

## STRUCTURAL WATERPROOFING

Hotel Football, Old Trafford Ground - Phase 2

## STRUCTURAL WATERPROOFING

*Waterproofing the Old Trafford Supporters Club and Hotel with Newton Combined Waterproofing Systems*

Main Contractor: Galliford Try

Architect: AEW

## Project Details

The "Hotel Football" is an innovative hotel concept on the doorstep of Old Trafford football stadium. The 138-bed Hotel Football will feature a five-a-side pitch on the roof and house a supporters' club – with the 10-storey building having capacity for around 1,500 fans on matchdays.

Newton Specialist Basement Contractor Trace Basements had been appointment from the design stage to waterproof the structure, and Newton System 500 was applied internally (see Phase 1)

## Methodology

This was a highly complex waterproofing project. Due to the sloped ground, this slab is at 4 levels with steps along. There is a retaining wall comprising pile, capping beam, multi level slabs, upstands and blockwork off either slab or upstand. The upstands are all kickerless, therefore there are multiple construction joints and also pipe penetrations.

Trace applied 101F / Angle Joint tape reinforcement along construction joints in the same plane and 107 construction joint fillet details at horizontal and vertical changes of direction and entire 101F membrane from underside of cavity tray to 500mm down the outer face down past the capping beam / slab construction joint.

Newton 104 Crystalline Waterproofing was applied to the concrete structure to provide primary resistance to the penetration of water.

## Other materials used:

- 306 Swell Mastic with the waterbar.
- Hydrobond below ground around 4No lift pits, one being a double lift.
- 309 Contact Adhesive sealing the Hydrobond bottom side around to the pile caps under the lift pits.
- 207 DeckDrain externally over the pile cap face / slab top along the canal side and externally on the capping beam and slab face / slab top all around at the upper ground floor.
- Flexproof-XI to seal vertical gaps between below cavity tray blockwork and structural columns.

## Benefits

The flexible characteristics of Newton 101F flexible waterproof membrane allowed for a seamless waterproofing across the deck, vertical upstands and joints. Newton 107 QuickFillet fast setting mortar allowed for minimal down time, even in challenging weather conditions.

## NSBC Contractor: Trace Basements



Artists impression of the Hotel Football, courtesy of the Mirror



Proximity to the canal meant a robust waterproofing system was needed



Newton 101F applied to outer face of capping beam, concrete deck and construction joints

# CASE STUDY

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## Featured Products

### NEWTON 101F (CW 101)

#### Cementitious Flexible Waterproofing Membrane

Newton 101F is a two-component acrylic modified cementitious coating. It is the ideal product to waterproof and re-surface concrete and masonry. 101F is a hard wearing, seamless waterproofing solution which is very user friendly with simple on-site mixing methods.

Newton 101F is applied in two coats 1mm each to provide a total thickness of 2mm. Each 1mm coat requires a coverage rate of 1.8kg per m<sup>2</sup> to give a total coverage rate of 3.6kg per m<sup>2</sup>. Newton 101F is supplied in two components of 1 x 25kg tub of powder and 10kg of liquid additive (35kg pack) which will cover 9m<sup>2</sup> - 10m<sup>2</sup>

#### Typical Applications:

- Waterproof lining for lift pits, swimming pools etc
- Bathroom and wet areas
- Waterproof coating for roofs
- Internal application to flat concrete soffits in conjunction with Newton System 500
- Slurry application to form waterproof bunds
- Lining existing concrete sump chambers
- Protection of steels against carbonation and chloride attacks

### Newton System 100 Cementitious Products



Newton 101F

### NEWTON 107 QUICKFILLET (CW 107)

#### Fast Setting Pre-Mix Mortar For Angle Fillets

Newton 107 QuickFillet is a fast setting and fast curing mortar with a rapid strength gain used to quickly form 45° angled fillets at junctions between walls and floors or soffits. Newton 107 QuickFillet should be used to form fillets for use with Newton 101F cementitious slurry and can be used to reinforce internal corners ready for Newton liquid applied membranes. Newton 107 Quick Fillet can also be used to repair substrate prior to the use of Newton System 900 primers.

Newton 107 QuickFillet is supplied in 25kg tubs and when correctly mixed with 3.6 litres of clean water should cover approx 30 linear metres applied in a 25mm x 25mm fillet

#### Typical Applications:

- Creation of angle fillets
- Surface repairs to substrate prior to application of Newton System 900 floor primers

### Newton System 100 Cementitious Products



Newton 107

# CASE STUDY

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## Featured Products

### NEWTON 104 (CW 107)

#### Crystalline Waterproofing Of Concrete

Newton 104 is applied to the surface of concrete to provide in-depth protection against the movement of moisture through the capillaries and hairline cracks within the concrete. It consists of Portland cement, specially treated quartz sand and a compound of active chemicals.

Newton 104 is supplied in powdered form and is either sprinkled onto fresh concrete or is mixed with water as a carrier and brush or spray applied as a slurry for application to older concrete or vertical surfaces. The active chemicals within Newton 104 combine with the free lime and moisture present within the capillaries to form insoluble crystalline complexes which effectively block the capillaries and any minor shrinkage cracks to prevent any further movement of moisture to provide a totally dry surface to the concrete.

