




<b>Number</b> BAB 17-031/04/A  <b>Replaces:</b> BAB 16-031/03/A	   <b>BDA Agrément® BAB 17-031/04/A</b>	<b>Category</b> Walls, rafts and covered decks of earth retained basements
<b>Date</b> 2017.09.15		<b>Phase</b> Assessment
<b>Project number</b> 17-C-0390/2347		<b>Subject</b> Waterproofing system
<b>Validity</b> www.kiwa.co.uk/bda		
<b>System</b>  <b>Agrément holder</b>  <b>Description</b>  <b>Scope (use)</b>  <b>Objective</b>  <b>Summary of Agrément</b>  <b>Major points of assessment</b>     <b>Statement</b>	<p><b>Newton HydroBond® System</b></p> <p>John Newton &amp; Company Ltd. Newton House Sovereign Way 17- 20 Tonbridge, Kent TN9 1RH, UK</p> <p>T.: +44 (0) 1732 360 095 E.: info@newtonwaterproofing.co.uk W.: www.newtonwaterproofing.co.uk</p>  <p>Waterproofing system, consisting of Newton 403 HydroBond, (hereafter 403 HydroBond) and Newton 108 HydroBond-LM or Newton 109-LM (hereafter HydroBond-LM). 403 HydroBond is available in two variants: 403 HydroBond and 403 HydroBond-GB. Both variants have a hydrophilic polymer coating sealed and constrained between a layer of waterproof LDPE to the outer face and a polypropylene locking fleece to the inner face. 403 HydroBond-GB however, also includes a further layer of aluminium to provide higher resistance to radon, CO<sub>2</sub> and CH<sub>4</sub> gases. 108 HydroBond-LM is sprayed, where space is tight, 109-LM can be applied by roller or brush or small airless spray machine.</p> <p>Continuous waterproofing system to the underside of the raft (403 HydroBond) and the outside of the walls (403 HydroBond or HydroBond-LM) of reinforced concrete earth retained structures, ranging from domestic basements to large civil engineering projects.</p> <p>This document provides independent information to specifiers, building control personnel, contractors, installers and other construction industry professionals with regard to the fitness for the intended use of the System.</p> <p>This Agrément covers the following:</p> <ul style="list-style-type: none"> <li>• Conditions of use;</li> <li>• Sources, including relevant codes of practice and test reports;</li> <li>• Independently verified product characteristics;</li> <li>• Quality control and continuous surveillance;</li> <li>• Points of attention for the specifier and examples of details;</li> <li>• Installation procedure;</li> <li>• Compliance with Building Regulations and non-Regulatory Standards.</li> </ul> <p><b>Water tightness aspects (sections 7.1, 7.2 &amp; 7.3)</b> An essential property of the System concerns the water tightness. The System will resist the passage of water and any other form of moisture or vapour infiltration from the ground.</p> <p><b>Resistance to damage (section 7.4)</b> The System is resistant to damage due to the swelling capacity giving the System the ability of self-healing if damaged by a form of indentation up to isolated damaged areas in the order of 100 mm<sup>2</sup>.</p> <p><b>Behaviour in relation to fire (section 7.6)</b> The waterproofing of reinforced concrete earth retained structures using the System can be designed to meet the UK requirements, as described in section 7.5.</p> <p><b>Resistance to ground gases (sections 3, 7.7 &amp; 9.4)</b> The 403 HydroBond-GB variant of the System includes a further layer of aluminium to provide higher resistance to radon, CO<sub>2</sub> and CH<sub>4</sub> gases, when designed and installed according to BS 8485<sup>26</sup>.</p> <p><b>Durability (section 7.8)</b> The fully protected System will provide under normal service conditions a durable waterproof covering for the life of the building in which it is installed; the expected life time of the building itself should be at least 60 years.</p> <p>It is the opinion of the Kiwa BDA Expert Centre Building Envelope (ECBE) that the System is fit for its intended use, provided it is specified, installed and maintained in accordance with this Agrément.</p> <p>Professor Nico Hendriks, MSc <span style="float: right;">Authorisation: Chris van der Meijden, MSc</span></p> <p>ECBE <span style="float: right;">Kiwa BDA</span> Chairman <span style="float: right;">Technical Director</span></p>	
<b>Version</b> 01	<p style="text-align: center;"><b>Kiwa BDA Expert Centre Building Envelope (ECBE)</b></p> <p><b>Kiwa BDA</b> Avelingen West 33 P.O. Box 389 4200 AJ Gorinchem The Netherlands +31 (0)183 66 96 90</p> <p><b>Kiwa Ltd.</b> Unit 5 Prime Park Way Prime Enterprise Park Derby, DE1 3QB United Kingdom +44 (0)7718 57 05 64</p> <p style="text-align: center;">Copyright© 2017 Kiwa BDA www.kiwa.co.uk/bda</p>	Page 1 of 9 pages

