

SYSTEM 400

NEWTON 401 FLEXPROOF-X1

Retaining Wall Waterproofing

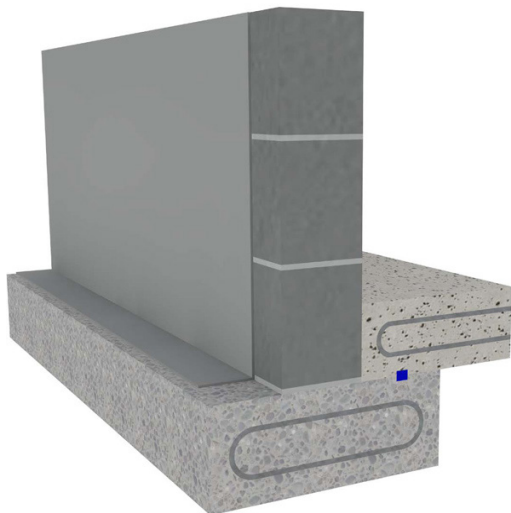
Rev 1.3 - 15 January 2015

PRODUCT CODE - FP1

INTRODUCTION

Newton 401 FlexProof-X1 is a highly advanced single component liquid waterproofing material, which forms an elastomeric polymer membrane that is rainproof in minutes and capable of handling severe building movements and deformations.

401 FlexProof-X1 is quite unique with amazing characteristics allowing it to be used without a primer, without mixing and in weather conditions that preclude the use of alternatives. When applied by trowel or squeegee to retained walls Newton 401 FlexProof-X1 provides a continuous highly flexible membrane that is resistant to very high water pressures, even over construction joints.



KEY BENEFITS

- No mixing required - simply open the packaging and use.
- Can be used in sub-zero temperatures and on slightly damp substrate.
- No primer required - saving on primer and labour costs
- Single coat application.
- 100% waterproof, but allows vapour diffusion.
- Very flexible - Resistant to movement and fissures in substrates.
- Excellent adhesion to suitable substrates.
- Resistant to temperature variations maintaining its characteristics between -40°C & 90°C.
- Excellent resistance to the high alkalinity of concrete.

TYPICAL APPLICATIONS

This data sheet is specifically for the application of Newton 401 FlexProof-X1 to earth retained walls. For

NEWTON 401 FLEXPROOF-X1		
Colour	Grey	
Specific Gravity	1.54	
E-modulus (N/mm ²)	0.85	
Service Temperature	-40°C to 90°C	
Watertightness (EOTA TR-003)	Watertight	EOTA TR-003
Hardness (Shore A)	40	ASTM D2240
Elongation (EN ISO 527-3)	250%	EN ISO 527-3
Bond to clean concrete (kPa)	>450	EOTA TR-003
NOTE - Application Temperature:		
Newton 401 FlexProof-X1 can be applied at temperatures that are below 0°C, but the substrate must be completely dry so that no ice crystals exist. Product will not adhere to ice crystals; either force dry the substrate or delay application until temperature is above 5°C.		

other uses of the product, please refer to the following Newton Data Sheets:

Newton 401 FlexProof-X1 - Construction Joint Waterproofing

Newton 801 FlexProof-X1 - Wet Room Waterproofing

WATERPROOFING PERFORMANCE

Newton 401 FlexProof-X1 has tremendous waterproofing capabilities and these can be increased further with the inclusion of Newton FlexProof Scrim to reinforce the membrane at the construction joint. Please see table below for data on both non-reinforced and reinforced 401 FlexProof-X1 when applied to construction joints as part of the application to the retaining wall.

Resistance to Water Pressure - 2.5mm membrane to positive pressure side of Static Construction Joint in poured concrete construction			
Joint of up to 0.25mm		Joint of up to 0.5mm	
Reinforced	Not reinforced	Reinforced	Not reinforced
2 bar (20m)	1 bar (10m)	1 bar (10m)	0.5 bar (5m)

Resistance to Water Pressure - 2.5mm membrane to positive pressure side of Non-Static Construction Joint in pre-formed concrete elements or where pre-formed elements meet poured concrete construction			
Joint of up to 0.5mm		Joint of up to 1.0mm	
Reinforced	Not reinforced	Reinforced	Not reinforced
1 bar (10m)	0.5 bar (5m)	0.5 bar (5m)	N/A

NOTES:

The data within the tables above is based upon data produced by an independent testing laboratory. The information within the tables above has been subjected to a reduction from the test data so as to account for site conditions not being as exact as within a laboratory, and a healthy safety margin. This, together with site experience of use of the product over many years allows us to publish the data you see above. The test certificate referred to above is available upon request.

