



Kirkwall Air Traffic Control, Scotland Basement Waterproofing on the Orkney Islands

The Project

Kirkwall airport is located on the main island of the Orkneys, 10-miles off the North coast of Scotland. Presented with a logistically challenging location and a tight project timescale of just 1 week, Newton had no hesitation in recommending the expertise of [Wise Basement Systems](#) as the specialist contractor to Building Surveyor [Pick Everard](#).

Getting involved at the very start of the project, Wise were immediately able to design, advise on and install a system to remedy the 2 inches of water in the existing basement of the Air Traffic Control tower.

The Solution

Cavity Drain Waterproofing, or 'Type C' waterproofing as it is defined by BS 8102:2009 is often the most effective means of achieving a completely dry 'Grade 3' environment below ground in an existing structure. It was therefore no surprise that Wise Basement Systems designed a [Newton CDM System](#) for this existing basement area.

To begin, Wise installed 120m² of [Newton 508](#) on the walls and 80m² of the recycled [Newton 520 eco](#) to the floor, above the closed-cell [Fibran XPS 500-C](#) insulation. The drainage membranes were supplemented with a perimeter channel of [Newton Basedrain](#), directed to a [Titan-Pro](#) sump chamber containing two [NP400 Pumps](#) to remove the water.

Finally, to ensure that the system will continue to work in all eventualities, even in a complete power outage, Wise installed a backup system with dual Northstar batteries and a [Victron Power Inverter](#).

The Result

Even with a project located 10 miles from the mainland, and 1 week to waterproof a basement with only a 600mm wide access hatch, Wise Basement Systems delivered a completely dry space for the client that was also compliant with BS 8102:2009 and backed by their guarantee.



1. The basement of the Air Traffic Control tower had 2 inches of water and water ingressing through the walls



2. A 600mm wide access hatch was the only means of entering the basement, and was very restricted

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"It required a sensational team effort to pull this project off, especially considering the time frame, location and site constraints. The Newton Waterproofing team were also invaluable in ensuring that their great products made it to site when we needed them.

A special mention has to go to my fellow Wise Basement Systems colleagues William Ross as the main surveyor handling the project, Derek McLeod and Kirsty McCallum in the contracts team who organised it all, and Mark Ross, Brian Smith and William Dalglish who managed to install the full system in tricky circumstances."

Jordan Cullen, Wise Basement Systems



3. The CDM System also had to accommodate numerous existing lights and cables/services

The Products

CDM SYSTEM

The most reliable waterproofing solution for any habitable space below ground combination, the Newton CDM System combines our decades of waterproofing experience with the highest quality, BBA certified cavity drain membranes from [Newton System 500](#), bespoke sump and pump configurations, backup systems, telemetry and ancillary options.

508 and 520 eco

BBA certified, high quality cavity drain membranes as part of the CDM System. Newton 520 eco is manufactured from 100% recycled HDPE.

FIBRAN XPS 500-C

50mm, closed-cell extruded polystyrene insulation board, exclusive to Newton and used to form a 50mm spacer alongside Newton Basedrain.

BASEDRAIN

A range of products that collectively receive and drain water from the cavity drain membranes and direct it to the point of discharge.

TITAN-PRO

A packaged pumping system that has been specifically designed for use with the Newton CDM System to collect and discharge water.

NP400 PUMPS

A high performance pump available in either manual or automatic versions to remove clean water from the Newton CDM System.

VICTRON INVERTER

Advanced backup units that provide solutions to ensure that Newton pumps continue pumping during power interruption.



4. The CDM installation also required some high quality detailing from the Wise specialist installers



5. With the CDM system in place and a new floor down, the basement has been transformed



6. The waterproofed basement is now completely dry and ready for use by the client

Newton Specialist Basement Contractors



Newton recommends that our structural waterproofing systems are installed by one of our nationwide network of [Newton Specialist Basement Contractors \(NSBC\)](#). Trained by Newton, NSBCs offer full professional indemnity on design, and insurance backed guarantees on the installation.