

CASE STUDY

Remediating a Basement Disaster

East London



The Project

A young couple building their dream first home - and filmed by Channel 4's [Grand Designs](#) - fell foul of rogue contractors when their site became a basement disaster. Excavations performed contrary to the Structural Engineer's instructions resulted in the banks falling in beneath the street, whilst the shutters burst inwards under the weight of the compacted concrete. When the site was left in this condition, [Newton](#) recommended [MJ Rooney](#) to take on one of the trickiest challenges in their 30 years.

The Solution

In order to construct a waterproof and guaranteed basement, MJ Rooney first had to secure the 3.5 metre high bank of unsupported earth. Once this had been achieved with sheet piles, a new and safe structural shell of reinforced concrete was created and the first 'Type A' Newton systems were installed in the form of [Newton 104](#) crystalline waterproofing, and [Newton 106 FlexProof](#) over the joints.

On a tiny project where the client was seeking Passivhaus status, MJ Rooney's designers created a bespoke waterproofing solution using 4D modelling in order to accommodate the client's unique design for a suspended reinforced concrete slab that acted as both a floor and a prop force against the lateral pressure coming from the basement walls. The design removed the potential cold bridge between the walls and slab, and at the same time turned the slab into a thermal mass that would help to maintain constant internal temperatures.

Finally, the 'Type C' [Newton System 500](#) cavity drainage membranes were installed, fulfilling the BS 8102:2009 requirement for combined waterproofing. This was supported by a bespoke sump system with dual [CP250](#) pumps, as no dedicated sump was formed by the first contractor.

The Result

Not only reviving the clients' dream home from disastrous beginnings, MJ Rooney also provided complete waterproofing protection as well as contributing towards one of the smallest passive houses in the world.

NSBC

MJ Rooney

Design

Warehome Ltd.

Client

Joe Stuart



HOW NOT TO DO IT (1)- Excavations were attempted without earthwork support, undercutting the street



HOW NOT TO DO IT (2) - Compacted concrete burst the shutters, leaving the site in an appalling condition

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" When Newton and MJ Rooney first became involved with the project the basement excavation had been left in a pretty appalling state, and I'm sure many companies would've turned round and walked away at that point.

Instead, both companies brought an outstanding level of technical expertise to bear on the situation and, aided by MJ Rooney's advanced modelling, not only comprehensively dealt with all of the problems created by the previous contractor, but also created a bespoke solution for our complex structural design, and turned a basement disaster into the solid foundation of our new home. "

Joe Stuart, Client and Design Engineer



After breaking back the poor old concrete, the excavation was properly supported with sheet piles

The Products

104

Crystalline waterproofing applied to the surface of concrete to protect against the movement of water through capillaries and hairline cracks.

106 FLEXPROOF

Highly flexible and extremely advanced single-component membrane that can handle severe building movement and deformations.

SYSTEM 500

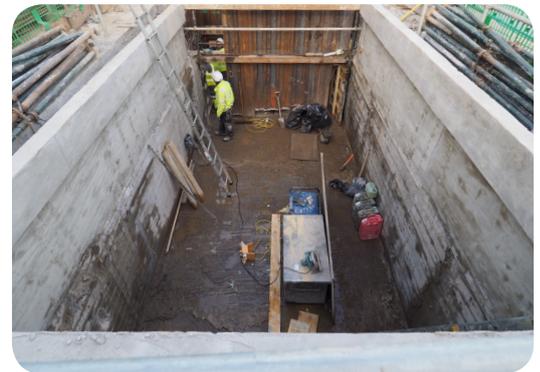
The professionals' waterproofing system of choice, this internal and fully maintainable system is ideal for new build or refurbished basements, utilising floor and wall membranes, fixing plugs, sealing tapes, drainage channels, insulation boards, and sump and pump chambers.

906 LIME INHIBITOR

Applied to concrete surfaces prior to System 500 installation, 906 prevents the leaching of 'free lime' from the concrete.

CP250 PUMPS

Used with the Titan-Pro White, these high quality clean water pumps are ideally suited for removing groundwater from basements and cellars.



MJ Rooney then installed a proper retaining concrete structure of sufficient quality and strength



The suspended slab rests entirely on thermal blocks, eliminating the potential for thermal transfer

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 can offer full professional indemnity on design and insurance backed guarantees on the installation.



The final System 500 shows how a waterproofing installation should be done, and was captured on film