

# System 500

## NEWTON 520 *eco*

### 20 mm Cavity Drain Membrane

Rev 1.3 - 08 April 2020

PRODUCT CODE - M4 &amp; M13

#### PRODUCT OVERVIEW

*Newton 520 eco is a cavity drain waterproofing membrane made from recycled High Density Polyethylene (HDPE). It is one of the main constituent parts of Newton System 500, our BBA Certified, 'Type C' cavity drain system, used for waterproofing of floors within earth-retained structures, that includes drainage channels sited below the membrane for increased drainage capacity. With its 20 mm deep stud profile, Newton 520 eco is used within Newton System 500 as a high drainage capacity floor membrane and is generally specified where it is anticipated that there may be a risk of severe water penetration.*



*Newton 520 eco is guaranteed against deterioration for 30 years, with a life expectancy of at least the design life of the building (DIN 9001:2000) and is supported by BBA Certification Number 94/3010.*

*Newton 520 eco is inert and, therefore, non-polluting to drinking water, highly resistant to water, alkalies, saline solutions and organic acids, and not affected by minerals and hydro-carbons. It is also impervious to root penetration, is rot-proof, and resistant to bacteria, fungi and other small organisms.*

#### KEY BENEFITS

- Speed of installation
- Made from 100% recycled HDPE
- Provides vapour control and, when used with humidity control systems and is capable of delivering an environment to all levels within a Grade 3 environment to BS 8102:2009
- Resistant to rot, chemically aggressive groundwater, acids and alkalines, efflorescing salts and hydrocarbon contamination
- Product waste is recycled when returned to Newton Waterproofing by Newton Registered Contractors

#### TYPICAL APPLICATIONS

Floor membrane as part of Newton System 500.

#### SUITABLE SUBSTRATE

- Concrete raft or slab
- Newton [Fibran XPS 500-C](#) closed cell extruded polystyrene insulation

#### TRAINING AND COMPETENCY OF THE USER

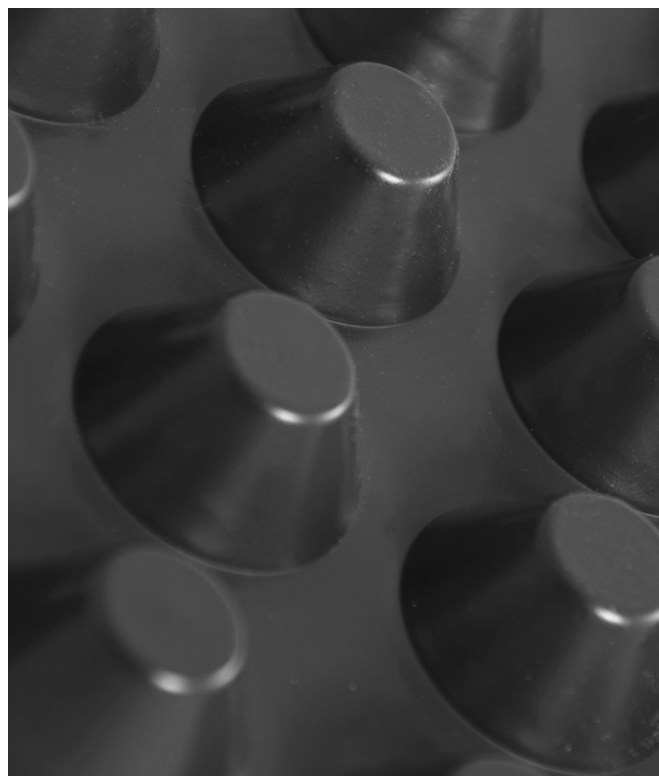
Newton 520 eco is a constituent part of Newton System 500, our Type C, internally waterproofing system. Newton recommend that System 500 is installed by Newton NSBC contractors who are trained by Newton in the correct design and installation of the waterproofing system. This is also a requirement of the BBA Certificate.