<p><b>1 Conditions of use</b></p>	<p><b>1 Application</b> The application of the System relates to waterproofing the underside of the raft and the outside of the walls of earth retained structures to provide a Type A system. HydroBond-LM is applied to the outside of walls of reinforced concrete, blockwork and ICF walls (when assessed in accordance with section 9.5 of this Agrément and in accordance with the waterproofing manufacturer's recommendations), 403 HydroBond can be applied to the outside of the raft and walls that are constructed of cast in-situ reinforced concrete where it is not possible to use HydroBond-LM, to provide grades 1, 2 and 3 waterproofing protection as defined in BS 8102<sup>2</sup>. The System and its components shall not remain permanently exposed.</p> <p><b>2 Assessment</b> MPA Braunschweig*) and Kiwa BDA Testing**) have assessed the System according to BS EN 13967<sup>3</sup>, ETAG 005:2004<sup>4</sup> and BS ISO 1817<sup>5</sup>; a summary of the test results is given in section 3 of this Agrément. Kiwa BDA Expert Centre Building Envelope (ECBE) have assessed all aspects related to the quality control, specifications, installation procedure and Building Regulations. *) CPR Notified Laboratory Nr. NB 0761 ) CPR Notified Laboratory Nr. NB 1640; Testing Accreditation RvA L 447 (acknowledged by UKAS)</p> <p><b>3 Installation</b> The System shall only be installed by contractors who's employees have been trained and approved by the Agrément holder. The System shall be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément; 108 HydroBond-LM can only be applied by a specialist with a unique spraying machine; 109-LM can be applied by roller, brush or spraying machine.</p> <p><b>4 Geographical scope</b> The validity of this document is limited to England, Wales, Scotland and Northern Ireland, with due regard to section 10. Building Regulations.</p> <p><b>5 Validity</b> The purpose of this BDA Agrément® is to provide for well-founded confidence to apply the System in the described applications and according to approved specifications (see also article 9.6). According to the BDA Guideline – BDA Agrément®<sup>1</sup> the validity of this document is therefore three years after the official date of issue, published on <a href="http://www.kiwa.com.uk/bda">www.kiwa.com.uk/bda</a>. After this the validity can be extended every three years after positive review, among others based on the annual verification results and under the strict condition that the EC FPC Certificate<sup>9</sup> also remains valid (see also section 6).</p>	
<p><b>2 Sources</b></p>	<p>1 BDA Guideline – BDA Agrément®, 30<sup>st</sup> June 2015 2 BS 8102:2009 Code of practice for protection of below ground structures against water from the ground 3 BS EN 13967:2012 Flexible sheets for waterproofing. Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet. Definitions and characteristics 4 ETAG 005:2004, parts 1, 2 and 7 Guideline for European Technical Approval of Liquid Applied Roof Waterproofing Kits 5 BS ISO 1817:2005 Rubber, vulcanized – Determination of the effect of liquids 6 MPA Braunschweig: General building authority test certificate P-5252/587/13-MPA BS, testing of HydroBond membrane according to BS EN 13967<sup>3</sup>, 2016-08-01 7 BDA Agrément® BAR 13-029/01/A Novapren, 2014-04-01 (in Dutch) 8 Kiwa BDA Testing report 0016-C-14/1 Determination of the swelling capacity of 403 HydroBond according to BS ISO 1817<sup>5</sup>, 2014-03-31 9 MPA Braunschweig: Certificate of conformity of the factory production control 0761 - CPR – 0569 (concerning 403 HydroBond), 2016-12-12 10 BS EN 1504-2:2004 Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 2: Surface protection systems for concrete 11 Data Sheet Newton 403 HydroBond, John Newton &amp; Company Ltd., 2017-08-07 12 Installation Manual Newton 403 HydroBond, John Newton &amp; Company Ltd., rev. 4.0 2017-08 13 Data Sheet Newton 108 HydroBond-LM, John Newton &amp; Company Ltd., 2017-08-07 14 ATG 3070 (concerning HydroBond-LM) Waterproofing of below ground structures, BCCA, 2017-02-07 15 MSDS Newton 403 HydroBond, 2017-08-09 16 MSDS Newton 108 HydroBond-LM, 2017-04-05</p>	
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<p><b>2 Sources</b> (continued)</p>	<p>17 BDA report 13-G-0153 Inspection report Newton 403 HydroBond and Newton HydroBond-LM workshop, projects and factory, 2014-01-29</p> <p>18 NHBC Standards 2017 Chapter 2.1 The Standards and Technical Requirements and Chapters 5.1 Substructure and ground bearing floors and 5.4 Waterproofing of basements and other below ground structures</p> <p>19 BS ISO 3374:2000 Reinforcement products. Mats and fabrics. Determination of mass per unit area</p> <p>20 Kemski, radon Test report No: 2016112901d Radon diffusion coefficient of 403 HydroBond according to DIN ISO 11665-10, Dr. Joachim, expert, 2016-11-23 (<i>in German</i>)</p> <p>21 Test report No: 124019/2017 Radon diffusion coefficient of HydroBond-LM according to ISO/TS 11665-13, Czech Technical University in Prague – Faculty of Civil Engineering – Test Laboratory, 2017-05-15</p> <p>22 ISO/DIS 11665-10.2:2012 Measurement of radioactivity in the environment -- Air: radon-222 -- Part 10: Determination of diffusion coefficient in waterproof materials using activity concentration measurement</p> <p>23 ISO/TS 11665-13:2016 Measurement of radioactivity in the environment -- Air: radon-222 -- Part 13: Determination of the diffusion coefficient in waterproof materials: membrane two-side activity concentration test method</p> <p>24 Kiwa GmbH TBU Test Report No. 1.1 / 19336 /0033.0.1-2017e – CO<sub>2</sub> / CH<sub>4</sub>, Newton HydroBond System, according to ISO 15105-1, 2017-03-20</p> <p>25 ISO 15105-1:2007 Plastics -- Film and sheeting -- Determination of gas-transmission rate -- Part 1: Differential-pressure methods</p> <p>26 BS 8485:2015 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings</p> <p>27 Test report CO<sub>2</sub> / CH<sub>4</sub> permeation Newton HydroBond System with joint</p> <p><b>Remark:</b> in the text of this document reference is made to some of these sources by adding the relevant reference number in superscript</p>
