

HydroBond 402 CCS-M

Type A - External Pre-Applied Waterproofing Membrane

Revision: 4.7 - 24th May 2023
Code: 402

INTRODUCTION

Newton HydroBond 402 CCS-M is a high performance sheet membrane for the external waterproofing of below-ground foundation structures, basements, water holding tanks, culverts and tunnel bases. Pliable and durable, the membrane negates the requirements for a smooth blinding and protection boards when used as a ground level radon DPM.

A composite of LDPE and a high quality non-woven geotextile fleece, the membrane is very flexible, giving it an excellent crack-bridging capability at places where cracks will occur within the concrete. When pre-applied before placement, the wet concrete is absorbed into the geotextile fleece, integrally bonding the membrane to the concrete. This results in a high-strength bond with exceptional peel adhesion qualities, and so prevents migration of water between the concrete and the membrane, even if the membrane is damaged.

HydroBond 402 CCS-M provides a complete waterproof envelope to the structure to achieve Type A (barrier) waterproofing suitable for Grades 1, 2 and 3 as defined by BS 8102:2022, and is suitable for all below-ground and earth-retained structures from domestic basements to the largest civil engineering projects.

Where the formwork is removed to the outer face of the walls, a range of post applied membranes are available, which overlap onto the HydroBond 402 CCS-M at the raft edge, to fully encapsulate the structure.

HydroBond 402 CCS-M can be used alongside other Newton products to provide a coordinated and combined approach to the waterproofing of the whole structure that includes protection against water penetrating through construction joints, through and around service entries and to movement joints.

Correctly protected, the [HydroBond System](#) will provide, under normal service conditions, a durable waterproof barrier for the life of the building to which it is installed.

KEY BENEFITS

- Full mechanical bond to the concrete prevents water migration between membrane and structure
- Very flexible - Resistant to movement and fissures in substrates
- Unique pre-installed dual component (chemical fusion bond) adhesive laps at membrane selvedge

TYPICAL APPLICATIONS

- As a continuous Type A, externally applied waterproofing membrane and radon barrier to earth-retained structures.
- Below slab DPM and Radon DPM without the need for smooth blinding and protection

SUITABLE SUBSTRATE

Raft or slab:

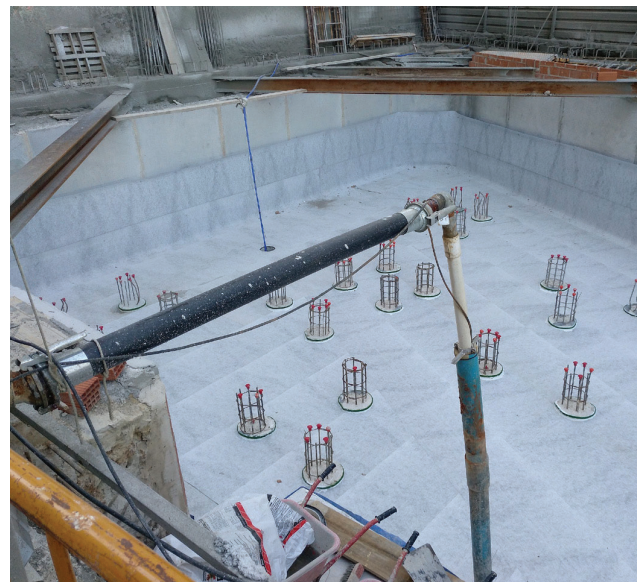
- Concrete blinding
- Compacted type 1 hardcore
- Compacted sand

The following can be placed above the blinding or hardcore prior to the installation of the membrane:

- Void former
- Clay heave board
- Closed-cell flooring grade insulation
- [HydroBond 410 GeoDrain](#)

WALL FORMWORK

- Existing structure
- Secant or contiguous concrete piles
- Metal sheet piles
- Diaphragm walls
- King post wall
- Sufficiently stable ground such as clay or chalk
- Temporary timber shuttering/formwork



