

CASE STUDY

NEO-GOTHIC CEMETERY KEEPER'S LODGE



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OVERVIEW

The scope of this ambitious project was to restore and transform an abandoned Neo-Gothic Cemetery Keeper's Lodge with adjoining public facility into a luxurious mansion in just 12 months. Works included demolishing the adjoining public facility to enable the construction of a new basement.

The proposed new build construction would be a luxury ground floor extension which would run the footprint of the redundant public facility to offer a 4,000 square foot subterranean space with key features such as 13-meter swimming pool, 2 additional bedrooms, a tv games room and office space.

Simon Gill Architect designed the ambitious project and was appointed as Project Manager.

Delta Registered Installers 5 Star Basements were employed to undertake both dig out and installation of the structural waterproofing with Delta's Technical Waterproofing Consultant, Paul Callaghan representing Delta. This approach at the design stage, allowed Paul to attend design team meetings and to ensure all criteria's of BS8102:2009 were met.

As aired on Grand Designs on 6th January 2021.

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SYSTEM COMPONENTS

- Koster Polysil TG 500
- Koster NB 1 Grey
- KB Flex 200
- MS500
- MS20
- AlertMaxx2
- Hi-PowerMaxx
- Bespoke pumps
- Delta Terraxx
- Deuxan 2C
- Repair Mortar Plus
- Delta Boots
- Delta PT



Head Office:

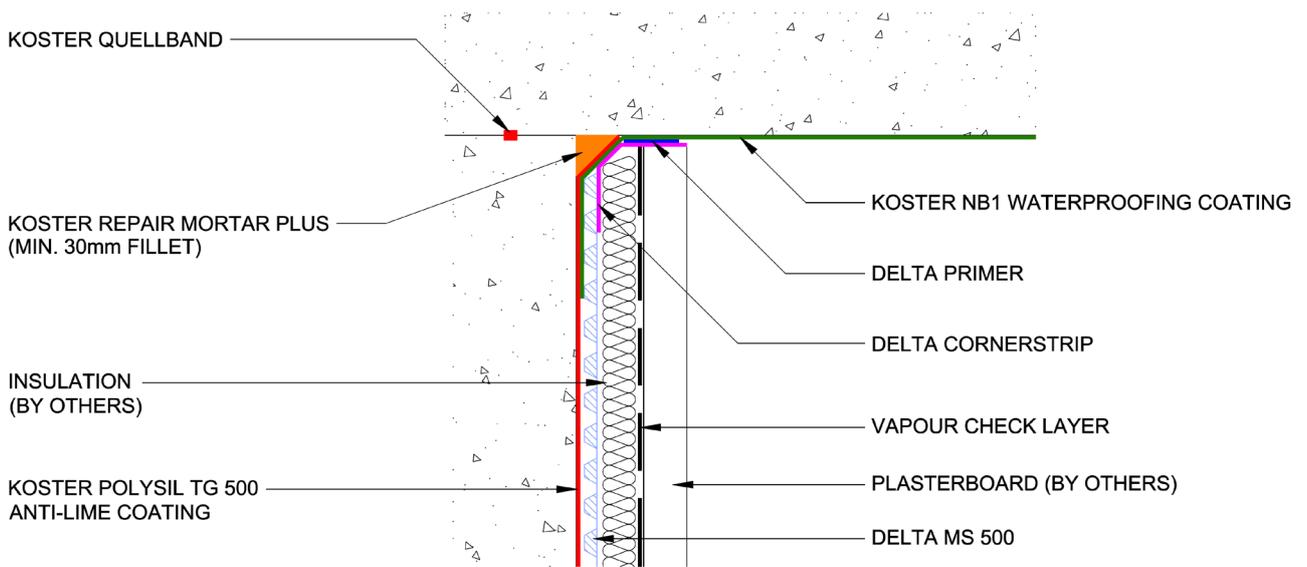
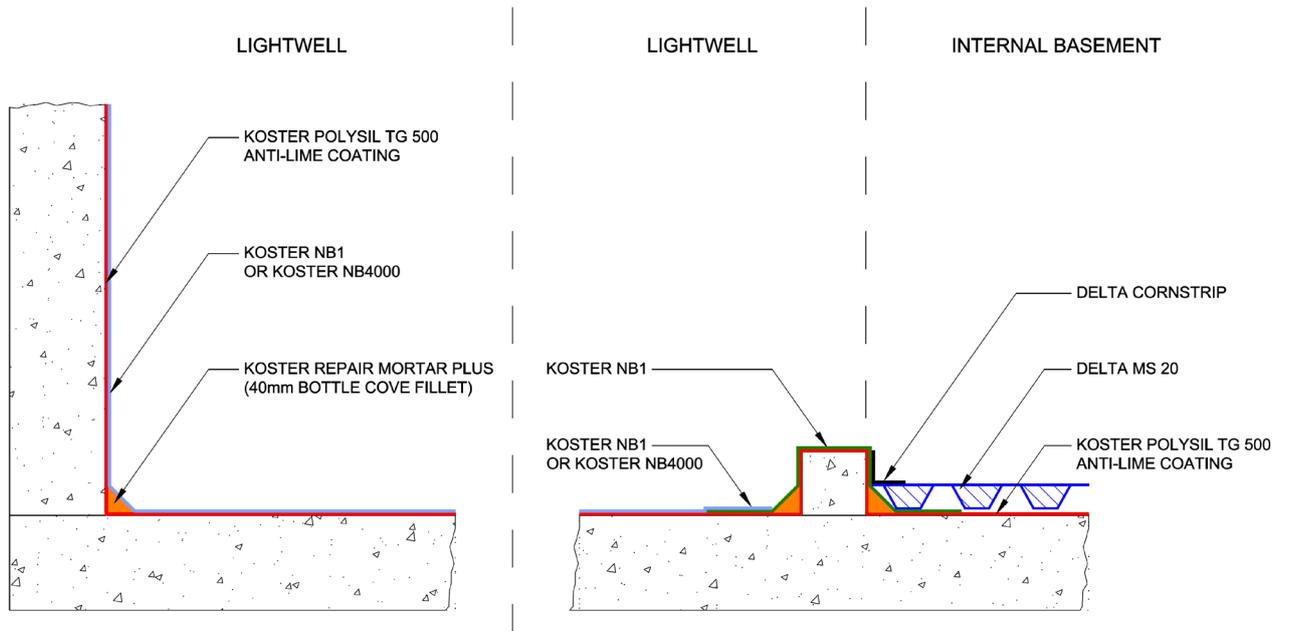
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TECHNICAL DRAWINGS