<p><b>3 Independently verified system characteristics of components used for critical functions<sup>*)</sup></b></p>	<p><sup>*)</sup>The critical functions which apply to this section and section 4 are the behaviour in relation to fire, weatherproofing and durability, as mentioned in Chapter 2.1, Technical Requirement R3 (Materials requirement) of the NHBC Standards<sup>18</sup></p> <p><b>403 HydroBond</b></p> <ul style="list-style-type: none"> <li>• identification properties BS EN 1848-2 / BS EN 1849-2 <ul style="list-style-type: none"> <li>- nominal dimensions (rolls) : 20.0 m x 1.0 m</li> <li>- min. thickness<sup>8</sup> : 1.20 mm</li> <li>- min. mass<sup>6</sup> : 1.235 kg.m<sup>-2</sup></li> <li>- colour : white / grey</li> </ul> </li> <li>• swelling capacity<sup>8</sup> BS ISO 1817<sup>5</sup> <ul style="list-style-type: none"> <li>- water on one side only, at 20 °C, linear : 28 % (L/L)</li> <li style="padding-left: 150px;">by volume : 111 % (V/V)</li> <li style="padding-left: 150px;">at 5 °C, linear : 12 % (L/L)</li> <li style="padding-left: 150px;">by volume : 39 % (V/V)</li> </ul> </li> <li>• reaction to fire classification<sup>6</sup> BS EN 13501-1 : Euroclass E</li> <li>• water vapour diffusion resistance<sup>6</sup> BS EN 1931 : 0.78 m (SD value)</li> <li>• water tightness at 400 kPa/72h<sup>6</sup> BS EN 1928 : watertight</li> <li>• compatibility with bitumen BS EN 1548 / BS EN 1928 <ul style="list-style-type: none"> <li>- after 28 days storage in at 2 kPa/24 h<sup>6</sup> : watertight</li> </ul> </li> <li>• resistance against chemicals<sup>6</sup> <ul style="list-style-type: none"> <li>- water tightness BS EN 1847 / BS EN 1928</li> <li style="padding-left: 20px;">after 28 days storage in Ca(OH)<sub>2</sub> at 2 kPa/24 h<sup>6</sup> : watertight</li> </ul> </li> <li>• resistance to tearing BS EN 12310-1 <ul style="list-style-type: none"> <li>- nail shank<sup>6</sup>, machine direction : ≥ 135 N</li> <li style="padding-left: 100px;">transverse machine direction : ≥ 175 N</li> </ul> </li> <li>• joint strength of glued seam (long edge)<sup>6</sup> <ul style="list-style-type: none"> <li>- shear resistance BS EN 12317-2 <ul style="list-style-type: none"> <li>• as delivered : ≥ 400 N.(50 mm)<sup>-1</sup></li> <li>• after water ageing : ≥ 150 N.(50 mm)<sup>-1</sup></li> <li>• after water ageing, seam with “sealing” (SX<sup>®</sup> 100 polymer hydrophilic paste) : ≥ 350 N.(50 mm)<sup>-1</sup></li> </ul> </li> </ul> </li> <li>• impact resistance, imposed load of 20 kg BS EN 12730 : watertight</li> <li>• tensile properties<sup>6</sup> BS EN 12311-2 <ul style="list-style-type: none"> <li>- tensile strength, machine direction : ≥ 350 N.(50 mm)<sup>-1</sup></li> <li style="padding-left: 100px;">transverse machine direction : ≥ 265 N.(50 mm)<sup>-1</sup></li> </ul> </li> </ul>
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<p><b>3 Independently verified system characteristics of components used for critical functions<sup>*)</sup></b> (continued)</p>	<p><b>403 HydroBond-GB</b> This product is a variant of 403 HydroBond. Both variants have a hydrophilic polymer coating to the outer face and a PE locking fleece to the inner face. 403 HydroBond-GB includes a further layer of aluminium to provide higher resistance to radon, CO<sub>2</sub> and CH<sub>4</sub> gasses, the relevant special properties are given hereafter.</p> <ul style="list-style-type: none"> <li>• radon diffusion coefficient D<sup>22</sup> DIN ISO 11665-10<sup>20</sup> : 0.18 + 1.1/-0.5 10<sup>-11</sup>m<sup>2</sup>.s<sup>-1</sup></li> <li>• determination of gas transmission rate ISO 15105-1<sup>25</sup> <ul style="list-style-type: none"> <li>- methane permeability at 23°C/0 % RH<sup>24,27</sup> <ul style="list-style-type: none"> <li>• without joint : 0.44 ml.(m<sup>2</sup>.d.atm)<sup>-1</sup></li> <li>• with HydroBond Gas Tape sealed joint : ml.(m<sup>2</sup>.d.atm)<sup>-1</sup></li> </ul> </li> <li>- carbon dioxide permeability at 23°C/0 % RH<sup>24,27</sup> <ul style="list-style-type: none"> <li>• without joint : 1.94 ml.(m<sup>2</sup>.d.atm)<sup>-1</sup></li> <li>• with HydroBond Gas Tape sealed joint : ml.(m<sup>2</sup>.d.atm)<sup>-1</sup></li> </ul> </li> </ul> </li> </ul> <p><b>HydroBond-LM</b></p> <ul style="list-style-type: none"> <li>• identification properties <ul style="list-style-type: none"> <li>- average thickness, as applied<sup>13</sup> : 1.6 mm</li> </ul> </li> <li>• reaction to fire classification BS EN 13501-1<sup>14</sup> : Euroclass E</li> <li>• water vapour diffusion resistance factor, μ-value<sup>14</sup> : 11,590 -</li> <li>• water vapour diffusion resistance BS EN 1931, s<sub>D</sub><sup>14</sup> : 18.5 m</li> <li>• water vapour diffusion resistance, calculated : 92.7 MNs.g<sup>-1</sup></li> <li>• resistance to static indentation EOTA TR 007:2004 - 250 N (on concrete)<sup>7</sup> : watertight (3x)</li> <li>• radon diffusion coefficient D<sup>21</sup> ISO/TS 11665-13<sup>23</sup> : 2.1 ± 0.2 10<sup>-11</sup>m<sup>2</sup>.s<sup>-1</sup></li> </ul>	