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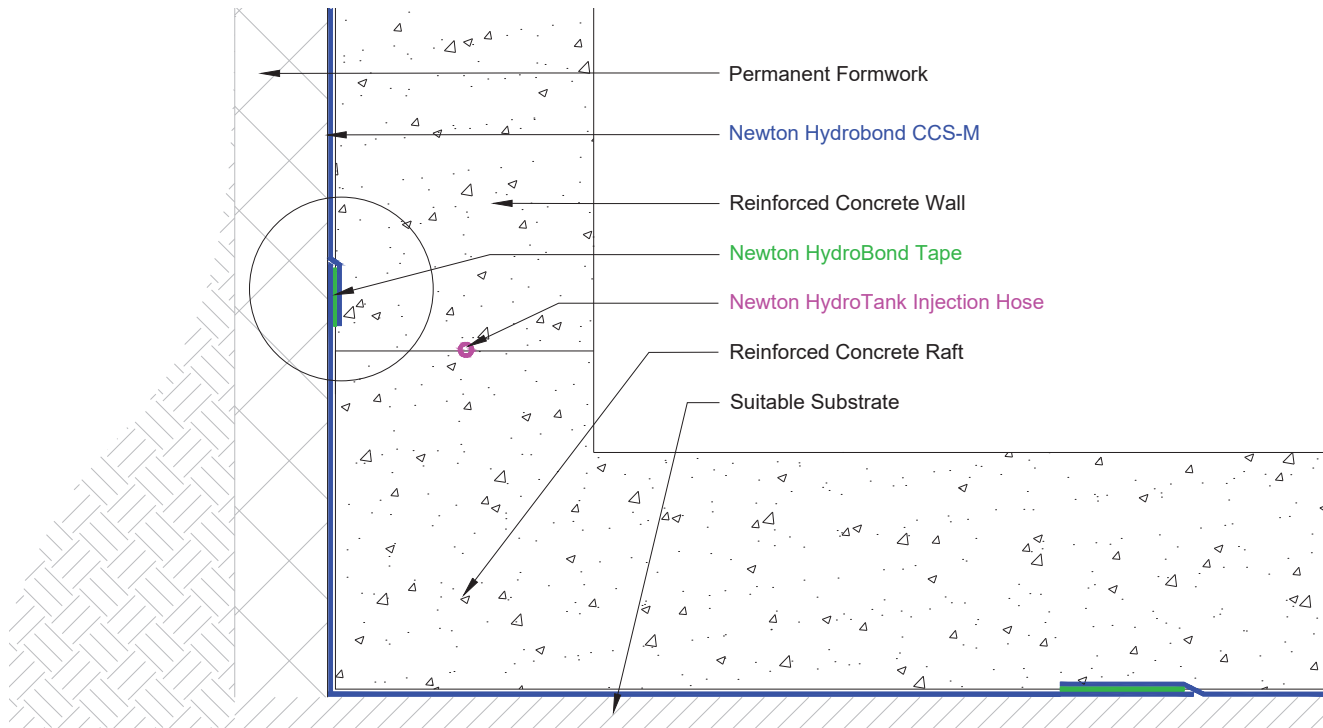
TECHNICAL DATA			
Performance		Units	
Colour	White/Blue		
Material	Composite*		
Width	1.00/2.00	m	
Length	20.00	m	
Area	20.00/40.00	m ²	
Thickness	1.21	mm	
Density	730	g/m ²	
Packaged weight	14.80 / 28.90	kg	
Shelf life	12	Months	
Application temperature	-10 to +40	°C	
Installed Performance	Result	Units	Test Method
Service temperature	-40 to +100	°C	Manufacturer test
Adhesion to concrete - Pre-applied	0.55	N/mm ²	DIN 1048
Adhesion to concrete - Post-applied - 28 day test**	0.55	N/mm ²	DIN 1048
Lateral watertightness - Pre-applied - 7 & 28 day test	500	kPa	BS EN 1928 – Method A
Lateral watertightness - Post-applied - 28 day test**	120	kPa	BS EN 1928 – Method A
Elongation at break (Machine)	29.3	%	DIN EN 12311-2
Elongation at break (Traverse)	53.3	%	DIN EN 12311-2
Tensile strength (Machine)	684	N/50 mm	BS EN 12311-2 / DIN EN ISO 291-23/50-2
Tensile strength (Traverse)	477	N/50 mm	BS EN 12311-2 / DIN EN ISO 291-23/50-2
Water tightness - 60 kPa for 24 h		Watertight	BS EN 1928 – Method A
Water tightness - 400 kPa for 72 h		Watertight	BS EN 1928 – Method B
Resistance to static loading - 20 kg load		Watertight	BS EN 12730 - Methods A, B & C
Resistance to impact – Al plate - 250 mm drop		Watertight	DIN EN 12691 - Method A
Resistance to impact – EPS panel - 700 mm drop		Watertight	DIN EN 12691 - Method B
Joint seam strength - 80 mm adhered overlap	423	N/50 mm	DIN EN 12317-2 / DIN EN ISO 291-23/50-2
Resistance to tearing - Nail shank – Machine direction	252	N	BS EN 12310-1
Resistance to tearing - Nail shank – Across	306	N	BS EN 12310-1
Durability against chemicals - 23°C for 12 weeks		Watertight	DIN EN 1847
Durability against chemicals - 60 kPa for 28 days		Watertight	BS EN 1928 / DIN EN ISO 291-23/50-2
Durability against thermal ageing - 70°C for 12 weeks		Watertight	BS EN 1926
Durability against thermal ageing - 60 kPa for 24 hours		Watertight	DIN EN 1928 / DIN EN ISO 291-23/50-2
Compatibility with Bitumen - 70°C / 28 days		Watertight	BS EN 1548
Compatibility with Bitumen - 60 kPa / 24 hours		Watertight	BS EN 1928 / DIN EN ISO 291-23/50-2
Water vapour diffusion resistance – S _d value	365	m	BS EN 1931 - Method B
Water vapour diffusion resistance – μ value	301653	μ	Calculated from S _d value
Water vapour diffusion resistance	1825	MNs/g	Calculated from S _d value
Radon gas diffusion coefficient	0.39 x 10 ⁻¹²	m ² /s ⁻¹	ISO/TS 11665-13
Resistance to fire		Euroclass E	BS EN 13501-1 / DIN EN ISO 11925-2
	HydroBond Tape	2-C Sealing & Adhesive Compound	Units
Product code	HBT	2-C	
Colour	White/Blue	Black	
Material	Tape	Two-component Polymer	
Width	75	-	mm
Length	20.00 / 40.00	-	m
Area	1.5 / 3.0	-	m ²
Thickness	1.60	-	mm
Density	1,215	1,100	g/m ²
Packaged weight	0.5 / 1.0	30.00	kg
Shelf life	12	12	Months
Application temperature	-10 to +40		°C