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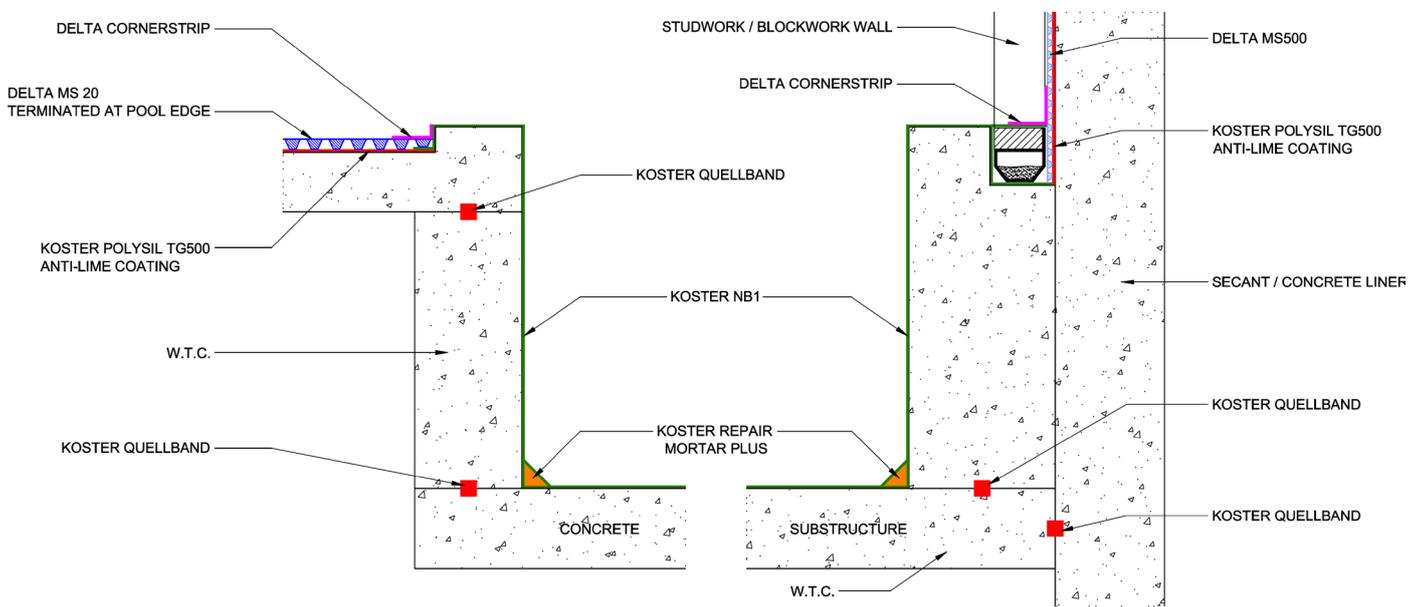
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TECHNICAL DRAWINGS

COMBINED SYSTEM - POOL DETAILING



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METHODOLOGY

Paul was keen to create a waterproofing design which would both comply with British Standard BS 8102:2009 'Code of Practice for Protection of Below Ground Structures Against Water from the Ground' and be practicable for future maintenance. The project required Grade 3 protection – No dampness or water penetration acceptable.