#### SPECIALIST TOOLS REQUIRED

- Heat gun

#### INSTALLATION INSTRUCTIONS

Please refer to the [System 500](#) Installation Manual



#### 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 in [Technical Drawings](#). A selection are also available via [FastrackCAD](#), as well as a range of BIM objects on the [NBS National BIM Library](#)

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### TECHNICAL DATA

Features	Result	Units
Material	HDPE	
Colour	Black	
Density	1000	g/m <sup>2</sup>
Width	2.07	m
Length	20.0 & 10.0	m
Area	40 & 20	m <sup>2</sup>
Height	20	mm
Membrane thickness	1.0	mm
Stud depth	19.0	mm
Vicat softening temperature	126	°C
Packaged weight	37.62 / 18.35	kg
Service temperature	-40 to +80	°C

Installed Performance	Result	Units	Test Method
Compressive strength – Temporary loading	240	kPa	EN ISO 25619-2
Compressive strength – Permanent loading	4	kPa	EN ISO 25619-1
Thermal conductivity	0.461	W/mK	EN 12667
Colour	Black		
Water vapour diffusion resistance – Sd value	>604	m	BS EN 1931
Water vapour diffusion resistance – μ value	>1208000	μ	Calculated from SD value
Water vapour diffusion resistance	>3020	MNs/g	Calculated from SD value
Resistance to fire	Euroclass E		BS EN 13501-1
Chemical resistance – Excellent	100	%	EN14030
Oxidation resistance – Excellent	100	%	EN ISO 13438

### LIFE EXPECTANCY

When specified, installed and protected in accordance with the Data Sheet and Installation Manual, and fully and permanently isolated from UV light, physical damage or wearing, and only to those substrates confirmed within, Newton 520 *eco* has a service life that is equal to the design life of the structure.

### PROTECTION OF THE MEMBRANE

The membrane should always be protected by suitable surface finishes.

Protection methods include:

- Screed
- T&G Chipboard
- Timber floor supported by a fixed lattice of timber supports
- Insulation with screed or T&G chipboard above
- Underfloor heating tray with screed above

**NOTE:** Newton 520 *eco* is Fire Rated to Euroclass E, the same as plastic based insulation. As such, the membrane must always be protected from fire by surface finishes, as would be the case with insulation.

### APPLICATION ABOVE INSULATION SPACER

Where the membrane is installed above a spacer of 50 mm of insulation, please ensure the following:

#### Type of insulation

In theory, any XPS insulation that is recommended for use within wet conditions is suitable. Newton Fibran XPS 500-C is specifically designed for use as the Basedrain spacer below the floor membrane.

#### Loading of the insulation

The contact area of the studded membrane with the insulation is only 12.5% of the upper surface area. When calculating loading through the membrane to the insulation, be aware that the load to the floor must be multiplied by 8 to give the representative point load to the insulation.