NEWTON FLEXPROOF-X1

Retaining Wall Waterproofing

SUITABLE SUBSTRATE

Concrete or masonry retained walls.

SPECIFICATION

Newton Waterproofing Systems are in partnership with RIBA NBS who publish details of our products and systems within their specification clause library to allow Architects ease of specification through their NBS Plus interface.

NBS clauses can be accessed via the technical resources area of the web site where a live NBS Feed is available at [NBS Plus Live Feed](#)

Our website has drawings available for download here [Technical Drawings](#) and a selection are also available via [FastrackCAD](#)

TOOLS REQUIRED

- Trowel.
- Small short pile roller.
- Knife or scissors for opening the packaging.

TRAINING & COMPETENCY OF USER

Newton 401 FlexProof-X1 should be used by those with an understanding of the requirement to waterproof retained structures and the knowledge and training to use the product as part of a coordinated approach to the waterproofing of the structure, which in many cases will require further waterproofing products so as to achieve the required habitable grade as defined by BS8102:2009.

CONSTRUCTION

The construction should conform with current Building Regulations, British Standards and relevant Codes of Practice.

CONSTRUCTION - NEW CONCRETE

New concrete should be designed by a Structural Engineer to EN 1992 (Formally BS8110). A shuttered finish to vertical surfaces is suitable for Newton 401 FlexProof-X1. Poured concrete rafts and foundations should have a surface finish to Class of finish U3 as documented in 'General Specification for Civil Engineering Works' section 14: 'Formwork and Finishes to Concrete', namely a "Uniform, dense and smooth surface" with float marks of no more than 3mm. A U5 power floated finish with no float marks is also suitable but not required. U1 (Abrupt irregularities permitted) or U2 (Tamp marks of up to 10mm) finishes are not suitable and should be avoided.

CONSTRUCTION - MORTAR

Walls should be designed by a Structural Engineer to withstand the load of the retained earth as well as the expected water pressure as defined by BS8102:2009. The mortar joints should be pointed flush to the surface of the wall.

SURFACE PREPARATION

Cracks, substrate damage and deterioration should be repaired prior to installation of the waterproof membrane.

Generally the surfaces to be waterproofed must be structurally stable, clean, dry and free from release agents, dust, laitance, oils, paints or other forms of contamination. Grit blasting or jet washing can be used to remove laitance and surface contamination. Adding mild detergents to the jet wash water will improve effectiveness.

- Holes or indentations should be filled with a suitable concrete repair product.
- Deep or structural cracks should be inspected to confirm if they are live or dormant. Suitable repair by qualified personnel is recommended.
- Hairline surface cracks will be filled by the application of Newton 401 FlexProof-X1.

MOVEMENT JOINTS

Please see data sheet on **Newton 307 ActiveJoint**.

PRIMING

Newton 401 FlexProof-X1 does not require a primer.

MIXING

Newton 401 FlexProof-X1 does not require mixing. Simply pour from the foil bag and apply.

APPLICATION

- Open the bucket and remove foil bag. Cut corner off the bag of about 100mm.
- Pour sufficient product from the foil bag on to plasterers hawk.
- Use trowel to spread the product to a uniform thickness of 2.0mm (3kg/m²) to the larger surfaces and 2.5mm (3.85kg/m²) over reinforcement at changes in direction.

NEWTON FLEXPROOF SCRIM

Reinforcement with Newton FlexProof Scrim will increase the waterproofing capabilities of Newton 401 FlexProof-X1. It is also recommended to use 250mm of FlexProof Scrim on each surface of a change in direction from vertical to horizontal.

APPLICATION OF FLEXPROOF SCRIM

For reinforcement of joints and changes in direction, lay Newton FlexProof Scrim into the still tacky 401 Flexproof-X1 and bed in with the edge of a trowel until covered by the product.