<p><b>4 Assessed ancillary items and associated products used for critical functions<sup>*)</sup></b> <sup>*)</sup> See section 3</p>	<p><b>403 HydroBond</b></p> <ul style="list-style-type: none"> <li>• installation temperature<sup>11</sup> : -10 to +40 °C</li> <li>• service temperature<sup>11</sup> : -40 to +100 °C</li> <li>• peel strength on concrete M.O.A.T. 64:2001, fixed : ≥ 200 N.(50 mm)<sup>-1</sup></li> <li>• Newton HydroBond Tape – Double sided adhesive tape – 20 m length x 70 mm width</li> <li>• Newton 106 FlexProof-X1 – Paste for repairs &amp; detailing – 290 mm cartridges or tubs of 5, 15 or 26 kg</li> <li>• Newton 104 – Crystalline waterproofing powder – Bags of 25 kg</li> <li>• Newton 203-RM - fast setting and curing mortar used to quickly form 45° angled fillets at junctions between walls and floors or soffits</li> <li>• Newton 301 EasyProof – Weather tolerant metal waterbar system for kickerless raft wall joints</li> <li>• Newton 315 Polymer waterbar used to waterproof joints in concrete</li> <li>• Newton 307 PipeSeal – EPDM Pipe Flange</li> <li>• Newton PipeCollar – Fabric reinforcement collar – 100 mm diameter</li> <li>• Newton 311 FlexJoint – Compressible filler board</li> <li>• Newton 314 BP - Bentonite Powder. Hydrophilic detailing powder for sealing edges of 403 HydroBond to vertical surfaces and piles etc.</li> <li>• Newton 410 Geodrain - Drainage membrane to move water around the structure on sloping sites</li> <li>• Ground gas proof variant 403 HydroBond-GB (see section 3)</li> <li>• Newton HydroBond Gas Tape, 300 mm wide, to seal the laps of 403 HydroBond-GB</li> </ul> <p><b>HydroBond-LM</b></p> <ul style="list-style-type: none"> <li>• installation temperature<sup>13</sup> : +5 to +35 °C</li> <li>• service temperature<sup>13</sup> : -15 to +40 °C</li> <li>• Newton 109-LM Hand applied version of Newton 108 HydroBond-LM to be applied by roller or brush in details, where use of the spraying machine is not possible due to limited access or working room</li> <li>• Newton 914-RT Strengthening tape for changes in direction and joints</li> </ul>	
<p><b>5 Quality control</b></p>	<p>System components are produced under a Quality Management System, which enables the Agrément holder to demonstrate that the components fulfil the requirements of this Agrément. This means that the following aspects are covered:</p> <ul style="list-style-type: none"> <li>• the quality objectives, quality planning, quality manual and control of documents must fully take on-board the objective of delivering system components that conform to the specifications in this Agrément;</li> <li>• the supplier must identify and document the essential requirements that are relevant for the components and the harmonised standards to be used or other technical solutions that will ensure fulfilment of the specifications in this Agrément;</li> </ul>	
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<p><b>5 Quality control</b> (continued)</p> <p><b>6 Continuous surveillance</b></p> <p><b>7 Points of attention for the specifier</b></p>	<ul style="list-style-type: none"> <li>• the identified standards or other technical solutions must be used as design input, and as verification that design output, as given in a continuous technical consulting service, ensures that the specifications in this Agrément will be met;</li> <li>• the measures taken by the Agrément holder to control production must ensure that the components conform to the identified safety requirements;</li> <li>• the Agrément holder in its measurement and control of the production process and finished components must identify and use methods which are identified in standards or other appropriate methods to ensure that the specifications in this Agrément are met; and</li> <li>• quality records, such as inspection reports and test data, calibration data, qualification reports of the personnel concerned, must be suitable to ensure the fulfilment of the applicable specifications in this Agrément;</li> <li>• MPA Braunschweig, Notified Body 0761, has performed the initial inspection of the factory and of the Factory Production Control (FPC) of Newton 403 HydroBond and performs the continuous surveillance and approval of the FPC. In compliance with the CPR it has been stated that the construction product 403 HydroBond is submitted by the manufacturer to the initial type-testing of the products of samples taken at the factory in accordance with a prescribed test plan; the EC FPC Certificate 0761-CPR-0569<sup>9</sup> attests that all provisions concerning the attestation of conformity and the performances described in Annex ZA of BS EN 13967<sup>3</sup> was applied and that the product fulfils all the prescribed requirements.