

Multiple Waterproofing Solutions from One Source

Retail architects and developers turn to GCP to overcome complex waterproofing



Project	Cornmarket Street in Ireland
Client	Soranna Ltd
Subcontractor/Applicator	Radon Ireland
Architect	Project Architects (Dublin)
Structural/ Consulting Engineer	Malone O'Regan McGillicuddy
Architect	Frank Ennis Architects
GCP Solutions	ADPRUFE® 100 liquid admixture, SERVICEAL® 240 PVC waterstop, PREPRUFE® 160R and 300R waterproofing

The Overview

The Project

Cornmarket Street and its surroundings were one of the main areas to be transformed in the Cork City centre regeneration programme. This ambitious redevelopment focused on retail architecture and development. The new Cornmarket Centre comprises 17 retail units on 2 floors situated on a site of over 1.5 acres.

One of the principal objectives of the commercial building redevelopment was expansion of the retail area through stronger links between existing retail areas in the surrounding streets and Cornmarket Street--the new focal point of the retail area. This plan also included the development of an outdoor market area to maximise its retail potential.

The Challenge

The design specified waterproofing of a single-story basement area plus protection from water vapour and radon gas. A capping beam to retain the concrete piles further complicated the design and made membrane application more difficult due to the complex profiles. The commercial building structure required numerous movement joints in the concrete, which necessitated standard waterstops as well as an angled profile waterstop (pile caps).

A suitable joint filler board, to be applied to the structural expansion joints beneath the concrete slab where the slab rested on ground retention anchors was another element of the retail architecture design, and was required to be compatible with the waterstop system.

The Solution

The basement was constructed 6 metres below ground level; with the capping beam 1.5 metres deep. GCP Applied Technologies provided a unique combination of membrane and watertight concrete solutions to overcome the complexities of the commercial building basement design while still meeting the protection performance requirement.

ADPRUFE®100, a liquid admixture which enhances concrete performance was applied to the capping beam.

Its ability to reduce water absorption and drying shrinkage result in fewer cracks and higher integrity of waterproof concrete.

The addition of ADPRUFE®100 to concrete resulted in approximately 70% increase in strength after one day and around 40% after 28 days. It reduces water absorption by 60% after 10 minutes as well as decreasing water vapour permeability by 56% compared with a control concrete of the same mix design.

Additional GCP Product Solutions

Elsewhere, to ensure complete protection from water and gas, PREPRUFE®160R and 300R membranes were pre-applied to the walls and the below grade slab. Due to its unique ability to adhere to poured concrete, especially in confined sites. PREPRUFE® provided a fully bonded water and gas proof membrane that prevented water migration between the retail architecture structure and membrane.

SERVISEAL®240 external PVC waterstops and SERVISEAL®Pile caps provided protection for the expansion joints in the concrete, by creating a continuous network of waterstops to prevent the ingress of moisture. KORCPAK®, an expansion joint filler was also applied due to its water resisting properties and robustness.

GCP's problem solving ability and broad range of compatible technologies provided a practical, single source solution that met the needs of the designer and contractor.

Blue360SM Product Performance Advantage: Because every project, large or small, deserves the best level of protection.

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