NEWTON 410 GEODRAIN

Externally Applied Drainage Membrane for Basements

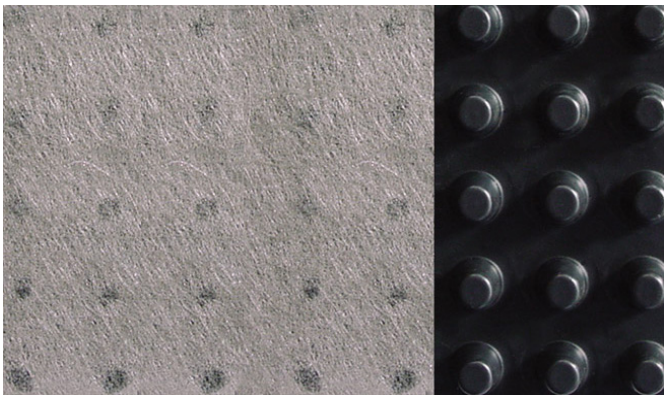
NEWTON WATERPROOFING SYSTEMS
Protecting buildings since 1848

Rev 1.1- 16 January 2015

Product Code - M18

INTRODUCTION

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.



NEWTON 410 GEODRAIN			
Width	(m)	**2.00**	
Length	(m)	**12.50**	
Area	(m^2)	**25.00**	
Packaged Weight	(kg)	**20.00**	
Thickness at 2kPa	(mm)	**11.3**	EN ISO 9863-1
Vertical Water Flow at 20kPa	($l/m^2/s$)	**4.60**	EN ISO 12958
Compressive	($k/N/m^2$)	**>400**	
Tensile Strength (MD*)	(MPa)	**48**	EN ISO 527
Service Temperature Range	(°C)	**-40 to +80**	
Life Expectancy	(Years)	**>50**	
Chemical Resistance	(%)	**100**	EN 14030
Oxidation Resistance	(%)	**100**	EN ISO 13438
STUDDED CORE			
Colour		**Black**	
Material		**HDPE**	
Density	(g/m^2)	**600**	
Stud depth	(mm)	**10.00**	
Thickness	(mm)	**10.60**	
Vicat Softening Temperature	(°C)	**148**	
GEOTEXTILE			
Colour		**White**	
Material		**Polypropylene**	
Thickness at 2kPa	(mm)	**0.7**	EN ISO 9863-1
Puncture Resistance CBR	(N)	**1800**	EN ISO 12236
Horizontal Water Flow	(l/s/m)	**350**	BS 6906-3

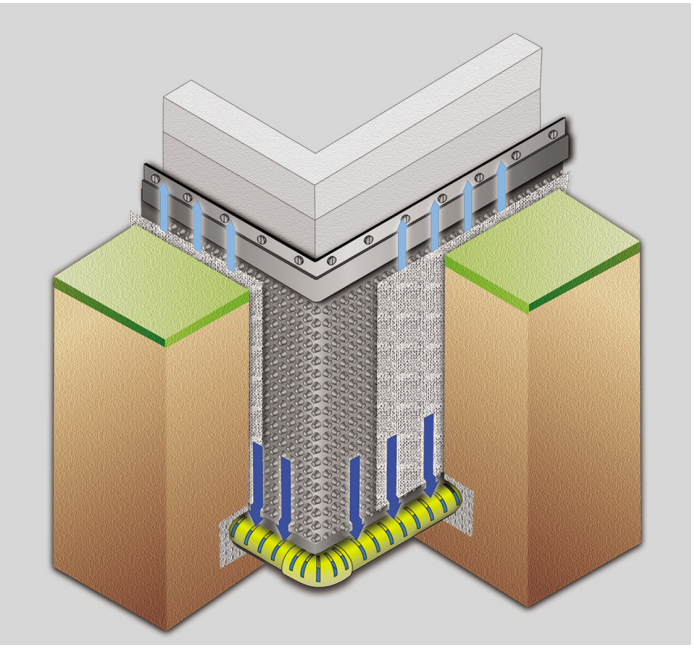
NOTES
Newton 410 Geodrain is resistant to a wide range of chemicals, impervious to root penetration, rot-proof and unaffected by soil bacteria and fungi. John Newton premium-quality products conform to applicable EN and national standards.
*MD = Machine Direction

KEY BENEFITS

- Prevents water pressure from bearing against the structure
- Resistant to all chemicals normally found in the ground
- Withstands stresses and movement acting as a slip membrane as the backfill settles
- Allows for backfilling with excavated earth
- Extremely strong material, minimising the risk of damage when backfilling even when no protection board is used
- Very high compressive strength
- Suspended soil particles (fines) are filtered out by the geotextile layer
- Quick and easy to install with a range of ancillary fixing and installation products

TYPICAL APPLICATIONS

- As the drainage layer of an externally applied waterproofing system when used in conjunction with sheet applied or liquid applied external tanking membrane to BS8102:2009
- Protection of the structure from aggressive chemicals in the ground water
- To prevent the build up of ground water to retaining walls



