, and creating an aesthetically appealing uniform finish which has allowed the soffit to be used as a feature of the car park.

The performance of the Colorcoat FD® soffit on this project is guaranteed for 10 years.

Kenny Rogers, Construction Services Manager, Miller Construction comments: "The ComFlor® 80 composite decking system lends itself perfectly to the construction of a car park.

"It combines high-grade steel together with a large curvature detail which provides a very efficient structural profile.

"The specification of the Tata Steel system enabled us to create an effective composite profile that reached impressive spans – resulting in a reduction of the structural steel components required on site and reducing the overall cost of the floor construction programme."

Manufactured from high-grade S450 steel, ComFlor® 80 is a lightweight yet strong composite decking system that is able to create large, clear open floor spaces, with minimum floor to floor heights.

The system has been designed to enable the welded shear stud connectors to be placed at the centre part of the trough deck.

Fraser Darrington, Sales Director, Severfield Reeve Structures comments: "As a result of the central stud placement, excellent composite action between the beam and concrete was achieved.

"This enabled us to realise the full design capacity of the stud by guaranteeing the correct concrete cover to the stud was applied.

"In addition, the central location reduces onsite maintenance as there is no need to check the stud positioning has been properly carried out."

He continues: "Specification of the ComFlor® 80 system provided us with added peace of mind due to its excellent load bearing capabilities, increased toughness and long-term crack control. This gave us the confidence that the finished structure would meet the demanding requirements of a busy car park that is open 24 hours a day"

ComFlor® 80's inherent strength and excellent long span capability is able to create column-free spaces. In the case of Union Square, this enabled large areas of composite decking to be rapidly craned into position – with 400m² being laid by one team in one day.

With minimal mesh reinforcement and pumped concrete required, ComFlor® 80 enabled the floor structure to be quickly and evenly laid – allowing the project to be completed within the required timescales, bringing overall savings in terms of cost and time.

Nicholas Fay, Project Manager, Hammerson comments: "We are extremely pleased with the finished result. We have a framework that is structurally robust and designed to meet the exact requirements of a dynamic mixed-use car park and ultimately complements the overall Union Square construction project."

The ComFlor® 80 composite floor decking system was specified with Colorcoat FD® pre-finished steel providing improved appearance and durability of the soffit and available in a range of structural steels to suit the required strength and performance of the building.

With thousands of people visiting the retail and leisure complex every week, the car park is many people's first point of contact with the development and as such, it is important the car park creates the first and last impression.

The specification of the Tata Steel ComFlor® 80 composite decking system has resulted in a flexible, robust and fully functional car park that meets both current and future needs.

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