*Composite of LDPE with polypropylene fleece. **Adhered to substrate with 2-C Sealing & Adhesive Compound

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TYPICAL DETAIL



SPECIFICATION

Newton Waterproofing Systems work in partnership with RIBA NBS who publish our products on [NBS Source](#). The platform integrates seamlessly into project workflows, providing all product data from Newton's NBS BIM Objects, NBS Plus Clauses and RIBA Product Selector into one single source of product information.

NBS Source also hosts a large selection of Newton [case studies](#), as well as product [literature and certifications](#).

A wide range of drawings are available [on our website](#).

FULLY BONDED MEMBRANES

Type A (barrier) protection membranes should be designed and installed to try to overcome defects as outlined in BS 8102:2022 Section 4.3.2 'Defects and remedial measures'. The requirements for the specific properties of the Type A barrier membrane are outlined in Section 8 of the British Standard, on 'Type A (barrier) protection', including Table 3 – 'Waterproofing barriers'.

EXTERNAL pre- and post-applied membranes are resisting a positive hydrostatic head, therefore it is essential that these systems form a full homogenous tank around the structure. Consequently, the membrane itself and all edge and end laps should be tested for resistance to water pressure.

The membrane should also be fully bonded to prevent water entering from a defect and tracking between

the membrane and the structure; also known as lateral migration of water from a defect as per BS 8102:2022, Figure 9 – 'Effect of bonded or partially bonded barriers'.

This can be tested by BS EN 1928, Method A. The level of full bond and suitability of use is relevant to both the water depth/pressure tested for both lateral migration and watertightness of the membrane and the laps.

INTERNAL post applied membranes are resisting a negative hydrostatic head, therefore have to form a full homogenous tank that will achieve a sound enough bond to the structure to withstand counterthrust water pressure without the need for a loading structure.

This can be tested to DIN 1048/BS EN 1542 and the level of full bond and suitability of use is relevant to both the water depth/pressure tested for both lateral migration and watertightness of the membrane and the laps.

TRAINING AND COMPETENCY OF THE USER

HydroBond 402 CCS-M should be installed 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 BS 8102:2022.

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[Newton Specialist Contractors \(NSBCs\)](#) are trained by Newton Waterproofing Systems in the correct specification and installation of Newton waterproofing products and will provide the client with a meaningful insurance backed guarantee for the waterproofing.

PROTECTION OF THE MEMBRANE

HydroBond 402 CCS-M is pre-applied to the horizontal raft support and to permanent wall support such as a piled wall or building line and so is not exposed to potential damage to these areas.