</li> </ul> <p><b>403 HydroBond</b> In order to demonstrate that the Factory Production Control (FPC) is in conformity with the requirements of the technical specification described in this Agrément, the continuous surveillance, assessment and approval of the FPC will be done in a frequency of at least once per year by or on behalf of ECBE. For the purpose of the annual assessment a sample of the product will be independently taken at the workshop store of the Agrément holder. Certificate 0761-CPR-0569<sup>9</sup> of 403 HydroBond is valid until the 2021-12-11 and remains valid subject to satisfactory surveillance audits and the conditions in the factory or the FPC itself are not modified significantly, see section 1, article 5. The annual assessment will concern the following product characteristics, which will be determined and assessed by Kiwa BDA Testing and ECBE:</p> <ul style="list-style-type: none"> <li>• thickness, BS EN 1849-2:2009</li> <li>• width, BS EN 1848-2:2001</li> <li>• length, BS EN 1848-2:2001</li> <li>• mass, BS EN 1849-2:2009</li> <li>• swelling capacity, BS ISO 1817:2005, one side only</li> <li>• joint strength of glued seam (long edge), shear strength, BS EN 12317-2:2010</li> </ul> <p><b>Remark:</b> If, at the time of the verification testing, a new version of a mentioned Test Standard has been issued, the newer version shall prevail</p> <p><b>1 Waterproofing design</b></p> <ul style="list-style-type: none"> <li>- the System is designed for below-ground vertical and horizontal structural foundation surfaces;</li> <li>- the design of the waterproofing of the earth retaining structure shall be in accordance with BS 8102<sup>2</sup>;</li> <li>- typical applications include backfilled concrete walls, structural slabs, covered rafts and property line construction; property line construction applications include secant and contiguous piling, skin wall, metal sheet piling, shotcrete and stabilized earth retention walls;</li> <li>- the System is satisfactory for use as waterproofing and damp proofing for type A basement constructions grades 1, 2 and 3 as defined in BS 8102<sup>2</sup>;</li> <li>- the construction should conform with current Building Regulations, British Standards and relevant Codes of Practice;</li> <li>- new concrete should be designed by a Structural Engineer to BS EN 1992 (Eurocode 2; formally BS 8110 &amp; BS 8007) to be structurally capable for the intended use as an earth retained structure, resisting loading from earth as well as water pressure as recommended within BS 8102<sup>2</sup>;</li> <li>- the hydrophilic coating expands by 40 – 110 % (V/V) when in contact with water and seals small holes that may be accidentally formed during fixing of the reinforcing steel or the pouring and compaction of the concrete; it must be confined to ensure a watertight seal is achieved in service;</li> <li>- where shuttering is to be removed to expose the outer face of the concrete walls, HydroBond-LM should be used to complete the System;</li> </ul>	<p>Page 5 of 9 pages</p>
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<p><b>7 Points of attention for the specifier</b> (continued)</p>	<ul style="list-style-type: none"> <li>- when installed in accordance with section 9 of this Agrément the System will provide for a durable resistance against the passage of water and any other form of moisture or vapour infiltration from the ground;</li> <li>- HydroBond-LM must be protected prior to back-fill; suitable protection includes: <ul style="list-style-type: none"> <li>• Protection board</li> <li>• Suitable insulation</li> <li>• Newton 410 Geodrain</li> </ul> </li> <li>- the System and its components shall not remain permanently exposed.</li> </ul> <p><b>2 Acceptable surfaces</b> Within the framework of this Agrément the following substrates are allowed to be waterproofed with the System (see also the figures in section 8), with due respect to article 7.1 and the NHBC Standards, reference <b>R3 a), iv)</b>: <b>403 HydroBond:</b></p> <ul style="list-style-type: none"> <li>- concrete blinding</li> <li>- clay Heave Boards</li> <li>- compacted Type 1 Hardcore</li> <li>- removable formwork</li> <li>- sufficiently stable ground such as clay or chalk</li> <li>- rigid insulation</li> <li>- Newton 410 Geodrain drainage membrane</li> <li>- adjacent substructures as permanent formwork</li> <li>- piled cut off walls</li> </ul> <p><b>HydroBond-LM:</b></p> <ul style="list-style-type: none"> <li>- concrete walls</li> <li>- block walls</li> <li>- ICF walls</li> <li>- reinforced and preformed concrete decks</li> </ul> <p>The fitness for purpose of the substrates shall be established according section 9, article 6 of this Agrément</p> <p><b>3 Water tightness</b></p> <ul style="list-style-type: none"> <li>- an important property of the System concerns the water tightness; the System will resist the passage of water and any other form of moisture or vapour infiltration from the ground;</li> <li>- tests<sup>6,8</sup> have shown that basement constructions waterproofed with the System when installed in accordance with section 9 of this Agrément meet or comply with the relevant requirements of the national Building Regulations of England and Wales, Scotland and Northern Ireland.