#### Typical Applications:

- Pile caps and ring beams
- Isolation of internal walls from moisture in the kicker joint
- Isolation of internal walls from moisture at the abutment with earth retained walls
- Support plinths
- Sealing of concrete surfaces

### Newton System 100 Cementitious Products



Newton 104

### NEWTON 207 DECKDRAIN (M30)

#### Drainage Membrane for Decks and Flat Roofs

Newton 207 DeckDrain is a double cuspated, deck and flat roof drainage membrane, that incorporates a non-woven geotextile filter layer, bonded to a water impermeable HDPE (High Density Polyethylene) core. The double cuspated design provides two layers of drainage; allowing for primary drainage through the geotextile filter, as well as secondary drainage between the underside of 207 DeckDrain and the primary waterproofing layer. The lower drainage layer eliminates the risk of trapped water, a problem associated with conventional single cuspated deck drainage membranes. Newton 207 DeckDrain is supplied in 1.1m wide x 25m long rolls and is simply laid above the waterproofing membrane with the geotextile fleece uppermost.

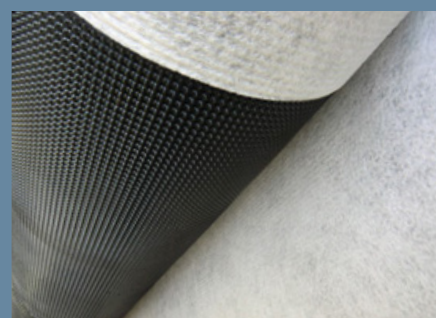
#### Typical Applications:

As the drainage layer above a deck, balcony or flat roof waterproofing membrane, particularly where:

1. Block pavements or flooring slabs are bedded on sand as the surface finish.
2. Soil filled planters are included to the deck or flat roof.

Also suitable for use as a vertical drainage layer when used as part of a professionally designed and installed externally applied basement waterproofing system.

### Newton System 200 Deck & Roofing



Newton 207 DeckDrain



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## Featured Products

### NEWTON 306 SWELLMASTIC (SX306)

#### Swelling Adhesive

Newton 306 SwellMastic is a high performance mastic used to adhere Newton 303 PolyProof and Newton 305 ActiveJoint to the concrete joint. Can also be used to seal around protrusions such as pipes and conduits and should be used to reinforce Newton 307 PipeSeal being fitted to pipes passing through the structure.

Newton 306 SwellMastic is supplied in cartridges of 290ml and foil sausages of 600ml and is applied in a bead.

#### Typical Applications:

- Sealing around protrusions through the structure such as service pipes and as an adhesive for Newton 303 PolyProof, 304 PolyProof Inject and 305 ActiveJoint.

### Newton System 300

Waterproofing of Concrete Structures



Newton 306 SwellMastic

### NEWTON 309 CONTACT ADHESIVE (SX309)

#### Adhesive Mastic

Newton 309 ContactAdhesive is a high quality, elastic and versatile gluing and sealing compound. Primarily used for bonding Newton 303 PolyProof hydrophilic waterbars to concrete and steel, it is also suitable for the sealing of joints within buildings and can be used with glass, PS and PU foam panels, wooden building elements, plastic cladding and aluminium profiles.

Newton 309 ContactAdhesive is suitable for damp and dry surfaces and is the adhesive supplied with by John Newton for the sealing of the Newton Baseboard drainage system to concrete and screed floors. The sealant has high elasticity and high adherence and it develops a strong adhesive tensile strength immediately after application.

#### Typical Applications:

- As an adhesive for the installation of Newton 303 PolyProof hydrophilic water bars
- Sealing of joints within building elements
- Sealing and adhesion of Newton Baseboard

### Newton System 300

Waterproofing of Concrete Structures



Newton 309 Contact Adhesive

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## Featured Products

### NEWTON 403 HYDROBOND

Hydrophilic and Bonding Membrane for Raft and Wall Waterproofing

Newton 403 HydroBond is a very high performance composite sheet membrane that features a locking fleece to one side and a polymer hydrophilic coating to the other side.

When placed below the new raft or against the wall shuttering, the poured concrete engages into the locking fleece so that the membrane is completely locked in and monolithic to the concrete thus ensuring that if a leak did occur it cannot track to the construction joints. The hydrophilic coating seals small holes that may be accidentally formed during fixing of the reinforcing steel or the pouring or compaction of the concrete.

Newton 403 HydroBond is supplied in rolls of 2m x 30m and can be laid to the blinding and shuttering of a raft construction or adhered to already formed retaining walls.

Typical Applications:

- Waterproofing of retained walls
- Waterproofing of decks

### Newton System 400 External Waterproofing



Newton 403 HydroBond

### NEWTON FLEXPPOOF-X1 (FP1)

Construction Joint Waterproofing

For the waterproofing of construction joints in new-build concrete construction of basements. When applied by trowel or squeegee over construction joints in concrete, FlexProof-X1 provides a continuous highly flexible membrane that is resistant to water pressures of up to 2 bar (20m) over construction joints of up to 0.25mm.

Suitable Substrate:

- Construction and movement joints to basement structures built of concrete.
- Retained walls built in concrete or concrete block.
- Construction and movement joints to decks and flat roofs built of concrete or timber.
- Wet rooms built of concrete, masonry or timber.

### Newton FlexProof Construction Joint Waterproofing



Newton FlexProof-X1