

TATA STEEL



ComFlor® case study

New Wing, Victoria Hospital, Kirkcaldy

Client: NHS Fife

Main contractor: Balfour Beatty

Steelwork contractor: Severfield-Reeve Structures

Decking installer: Fisher Engineering

Decking system: ComFlor® 51

Featuring 50,000m² of ComFlor® 51 shallow composite profile floor deck, a major new wing at the south of the existing hospital is transforming healthcare delivery in Fife, creating a first-class facility for patients and staff alike.

Coupled with its structural performance, ComFlor® 51 presents a virtually flat soffit and a relatively thin slab, enabling it to meet stringent fire design requirements.



Telephone: 0845 30 88 330

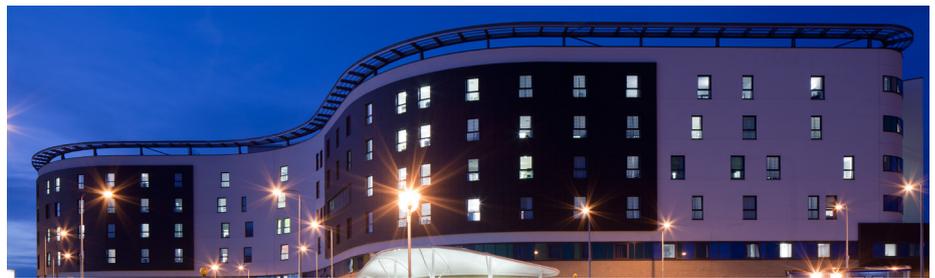
Victoria Hospital, one of two acute care hospitals in Fife, has been serving the Fife public since the early 1960's. As part of NHS Fife's overall strategy to modernise health services in the acute and community sectors, a major new wing at the south of the hospital was constructed. The project transforms healthcare delivery in Fife, creating a first-class facility for patients and staff alike.

The project itself involved the construction of a 50,000m² new hospital wing, linked to the existing Victoria Hospital to the south of the current tower block. Unlike the 1960's Victoria Hospital buildings, dominated by a large rectangular tower block, the new wing has been designed as a waveform. In order to accommodate the undulating wave-like western façade of the new wing, the steelwork was erected around a 7.0m x 8.1m grid. The new hospital facility includes eleven operating theatres, a new accident and emergency department, surgical and medical assessment units, and maternity and children's services.



An important consideration when designing a new hospital is fire safety. By their very nature, hospitals pose difficult problems for fire safety as in many instances it is not possible to move people around quickly, or evacuate them to outside the building. As such, it is vitally important that new hospitals have stringent fire safety standards in place that meet the demanding requirements of a hospital facility.

To facilitate the build programme and ensure the finished structure adheres to the Scottish Government's stringent Firecode SHTM 81 (Fire Precautions in New Hospitals) and SHTM 85 (Fire Precautions in Existing Hospitals), 50,000m² of ComFlor® 51 shallow composite profile floor deck was specified for the construction of the six floors in the new wing.



Fraser Darrington, Sales Director, Severfield-Reeve Structures comments: "Key to the successful delivery of the project has been ensuring we meet the tight construction programme. The ComFlor® 51 composite floor deck is ideally suited to fast track projects as the system is manufactured in factory-controlled conditions. Benefitting from long spans that require minimal mesh reinforcement, the composite system enables the concrete to be laid quickly after the composite decking installation – allowing the floor installation to be completed within the tight construction timescales."

ComFlor® 51 is a robust, made to measure shallow, dovetail re-entrant composite floor deck that can be installed quickly and efficiently – ultimately bringing significant time and cost savings to the construction programme. The profile comprises of a mechanical key that is positioned in the concrete slab which is strengthened by cross stiffeners located in the profile trough. These combined properties provide strong shear bond performance and excellent structural performance - essential when constructing a facility that will see thousands of people pass through its doors every day.

Coupled with its structural performance, ComFlor® 51 presents a virtually flat soffit and a relatively thin slab, enabling it to meet stringent fire design requirements. Alongside this, the dovetail re-entrant properties of the composite floor deck result in very small openings in the deck itself, which help to prevent the transfer of heat through the slab in the event of a fire.

Robin Hamill, Project Manager, Fisher Engineering comments: "Fire safety is of

paramount importance when designing a hospital and the ComFlor® 51 composite profile system lends itself perfectly to such a project by virtue of its fire performance credentials. The fire performance of the composite beam is excellent and even for two hours fire rating, the top flange of the steel beam does not require fire protection, when specified with the ComFlor® 51 composite deck. This provides us with the confidence that we can construct a facility that will not only stand the test of time, but will perform to the strictest fire safety standards."

Roddy Mackay, Project Director, Balfour Beatty Construction comments: "An important consideration for the Victoria Hospital was the issue of fire safety. The specification of ComFlor® 51 profiles provides us with the confidence that the finished structure will meet the demanding NHS Scotland Firecode fire safety regulations and give 100% resistance in the unlikely event of a fire. Working in close proximity to the existing hospital posed us a challenge as a large amount of the early works took place only a few feet away from the working hospital. Therefore, it was imperative that the materials we specified were able to keep noise and overall disruption to the hospital to an absolute minimum."



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Tata Steel

Shotton, Deeside, Flintshire, CH5 2NH

T: +44 (0) 845 30 88 330

F: +44 (0) 845 30 11 013

www.tatasteelconstruction.com/comflor

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