During the tortuous demolition and excavation of the public facility, the owner planned to extend the excavation directly underneath the heavy stone built Gothic lodge.

The additional works were undertaken by 5 Star Basements with owner Piotr Klimkiewicz overseeing the entire project ensuring this exceptionally sensitive project met full requirements.

INTERNAL WATERPROOFING

Offering a full belts and braces approach and a continuous waterproofing envelope, Delta boots were first installed to the ends of all structural steel beams (where they were within the earth retaining walls) ensuring protection from any potential water ingress.

Prior to the installation of a Type C Cavity drainage system:

All newly poured concrete was treated with an application of Koster Polysil TG 500 an anti-lime inhibitor.

Koster NB 1 Grey fillets were created to critical wall and wall/floor junctions to seal against pressurized water (> 13 bar). This mineral coated waterproofing slurry contains capillary-plugging agents making it an ideal solution to protect the structure from ground moisture ingress.

Koster KB Flex 200 was used to detail and seal around all cable and service pipe penetrations.

A drained cavity system (a Type C Waterproofing System) collects and manages any moisture/water ingress which breaches the integrity of the structure by channelling, collecting and discharging such free water via a suitable evacuation point. When specifying a drained cavity system, full consideration should be given to drainage, when installed below ground. BS 8102:2009 (Code of Practice for Protection of Below Ground Structures Against Water from the Ground) should be incorporated into every waterproofing design.

A combination of a maintainable modular/sub slab drainage system was incorporated into the ground bearing basement slab with the basement floor levelled to no more than 1-10mm. The reason for levelling the basement floor to no more than 1-10mm is to reduce associated risks

of water ponding or pooling beneath the Cavity Drainage System, which could potentially cause flotation stress to come to bear too.

On this project a bespoke submersible sump pump unit was incorporated to manage the drainage aspect, with Delta Dual V4 pumps included to discharge any water entering behind the Type C waterproofing.

A bespoke sump pump unit was also incorporated (with specialist Dual 2502 pumps inside) to remove any foul /grey waste water from the facilities within the basement and to act/serve as a back wash water pump for the pool.

Lightwells can be problematic if they're not drained correctly, and to ensure no small amounts of water percolated through the construction and put undue stress on the basement integrity an additional bespoke chamber (800mm diameter x 1300mm deep) with dual V4 pumps within was incorporated to negate any ingress which may arise.

The homeowner travels extensively, by adding AlertMaxx2 high level water alarms and Hi-PowerMaxx battery backups to the bespoke pump system, not only would the pumps be monitored 24/7 by a virtual engineer, in the event of a power outage, the sump pump system will continue operation ensuring all water ingress is suitably managed and discharged.

The Type C system was completed by installation of Delta MS 20, MS 500 and PT membranes prior to fit out.

EXTERNAL WATERPROOFING

External drainage protection systems protect underlying waterproofing systems from backfill damage and will minimize water ingress to the internal waterproofing system.

Koster Repair Mortar plus was firstly used for creating fillets around upstands and skylights.

For an intermediate waterproofing solution for underneath screeds and for bonding insulation and drainage boards an application of Koster Deuxan 2C was applied to offer a permanent exterior waterproofing layer.

This was further enhanced by Delta Terraxx being laid as a surface layer. This dimpled sheet, geotextile layer was used to protect the patio terrace and enabled the moat feature.

During the design concept it was essential to know the usage of the building elements to ensure the correct waterproofing solution was specified.

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RESULTS

This project continued throughout the Covid global pandemic, so inevitably Covid is part of this renovation story.

As stated in Grand Designs, potential self-builders shouldn't be deterred by the current pandemic, the advice given to all self-builders is, if you have an idea of what you want to build, and where you're going to do it, then get yourself an architect who shares the same view of the world as you do. Don't think it's a waste of money, it's not, because they will deliver you savings in the building, they'll deliver you beauty and joy, and an experience of living in it which is way beyond what you expected.

A great project and beautifully finished.



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