</li> </ul> <p><b>4 Resistance to damage</b></p> <ul style="list-style-type: none"> <li>- the System is resistant to damage, due to the swelling capacity giving the System the ability of self-healing if damaged by puncturing or another form of indentation;</li> <li>- the membrane is resistant to normal site activities; however, to prevent damage from ongoing work, full protection should be temporarily provided to the installed membrane and removed prior to the installation of reinforcement.</li> </ul> <p><b>5 Protection from gas-contaminated land</b></p> <ul style="list-style-type: none"> <li>- buildings in areas of risk from radon should be constructed in accordance with the recommendations of: <ul style="list-style-type: none"> <li>• BRE Report 211: 2007 <i>Radon: Guidance on protective measures for new buildings</i></li> <li>• BRE Report 212: 1991 <i>Construction of new building on gas-contaminated land</i></li> <li>• BRE Report 376: 1999 <i>Radon: Guidance on protective measures for new buildings in Scotland</i></li> <li>• BRE Report 413: 2001 <i>Radon: Guidance on protective measures for new buildings in Northern Ireland</i></li> <li>• BRE Report 414: 2001 <i>Protective measures for housing on gas contaminated land</i></li> </ul> </li> <li>- when installed in accordance with BRE Report 414 the waterproofing system will be compliant with the recommendations made in CIRIA C665 : 2007 <i>Assessing risks posed by hazardous ground gases to building</i>, BS 8485<sup>26</sup>, BRE Report 211 and NHBC Standards, chapter 5.1.4. Guidance is given in the <i>Ground Gas Handbook</i>, 2009 and this Agrément.</li> </ul>	
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<p><b>7 Points of attention for the specifier</b> (continued)</p>	<p><b>6 Behaviour in relation to fire</b></p> <ul style="list-style-type: none"> <li>- the System does not prejudice the fire-resistance properties of the building, the <i>waterproofed</i> earth retaining structure being fully covered with earth. Therefore, the components of the System will not contribute to the development stages of a fire or present a smoke or toxic hazard;</li> <li>- when properly installed, the System will not add significantly to any existing fire hazard;</li> <li>- the continuity of fire resistance must be maintained, for example as described in: England and Wales- Approved Document B, Volume 1, Sections 5.11 to 5.12; Scotland-Mandatory Standard 2.2, clause 2.2.10; Northern Ireland-Technical Booklet E, paragraph 3.21; the use of the System will not affect the fire rating obtained by concrete or block walls when evaluated by assessment to BS 476-3:2004.</li> </ul> <p><b>7 Resistance to ground gases</b> The 403 HydroBond-GB variant of the System includes a further layer of aluminium to provide higher resistance to radon, CO<sub>2</sub> and CH<sub>4</sub> gases, when designed and installed according to BS 8485<sup>26</sup>, see also sections 3 and 7.5. This also means that for the sealing of the laps Newton HydroBond Gas Tape shall be used, see section 4.</p> <p><b>8 Durability</b> Under normal service conditions the fully protected System will provide a durable waterproof covering for the life of the building in which it is installed.</p>
<p><b>8 Specific details</b></p>	<p>The given details are just examples and not exhaustive. Further details are available and are considered to be encompassed within this Agrément. See also <b>Remark 1</b>.</p> <p><i>Figure 1 – Back-fill protection. Please see section 7.1</i></p> <p><i>Figure 2 – Typical detail of interface between concrete slab and basement wall with Newton 403 HydroBond</i></p> <p><i>Figure 3 – Typical detail of pipe protrusion</i></p> <p><i>Figure 4 – Typical detail of movement joint</i></p> <p><i>Figure 5 – Typical detail of interface with pile</i></p> <p><i>Figure 6 – Typical detail of interface with small pile</i></p> <p><i>Figure 7 – Typical detail of connection between wall and covered deck</i></p> <p><b>Remark 1:</b> As part of the required technical consulting service (see paragraph 9.6) the Agrément holder can provide, for special (CAD) details, for example on connections, protrusions and movement joints.</p> <p><b>Remark 2:</b> The Agrément holder hosts regular training programmes to provide contractors with the necessary skills and product knowledge to become a fully system specific certified Newton Approved Contractor.</p>