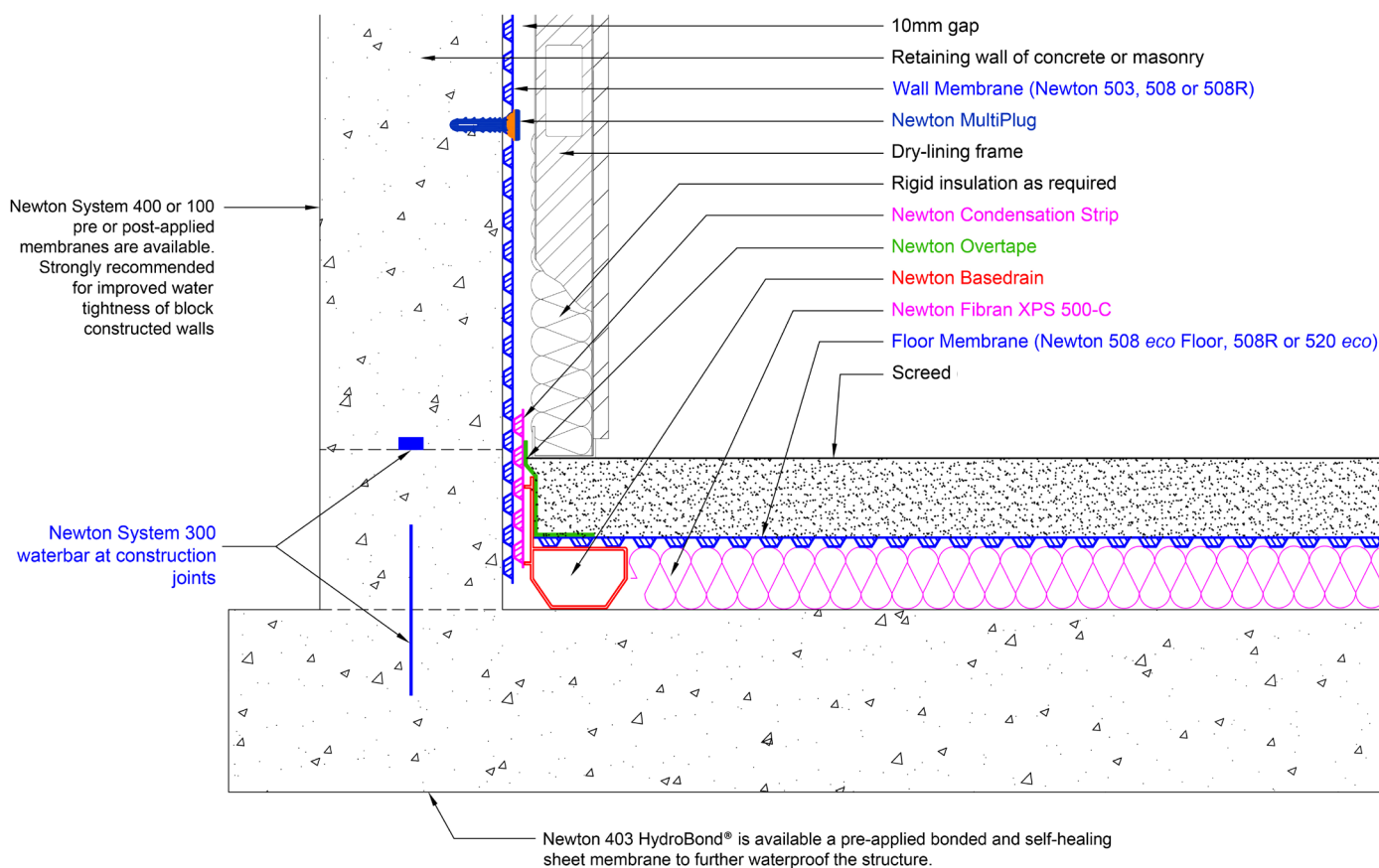
For example:

Floor load is 10kN/m<sup>2</sup>. Multiply by 8 = 80kN/m<sup>2</sup> to give point load above the insulation. *Use only the Compressive creep (design load) max 2% deflection after 50 years figure from the insulation data sheet.* If the point load is too high, please contact Newton Waterproofing for further advice.

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### TYPICAL DETAIL



### ANCILLARY PRODUCTS

Please refer to [System 500](#) Installation Manual.

### PRODUCT WARRANTY

Newton 520 *eco* is supplied with a product warranty of 30 years, and has a life expectancy of at least 100 years (DIN 9001:2000). Please note that this is not a guarantee. The waterproofing guarantee is provided by the specialist waterproofing contractor.

### PACKAGING

Roll of 2.07m x 20.0m - Code M4.

Roll of 2.07m x 10.0m - Code M13.

### COLOUR

Black.

### STORAGE

Store upright in dry conditions at temperatures between 5°C and 25°C. Do not expose to freezing conditions or direct sunlight.

### LIMITATIONS

Has no capability to withstand water pressure. Must be used as part of a Type C cavity drain waterproofing system that safely removes water from the building

### HEALTH & SAFETY

Use product only as stated within the Application Guides. Read the MSDS and System 500 Installation Manual before use.

Newton Waterproofing Systems reserve the right to update product literature at any time. Please always refer to our [website](#) for the latest versions.