NEWTON FLEXPROOF-X1

Retaining Wall Waterproofing

CURING

Curing is dependent on temperature and humidity. At 20°C & 80% R/H Newton 401 FlexProof-X1 is touch dry in about 60 minutes, is capable of being wetted by light rain within 10 minutes, is completely weatherproof within 180 minutes and is fully cured to full waterproofing capability in about 72 hours.

COVERAGE

MAIN SURFACES

Single coat of 3kg/m² providing an overall membrane thickness of 2.0mm.

CHANGES IN DIRECTION

Single coat of 3.85kg/m² providing an overall membrane thickness of 2.5mm. The recommended band of 300mm (150mm each side of the change in direction) requires 1.2kg per linear metre.

POT LIFE

Newton 401 FlexProof-X1 has no pot life as such. After pouring out the required amount of product, fold over the bag and place into and seal the lid of the bucket. Product will be usable even after about 6 months. If the product has skinned, simply remove the skin and the product below will be usable.

CLEANING

Product that has not cured can be simply wiped off tools with a rag or cloth. Newton 204 Thinner breaks down 401 FlexProof-X1 and can be used to assist cleaning, especially where the product has partly or fully cured.

DRAINAGE - OPTIONAL

The waterproofing system can be further reinforced with the addition of Newton 410 Geodrain. Newton 410 Geodrain is a two-core drainage sheet consisting of a non-woven geotextile filter layer thermally welded to a water impermeable HDPE (High Density Polyethylene) drainage membrane. Newton 410 Geodrain provides outstanding drainage and protection to the outside face of basement walls, preventing the build-up of water pressure and protecting the structure from aggressive water, chemicals and toxins. For further information, please see the Newton 410 Geodrain Data sheet.

PACKAGING

15kg & 26kg

STORAGE

Store in dry conditions at temperatures between 10°C and 25°C. Do not expose to freezing conditions. Newton 401 FlexProof-X1 has a 12 month shelf life when stored in original, unopened containers in accordance with manufacturers instructions.

HEALTH & SAFETY

Product should only be used as directed. We always recommend that the Material Safety Data Sheet (MSDS) is carefully read prior to application of the material. Our recommendations for protective equipment should be strictly adhered to for your personal protection. The MSDS is available upon request from Newton Waterproofing or online via our web site. Please see contact details below.

ANCILLARY PRODUCTS

Newton FlexProof Scrim - Scrim for the reinforcement of Newton 401 FlexProof-X1.

Newton 204 Thinner - For cleaning tools used with Newton 401 FlexProof-X1.

ASSOCIATED PRODUCTS

Newton 410 Geodrain - Drainage membrane for preventing the buildup of ground water against the structure.

NEWTON SYSTEM 300 - WATERPROOFING OF CONCRETE STRUCTURES

Newton 301 AquaProof - Physical metal water-bar system for the immediate waterproofing of construction joints in concrete.

Newton 302 InjectionHose - Injection hose water-bar for the grouting and sealing of construction joints in concrete.

Newton 303 PolyProof - High grade hydrophilic water bar used to waterproof joints in concrete.

Newton 304 PolyProof-Inject - Hybrid of Injection Hose and PolyProof hydrophilic water bar providing a maintainable swelling water bar for maximum security to concrete construction joints.

Newton 305 ActiveJoint - MDPE physical water-bar able to resist high water pressure at active movement joints.

Newton 306 SwellMastic - Hydrophilic mastic to adhere 303 PolyProof and 305 ActiveJoint to concrete joints. Can also be used to seal around protrusions through the concrete structure such as pipes and conduits.

Newton 307 PipeSeal - Preformed MDPE seal that creates a physical, flanged joint around pipes passing through the structure. 304 SwellMastic should be used to reinforce the joint.

Newton 308 Stopaq - Hydrophilic polymer used for the sealing of services through the structure even when leaking with considerable water pressure.

OTHER NEWTON WATERPROOFING SYSTEMS

Newton System 100 - Cementitious waterproofing and repair products.

Newton System 200 - Waterproofing of Decks and Flat Roofs.

Newton System 500 - Internal cavity drain waterproofing of earth retained structures.