<p><b>9 Installation aspects</b></p>	<p><b>1 General</b></p> <ul style="list-style-type: none"> <li>- the System shall be installed strictly in accordance with the instructions of the Agrément holder<sup>12,14</sup> and the requirements of this Agrément and only by contractors whose employees have been trained and approved by the Agrément holder. 109-LM can be applied by spraying, roller or brush; 108 HydroBond-LM can only be sprayed by those who have access to a suitable spraying machine;</li> <li>- special attention shall be given to the cleaning and preparing of all areas and connections involved before the System components are installed, see sections 9.3 and 9.4.</li> </ul> <p><b>2 Delivery and site handling</b></p> <ul style="list-style-type: none"> <li>- the components of the System are delivered on site in rolls (403 HydroBond), packaged to a crate or containers (HydroBond-LM); the label should include product component name, the suppliers name, health and safety information, weight, the BDA identification mark, preparation and installation instructions and the number of this Agrément; it is recommended to read the Material Safety Data Sheets (MSDS)<sup>15,16</sup> carefully prior to the opening of the containers;</li> <li>- the rolls and containers should be stored in clean, dry conditions, not exposed to sunlight, at temperatures between 5 °C and 25 °C;</li> <li>- the rolls and containers must be protected from being dropped or crushed by objects; care must be exercised when storing large quantities on site;</li> </ul>
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<p><b>9 Installation aspects</b> (continued)</p> <p><b>10 Building Regulations</b></p>	<ul style="list-style-type: none"> <li>- the components must not be exposed to open flame or other ignition sources and must be stored away from flammable material such as paint and solvents;</li> <li>- to ensure maximum performance of the components when installed, on site precautions must be taken to protect them from mud and dirt.</li> </ul> <p><b>3 403 HydroBond</b></p> <ul style="list-style-type: none"> <li>- it is recommended, depending on weather conditions, grade of defilement and humidity, to pour the concrete within a period of 0 – 28 days after installation of the product; however due to site specific conditions in all instances the advice of the Agrément holder shall be sought;</li> <li>- before the installation of reinforcement steel, formwork and pouring of the concrete the 403 HydroBond layer shall be cleaned, removed from any standing water, checked thoroughly and properly repaired where necessary according to the installation instructions of the Agrément holder, see Installation Manual Newton 403 HydroBond<sup>12</sup>, page 5;</li> <li>- the concrete shall never be poured on an ice layer of frozen polyester fleece;</li> <li>- it is recommended to start with the detailing; guidance is given in section 8 and the Installation Manual Newton 403 HydroBond<sup>12</sup>.</li> </ul> <p><b>4 403 HydroBond-GB</b></p> <p>The installation of the 403 HydroBond-GB variant of the System is identical to the installation of 403 HydroBond apart from the sealing of the laps, which shall be done with Newton HydroBond Gas Tape. 403 HydroBond-GB shall be installed according to BS 8485<sup>26</sup>, see also sections 3, 4 and 7.5.</p> <p><b>5 HydroBond-LM</b></p> <ul style="list-style-type: none"> <li>- all surfaces to be waterproofed shall be structurally stable, clean, dry and free from release agents, dust, laitance, oils, paints or other forms of contamination;</li> <li>- after cleaning and preparation of the substrate is complete, all surfaces shall be inspected for surface irregularities and suitable repairs made according to the installation instructions of the Agrément holder<sup>14</sup>;</li> <li>- HydroBond-LM shall not be applied at an ambient temperature &lt; 5 °C;</li> <li>- at windy circumstances special care shall be given to limit the spray haze; measures shall be taken to avoid contamination and the circumstances shall be assessed to judge if the installation can go on or not;</li> <li>- the spraying shall not be started if precipitation is expected within one hour;</li> <li>- it is recommended to start the application at the lowest part of the wall;</li> <li>- it is recommended to start with the detailing; guidance is given in section 8 and in the HydroBond-LM Application Guide<sup>14</sup>.</li> </ul> <p><b>6 Fitness for purpose of the substrate for HydroBond-LM</b></p> <ul style="list-style-type: none"> <li>- the application of HydroBond-LM is only allowed on a substrate fit for purpose; it is essential that the following specific performance requirements are met: <ul style="list-style-type: none"> <li>• flatness in accordance with the relevant clauses of BS 8102<sup>2</sup></li> <li>• durable strength and stiffness of the structure which must be capable of absorbing all forms of external loadings as established by a Structural Engineer to BS EN 1991 (Eurocode 1)</li> <li>• durable adhesion and pre-treatment of the substrate in accordance with the relevant clauses of BS 8102<sup>2</sup></li> </ul> </li> <li>- in case the fitness for purpose has not been demonstrated, installation of HydroBond-LM is not allowed within the framework of this Agrément.</li> </ul> <p><b>7 Maintenance</b></p> <ul style="list-style-type: none"> <li>- as the System is confined by concrete or protected by lost shuttering and earth (403 HydroBond) or protected by specific measures and earth (see section 7), maintenance is not required, provided that no part of the System remains permanently exposed;</li> <li>- the Agrément holder must continue to provide a technical consulting service, such as but not limited to special (CAD) details.</li> </ul> <p><b>1 Requirements: The Building Regulations 2010 and subsequent amendments</b></p> <ul style="list-style-type: none"> <li>- A1 Loading – when adequately confined, the System contributes to satisfying this Requirement. See section 8 of this Agrément;</li> <li>- B3(4) Internal fire spread (structure) – combustible materials are permitted by the regulation. Both 403 HydroBond and HydroBond-LM have a Euroclass E rating;</li> <li>- C2(a) Resistance to moisture - tests for water tightness of the System, including joints<sup>6,7</sup>, indicate that the System meets this Requirement, see section 7.3 of this Agrément;</li> </ul>	<p>Page 8 of 9 pages</p>