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NEWTON 410 GEODRAIN

Vertical Protective Drainage Membrane

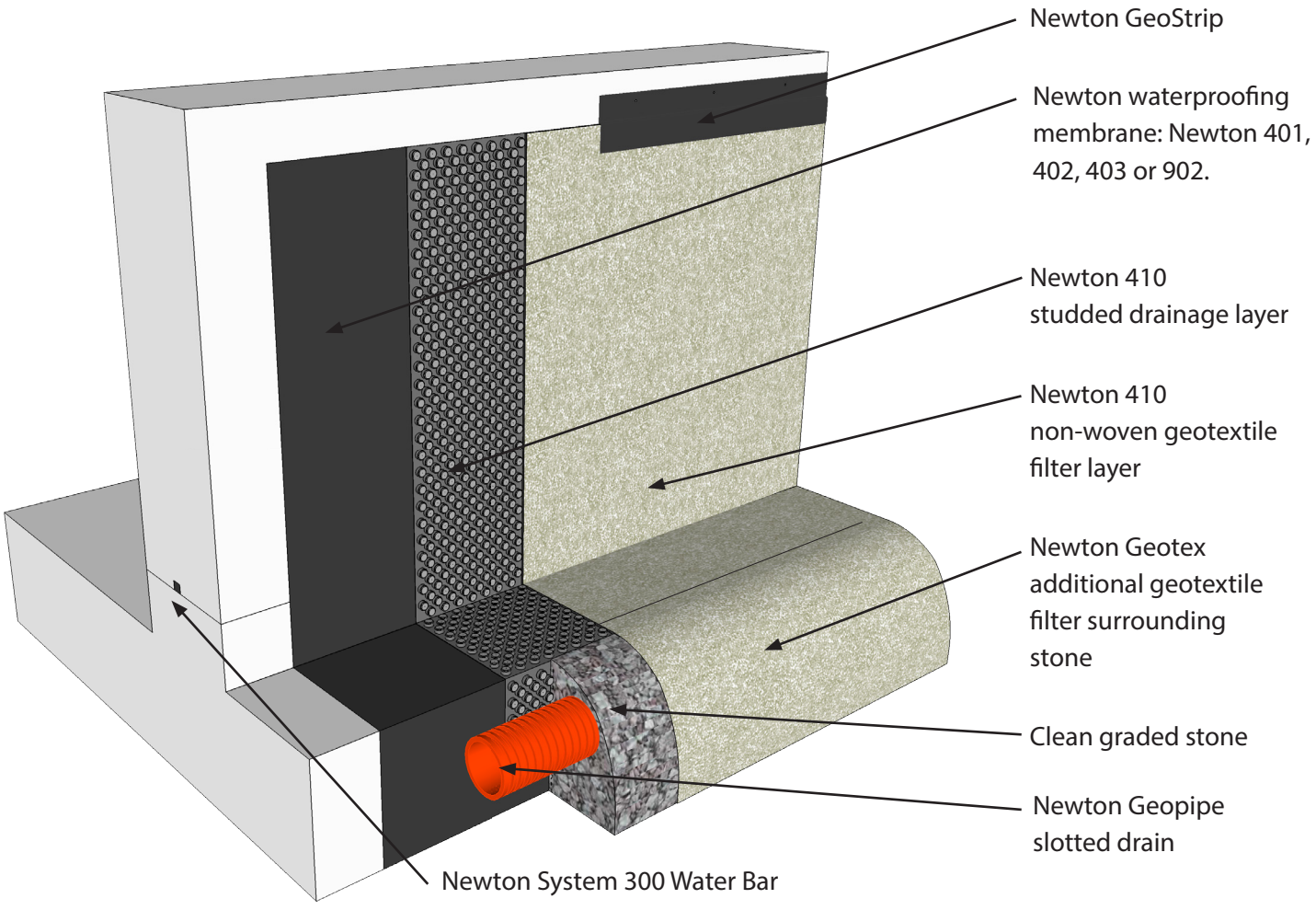
NEW-BUILD WATERPROOFING DESIGN

- Build new structures to the requirements of BS8102:2009. Further guidance is available in CIRIA Report 139 - Water Resisting Basements.
- Use Newton System 300 water-bars at construction joints as part of an effective multi-staged approach to the waterproofing.
- Carry out a geotechnical survey to evaluate soil characteristics and groundwater conditions in accordance with BS 8004. Great care should be taken when considering waterproofing that requires the permanent removal of the ground water to be effective. See BS8102:2009 Section 5. for further guidance.
- The land drain or perforated pipe to the base of an externally applied drainage membrane should be maintainable and graded to an open outlet below the level of the lowest slab. If risk of surcharge exists a John Newton pumped back flow protection device should be used. See BS8102:2009 Section 6.4 for further information.
- Land drains or perforated pipes should be maintainable. Include accessible jetting ports at regular intervals with at least one jetting port to each elevation.