Where the reinforced concrete wall formwork is removed or where a wall is built from the raft, the removal of the raft edge formwork exposes the HydroBond CCS-M. Both the exposed membrane and the waterproofing applied to the walls requires protection against damage during backfilling. Protection methods include:

- Newton drainage membrane, HydroBond 410 GeoDrain (to sloping sites only)
- Protection board
- Suitable closed cell insulation board

LIFE EXPECTANCY

HydroBond 402 CCS-M will provide, under normal service conditions, a durable waterproof covering for the life of the building to which it is installed. Please note that this is not the guarantee. The waterproofing guarantee is provided by the specialist waterproofing contractor who installs the product. Product clauses can be accessed via the product page on the Newton website.

ANCILLARIES

- HydroBond Tape - Double-sided sealing tape - used to seal joints where there is no adhesive selvage edge, such as at the end of rolls and to the edge of the first roll applied
- 2-C Sealing & Adhesive Compound - S- Two component, high strength adhesive - used to seal the membrane during detailing
- [HydroBond 314-BP](#) - Swelling detailing powder for use where 402 CCS-M terminates to otherwise difficult to detail building elements
- HydroBond 410 GeoDrain - Drainage membrane to move water around the structure on sloping sites. Can also be used as protection for all externally applied membranes
- [HydroSeal / HydroTank 104](#) - Crystalline waterproofing powder used for continuation detailing at piles, capping beams, etc

COLOUR

Locking fleece - White

SPECIALIST TOOLS REQUIRED

No specialist tools needed.

SYSTEM PRODUCTS

- [HydroBond 403 Plus & HydroBond 403 Plus GB](#) - Self healing and fully-bonded, pre-applied sheet membranes. GB is the gas variant.
- [HydroBond-SA & HydroBond-SAGM](#) - Post applied, self-adhesive sheet membranes. GM is the gas variant
- [HydroBond 109-LM](#) - UV-table, single component liquid bitumen that is also a radon barrier
- [HydroBond 410 GeoDrain](#) - Protection board or drainage membrane for sloping sites
- [HydroBond 2K-Flex](#) - Bitumastic paste that cures quickly to form a thick, flexible, membrane
- [HydroBond Protection Board](#)

SYSTEM ANCILLARY PRODUCTS

- Pipe Collar Flexible preformed collar for sealing pipe protrusions
- HydroSeal 203-RM Fast curing repair mortar to fill voids and cracks and to create smoothing fillets
- [Hauff-Technik](#) - Full range of products for the sealing of pipes and service entries

PURCHASE CODES

Product	Purchase Code
• HydroBond 402 CCS-M	402
• HydroBond Tape	HBT
• HydroBond-SAGM	401GM
• HydroBond-SA	401M
• HydroBond-SA Primer	401P
• HydroBond SA Reinforcing Strip	401-RS
• HydroBond 403 Plus	HB-2
• HydroBond 403 Plus GB	HBGB
• HydroBond 2K-Flex	HB-2K
• HydroBond 109-LM	109
• HydroBond 410 GeoDrain	M18
• HydroBond Protection Board	HBPB
• HydroSeal 203-RM	203-RM
• Pipe Collar	A35

PACKAGING

HydroBond 402 CCS-M is supplied in 20 m long rolls at widths of 1.0 m (code 402).

Newton HydroBond Tape is 70 mm wide and supplied at lengths of 20m (code HBT).

LIMITATIONS

- Do not apply at temperatures lower than -10°C or higher than +40°C

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STORAGE


Store in dry conditions at temperatures between +5°C and +25°C. Do not expose to freezing conditions. Do not allow to freeze.

HEALTH AND SAFETY

Use appropriate PPE for the environment the system is installed within. Use products only as stated within this Data Sheet.

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		402 BS EN 13967:2012 0761 Flexible sheets for waterproofing. Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheets	
Essential characteristics to BS EN 13967:2012	Test Standard & Conditions	Result	Unit of measure
Water tightness	BS EN 1928 Method A Water pressure: 2 bar Test period: 24 hrs	Watertight	
Resistance to tearing (nail shank)	BS EN 12310-1 Lengthwise Across	518 ±8.31 470 ±14.8	N N
Joint strength (glued seam)	BS EN 12317-2 Glued seam	100	N/50mm
Tensile properties	BS EN 12311-2 Lengthwise Across	250 200	N/50mm N/50mm
Reaction to fire	13501-1:2019-05	Euroclass E	

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