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<p><b>10 Building Regulations</b> (continued)</p>	<ul style="list-style-type: none"> <li>- Regulation 7 Materials and workmanship – the System is manufactured from suitably safe and durable materials for their application and can be installed to give a satisfactory performance, see section 9 of this Agrément.</li> </ul> <p><b>2 Requirements: The Building (Amendment) Regulations 2014 (Wales) and subsequent amendments</b></p> <ul style="list-style-type: none"> <li>- A1 Loading – when adequately confined, the System contributes to satisfying this Requirement. See section 8 of this Agrément;</li> <li>- B3(4) Internal fire spread (structure) – combustible materials are permitted by the regulation. Both 403 HydroBond and HydroBond-LM have a Euroclass E rating;</li> <li>- C2(a) Resistance to moisture - tests for water tightness of the System, including joints<sup>6,7</sup>, indicate that the System meets this Requirement, see section 7.3 of this Agrément;</li> <li>- Regulation 7 Materials and workmanship – the System is manufactured from suitably safe and durable materials for their application and can be installed to give a satisfactory performance, see section 9 of this Agrément.</li> </ul> <p><b>3 Requirements: The Building (Scotland) Regulations 2014 and subsequent amendments</b></p> <p><b>3.1 Regulations 8 (1)(2) Durability of materials and workmanship</b></p> <ul style="list-style-type: none"> <li>- the System is manufactured from acceptable materials and are considered to be adequately resistant to deterioration and wear under normal service conditions, provided they are installed in accordance with the requirements of this Agrément, see section 9 of this Agrément.</li> </ul> <p><b>3.2 Regulation 9 Building Standards-Construction</b></p> <ul style="list-style-type: none"> <li>- 1.1 (a)(b) Structure – the application of the System will not adversely affect the building’s ability to transmit loadings;</li> <li>- 3.4 – Moisture from the ground - the System will resist the passage of water and any other form of moisture infiltration from the ground, see article 7.3 of this Agrément.</li> </ul> <p><b>3.3 Regulation 12 Building Standards-Conversions</b></p> <p>All comments given for the System under Regulation 9 also apply to this Regulation, with reference to clause 0.12 and Schedule 6 of this Standard.</p> <p><b>4 Requirements: The Building Regulations 2012 (Northern Ireland) and subsequent amendments</b></p> <ul style="list-style-type: none"> <li>- B2 Fitness of materials and workmanship – the System is manufactured from materials which are considered to be suitably safe and acceptable for use as waterproofing as described in sections 7 and 9 of this Agrément;</li> <li>- B3(2) Suitability of certain materials – the System is confined by concrete or protected by lost shuttering and earth (403 HydroBond) or protected by specific measures and earth (HydroBond-LM, see section 7), therefore maintenance is not required, provided that no part of the System remains permanently exposed;</li> <li>- C4(b) Resistance to ground moisture and water – the System will resist the passage of water and any other form of moisture or vapour infiltration from the ground, see article 7.3 of this Agrément;</li> <li>- D1 Stability – Being adequately confined and protected, the System contributes to satisfying this Requirement, see section 7 of this Agrément.</li> </ul>	
<p><b>11 NHBC Standards</b></p>	<p>In the opinion of the Kiwa BDA Expert Centre Building Envelope (ECBE), the Newton HydroBond System, if installed, used and maintained in accordance with this Agrément, can satisfy or contribute to satisfying the relevant requirements in relation to NHBC Standards, Chapters 5.1 Substructure and ground bearing floors and 5.4 Waterproofing of basements and other below ground structures<sup>18</sup>.</p>	
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Figure 1 – Back-fill protection. Please see section 7.1

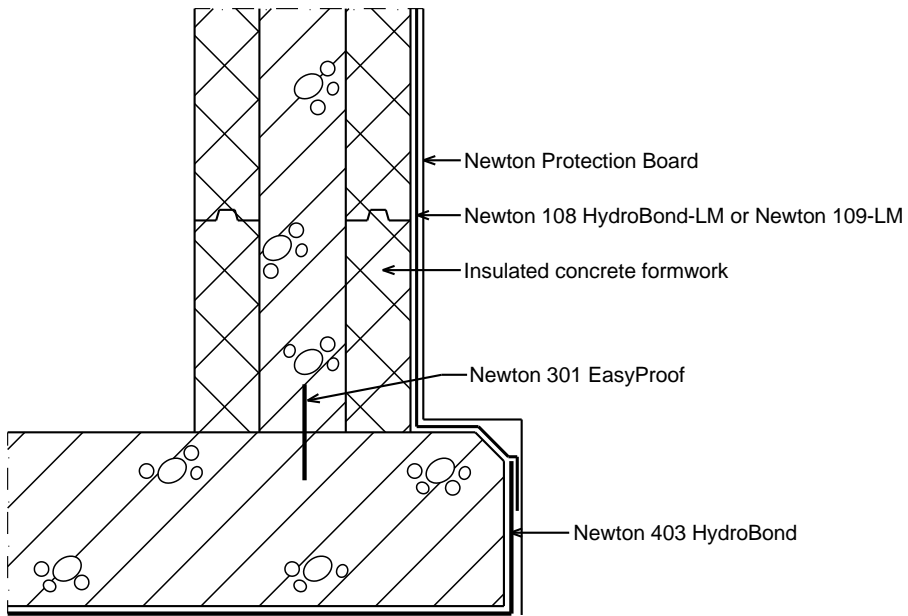


Figure 2 – Typical detail of interface between concrete slab and basement wall with Newton 403 HydroBond

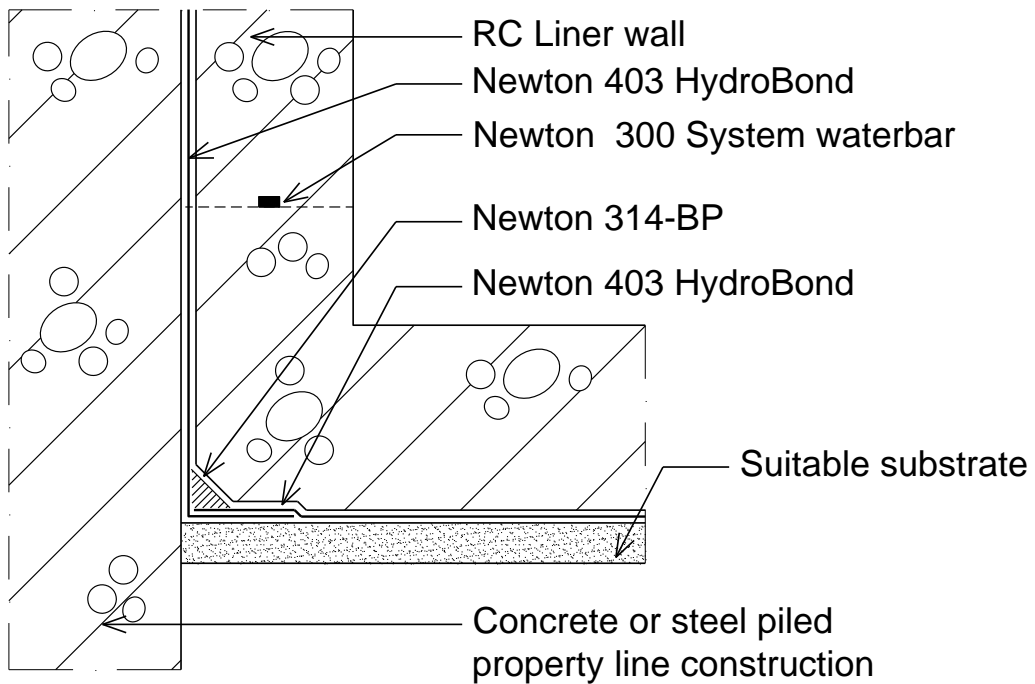


Figure 3 – Typical detail of pipe protrusion

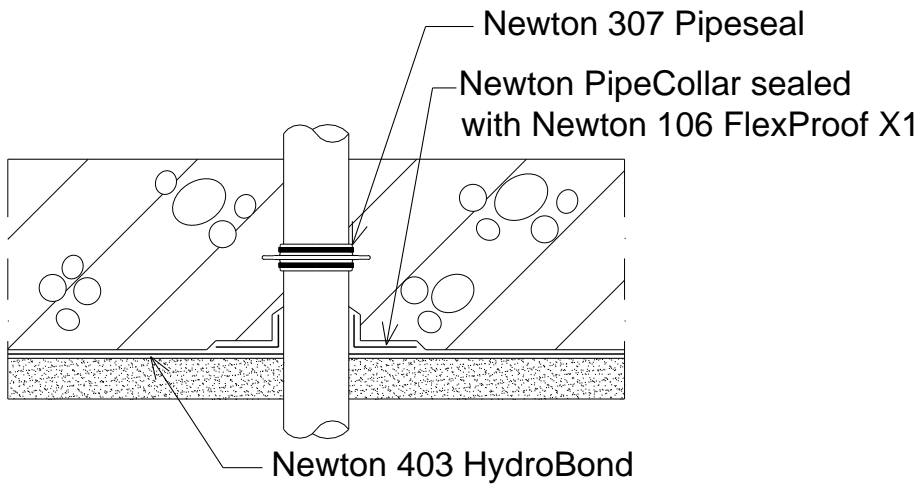


Figure 4 – Typical detail of movement joint

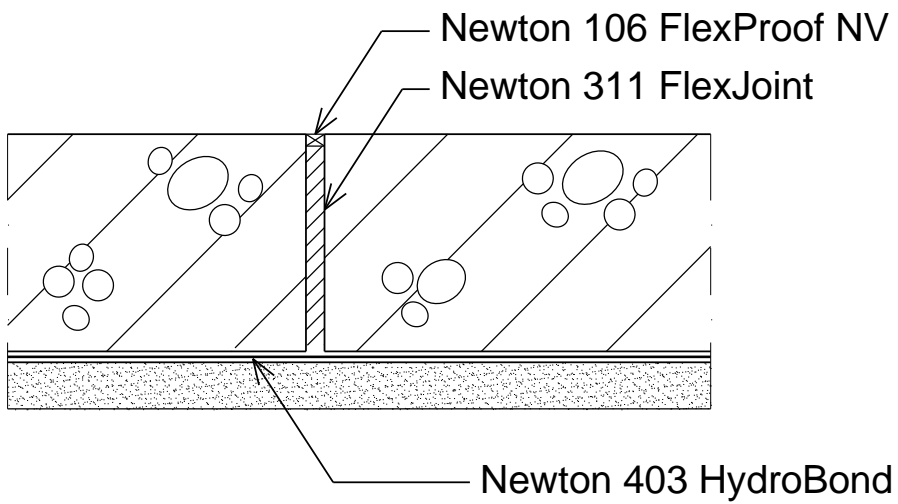


Figure 5 – Typical detail of interface with pile

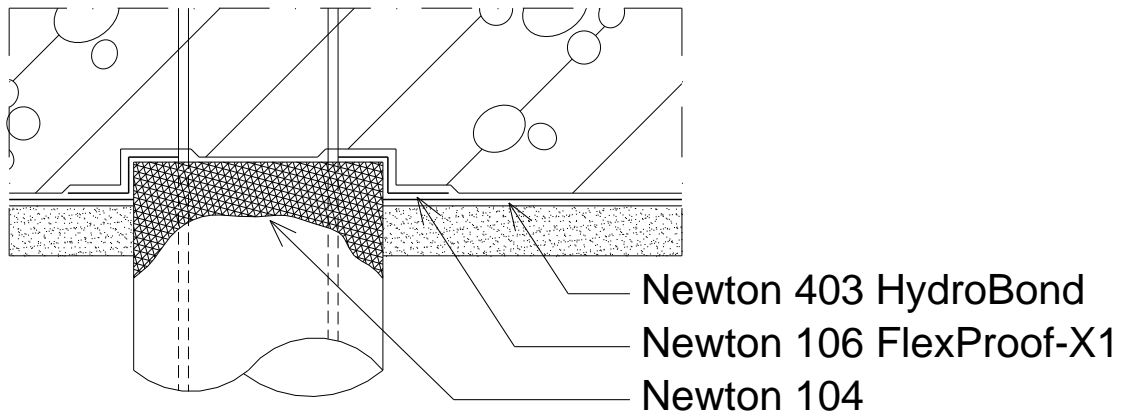


Figure 6 – Typical detail of interface with small pile

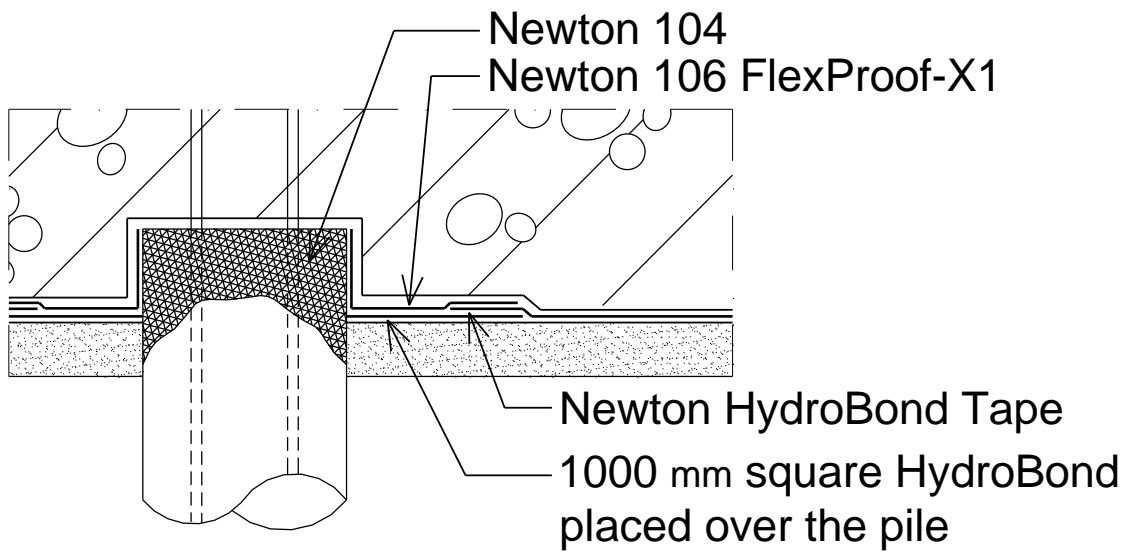


Figure 7 – Typical detail of connection between wall and covered deck