PRIMARY WATERPROOFING MEMBRANE

Newton 410 Geodrain is a drainage membrane, not a waterproofing membrane. Primary waterproofing of the structure should be achieved with one of the following products:

- 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.
- Newton 402 Aquabit is a single component high build membrane that is applied in a single coat of 2.5mm allowing it to level the surface irregularities, typical on cement foundation walls. 402 Aquabit is highly elastic, has good crack bridging capabilities and can be applied to new and existing retained walls.
- Newton 403 HydroBond is a very high performance composite sheet membrane with a hydrophilic coating of modified polymers on one side which swells when in contact with water (swelling rate appr. 250%) to seal defects accidently occurring during the installation process
- Newton 902 is a radon, vapour, water and gas proof liquid applied membrane for use as the primary waterproofing and gas barrier.



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LIMITATIONS

- Should not be used to de water permanently high water levels. See BS8102:2009 Section 5. for further guidance.
- Should not be used as stand-alone product if water or damp and vapour control is required by the specification. Use in conjunction with Newton waterproofing membranes; Newton 401 FlexProof-X1, Newton 402 Aquabit, Newton 403 HydroBond or Newton 902 for radon, vapour and gas control.
- Backfill should be compacted every 600mm to prevent linear shear of the filter fabric from the drainage core if no protection board is used.

INSTALLATION - UNDER THE CONCRETE RAFT

- Lay Newton 410 Geodrain in adjoining strips above the hard-core. Sand blinding is not required. Extend Newton 410 past the footprint of the raft by 500mm and continue to Newton Geopipe slotted drain surrounded in clean graded stone. Overlap and tape sheets with Newton Waterseal Tape.
- Newton 403 SwellFleece should be laid above the Newton 410 Geodrain as the primary waterproofing membrane, prior to the placing of the concrete raft.

INSTALLATION - VERTICAL SURFACES

- Apply Newton waterproofing membrane (see list on page 2.) to walls in accordance with the product data sheets. If Newton 403 SwellFleece has been applied below the raft, link the raft and wall membrane to provide continuous waterproofing.
- Newton 410 Geodrain is supplied in 2m wide sheets. If the foundation wall is less than 2m in height it is possible to fix Newton 410 Geodrain horizontally with no laps. For walls over 2m fix Newton 410 Geodrain in vertical sheets with the Geotextile fabric layer facing the operative and the black drainage layer against the wall being treated. Ensure that the membrane is fitted level. Secure the membrane to the wall with Newton MultiPlug at the top of the sheet. Drill 10mm holes 70mm into the substrate and hammer home the plugs with a club hammer.
- Overlap subsequent sheets of Newton 410 Geodrain ensuring that the filter fabric of the next sheet overlaps the previous studded core - a section of filter fabric is separated from the drainage core for this purpose.
- Seal the edges of sheets using the 60mm flat flange at the edge of each sheet using Newton Waterseal Tape.
- Place Newton Geopipe slotted drain to the base of the foundation so that the top of the drain is below the top of the internal slab level. Place the drain within a bed of clean graded 20mm stone surrounded by a sheet of Newton Geotex filter fabric ensuring that enough Geotex is available to lap to the Newton 410 Geodrain to give continuity of the filter fabric. NOTE: If Newton 410 is used below the raft also, the Geopipe will need to be lowered so it is below the horizontal membrane.
- Ensure the Geopipe drains freely to a safe collection point. If gravity drainage is to be used ensure that the drainage terminates below the level of the internal slab so that drainage surcharge cannot prevent the removal of water from the system. If this is not possible, a Newton pumped back flow protection device should be used to ensure continued removal of water even when the storm water drainage is surcharging as recommended by BS8102:2009. If gravity drainage is not available, discharge the Geopipe to a Newton sump system - a full range is available with chambers of 1.2m to 4.5m depth.
- Seal the Geotex fabric surrounding the Geopipe and clean stone to the filter fabric face of the Newton 410 Geodrain with Newton Waterseal tape, or alternatively carefully place the filter fabric to the face of the Newton 410 so that it is held in place by the back fill.
- Use Newton GeoStrip to the top edge of the membrane to prevent debris and back-fill from entering the cavity between the drainage core and the filter fabric.
- Carefully backfill the excavation. If graded stone is used, a protection board is not required but the stone should be placed in controlled layers of no more than 600mm so as to prevent slump to the membrane. If the removed soil is re-used, ensure that it does not contain sharp stones and ensure that the soil is compacted every 600mm. If sharp stones exist within the re-used soil a protection board will be required.

PACKAGING

Newton 410 Geodrain is supplied in wrapped and labelled 12.5m long x 2.0m rolls.

STORAGE

Newton 410 Geodrain should be stored away from direct sunlight. Rolls should be stored in the upright position.

HEALTH & SAFETY

Newton 410 Geodrain should only be used as directed. There is no legal requirement for a Material Safety Data Sheet MSDS for this product. PPE should be worn at all times when working on building sites including eye protection when drilling or fixing. Working at height and working within excavations safety procedures should be adhered to for your personal protection. See Newton System 400 MSDS for advice on handling, cutting, use of tapes etc. which is available on request from Newton Waterproofing or online via our web site. Please see contact details below.

ANCILLARY PRODUCTS

- Newton Geopipe
- Newton Geostrip
- Newton Geotextile
- Newton Pumped Back-flow Protection Systems
- Newton Waterseal Tape
- Newton MultiPlug

Newton Waterproofing Systems Is A Trading Name Of

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