



Case study

Madeira Road, Bournemouth

Client: Bournemouth Development Company

Architect: Brightspace Architects, Hill Cannon

Main Contractor: Morgan Sindall

Roofing & Cladding Contractor: Composite Profiles Ltd

Steel Contractor: James Killelea & Co Ltd

Tata Steel products:
ComFlor® 60 with Colorcoat FD® 170,
ComFlor® 51+

Year: 2013-14

The project comprises three interconnected student accommodation buildings and a seven-storey car park close to Bournemouth's seafront. It was completed on budget and on time, to a tight fast build programme and achieved a very high build quality with two nominations for Local Authority Building Control awards.

The car park floors consist of composite metal deck construction using ComFlor® 60 with Colorcoat FD® 170 to the soffit; whereas the student accommodation, also a composite deck was specified in ComFlor® 51+ with a galvanised finish.





Programme and performance parameters prompt ComFlor® specification for Bournemouth structures

The challenge

With Morgan Sindall in overall control of the design and build project as well as providing the structural engineering input, Brightspace was appointed as the lead architectural consultant, with Harrogate based Hill Cannon recruited as a specialist in multi-storey car parks.

Less than a mile from the sea, the corrosion resistance of the soffit of the composite floor deck in the car park was a major factor. In addition to meeting the significant load and span requirement demanded by the project, ComFlor® 60, with Colorcoat FD® 170 pre-finished steel was chosen, not only because

the white finished soffit helped to provide the light, safer environment needed in a multi-storey car park, but also because Colorcoat FD® 170 offered significant extra protection in the aggressive C4 coastal environment. Colorcoat FD® 170 is manufactured by Tata Steel, removing over 9000m² of post-construction painting from the critical path, and with it, the risk of the variable quality this operation can sometimes deliver.



The solution

Using Colorcoat FD® 170 meant that traditional through deck stud welding techniques were not used, as Mark Norton, Managing Director of Composite Profiles Ltd explains “The shear studs were pre-welded to the beams and galvanised by the steel fabricators prior to site delivery which required careful planning and co-ordination of the floor deck layout far earlier in the design process, but helped provide more efficient installation of the floor decking on-site.”

In the student accommodation, the primary driver was to provide a shallow floor zone with excellent acoustic properties and a two hour fire rating. In the car park however, a white finish to the exposed soffit was desirable, as part of a light, safe environment and also to provide the enhanced corrosion resistance required in a coastal location.

In the case of the accommodation buildings, the designers wanted to achieve the best acoustic reduction performance between floors whilst minimising the floor depth. Two hours fire rating was required for the floor slab with no protection to the soffit. These criteria made ComFlor® 51+ the optimum choice.

The whole ComFlor® range, in addition to being fully CE mark compliant, has achieved BES 6001 certification for responsible sourcing, the first and at the time of writing, the only composite flooring range to have done so. In addition to promoting the many benefits of responsible sourcing, BES 6001 certification can also help to provide additional credits for the responsible sourcing section of BREEAM.

“For the Arts University Bournemouth student accommodation project, Morgan Sindall, the main contractor and Upton McGougan, the structural engineers, selected ComFlor® 51+ as the preferred flooring product, because it contributed to a fast track solution, enabling the structure to be completed on time and on budget and both the student accommodation and multi-storey car park have been put forward for LABC awards”

Ric Martin, Senior Architectural Technologist for BrightSpace Architects commented





Tata Steel products:

The three linked student accommodation buildings used 10,000m² of ComFlor[®] 51+ primarily because its re-entrant profile provides ample depth of concrete to achieve 120 minutes fire resistance and meet acoustic attenuation requirements. As well as offering speed of installation the product also contributed to reducing the floor-to-floor height with associated savings.

For the seven-storey car park, over 9,000m² of ComFlor[®] 60 with Colorcoat FD[®] 170, was selected as the only product able to meet all of the design criteria

whilst also providing a 15 year warranty direct from the manufacturer. Colorcoat FD[®] 170 pre-finished steel includes a nominal organic coating thickness of 170 microns. This is then rollformed to create a white soffit to the underside of the composite floor deck and so removes the need for post painting. Colorcoat FD[®] 170 offers very good corrosion resistance with the topcoat available in white for optimum reflectivity for deep plan car park structures, maximising use of daylight and reducing the need for artificial illumination.

“As the specialist consulting engineers for the design of the multi-storey car park we were seeking a flooring system with a protective finish which could provide the required corrosion resistance guarantee period in coastal environments; while the performance specification also demanded a high reflectance to provide the specified Lux levels for the car park lighting solution”

Peter Matthewman - Hill Cannon

To find out more about how Tata Steel products can help you maximise the structural performance as well as fire, acoustic and weather resistance of your projects, please contact: technical.theworks@tatasteel.com or call +44 (0) 1244 892199.

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