Royal College of Surgeons (RCSI), New Academic & Education Building

Details

Type of Job	*Waterproofing of a 19-metre-deep basement*
Products	*Cemtobent CS Plus, Quellmax Plus, CEMflex VB Plate, Predimax 19, Maxseal Flex, Maxseal Super, Maxplug*
Main Contractors	*Bennett Construction*
Architect	*Henry J Lyons*
Structural Engineer	*O'Connor Sutton Cronin*
Waterproofing Specialist	*SURFASOLOGY*
Location	*Dublin, Ireland*
Construction Completion	*2017*

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Royal College of Surgeons (RCSI), New Academic & Education Building

Description

The Royal College of Surgeons (RCSI) academic and education building has become the largest redevelopment project in the City Centre in recent years. The facility comprises a state of the art surgical and clinical training suite containing a flexible wet lab, mock operating theatre, clinical training wards, standardised patients rooms and task training rooms. It will also include a 540 seat auditorium, a library spanning three floors with 500 study spaces, a sports hall and fitness suite.

The gross floor area of the proposed building is approx. 12,000m² and is to be constructed primarily of insitu concrete frame with structural steel elements incorporated from Basement minus 4 (B-4) to 5th floor.

This highly sophisticated project is a true masterpiece of civil engineering. Consider the fact that the new structure has a 19-metre-deep basement, which had to be connected to an existing basement, factor in a very high water table, and you will come to understand the challenges the design team and the construction team faced when waterproofing this structure.

The project commenced in 2007 when the base slab and the perimeter walls were partially constructed. The original basement had been left dormant for several years.

Under the expert guidance and expertise of Graham O'Sullivan (Henry J Lyons, Architects), Eddie Lyons (O'Connor Sutton Cronin, Structural Engineers), Michael McDonagh (SURFASOLOGY, Waterproofing Specialist), Bennett Construction (Main Contractors) and SMG Formwork (Concrete Works), this demanding and challenging project was completed to the highest standards.

CEMtobent CS Plus Membrane had been successfully used as the waterproofing membrane on the old structure and was the system of choice for providing a Type A (Barrier Protection) as described in BS 8102:2009 to the new structure. Approved products from the Drizoro range were used for remedial works and for detailing of critical points on both the old and the new structures.

The construction works consisted of demolishing part of the original structure and connecting the new structure to it. A hydro-demolition system was used to remove part of the old structure. This resulted in a very rough surface profile to the face of the old structure, along the area where the new structure was to be connected, inhibiting the use of conventional waterbars at this very critical joint.

Another major obstacle encountered because of the demolition, was the destruction of the old structure waterproofing membrane. It was not possible to connect the CEMtobent CS Plus membrane which had been installed under the old structure to the CEMtobent CS Plus waterproofing membrane which was to be installed under the new structure. This was a major cause of concern.

A detail for this very critical area was designed using the following materials.

Maxseal Super, a cement-base crystalline coating was applied to the joint of the old structure.

Two lines of Predimax 19 Injection Hose were installed along the full length of the joint of the old structure, through which an injection material was injected after the new structure had been built, resulting in a water-tight joint between the new and the old structures.

Due to the excellent TEAM effort , this project has been completed successfully.

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