

BENTECH BENTONITE®

Watertight Since the Dawn of Time

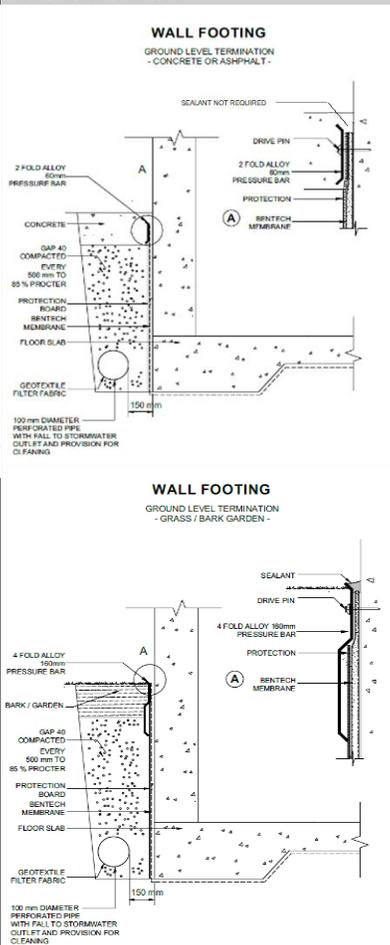
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BENTECH BENTONITE® NP5500 GCL & BENTECH BENTONITE® NP5500 GCL/HDPE HEAVY DUTY TANKING MEMBRANES

PRODUCT TECHNICAL STATEMENT (PTS) & INSTALLATION GUIDE

<p>Name Contact Details</p>	<p>BENTECH BENTONITE® Al Stephen Geotechnical Director al@bentechbentonite.co.nz www.bentechbentonite.co.nz 24/7 Help Line 021 565 696</p> <p>Follow us on  View a video of Self-healing In Action</p>
<p>Codemarked Products</p>	<p>BENTECH BENTONITE® NP5500 GCL BENTECH BENTONITE® NP5500 GCL/HDPE</p>
<p>Product Descriptions</p>	<p>Manufactured from high performance, 100% natural, non-toxic mineral Bentonite, our GCL & GCL/HDPE waterproofing membranes contain a minimum of 5.5kg/m² of Sodium Bentonite, more commonly known as Montmorillonite.</p> <p>BENTECH BENTONITE® NP5500 GCL & BENTECH BENTONITE® NP5500 GCL/HDPE can be installed on compacted sub base, piles, sacrificial shutters, shot-concrete and precast panels. Can also be installed on damp substrates or inclement weather provided backfilling & compaction happen the same day.</p> <p>BENTECH BENTONITE® GRANULES are available in 20kg bags. Mixed with water to make a thick viscous paste used to seal membrane damage, penetrations, and protrusions.</p> <p>BENTECH BENTONITE® BCC is a discretionary 2 part cementitious membrane used to seal difficult details where a tough, pliable and impervious barrier is required.</p> <p>TREMCO Dymonic FC® or BOSTIK SafeSeal® are both suitable commercial high performance, fast-curing, single-component polyurethane sealants that is gun applied between the top of the T-Bar and PC wall.</p> <p>BENTECH BENTONITE® ACCESSORIES –</p> <ul style="list-style-type: none"> ✓ Termination Bar (T-Bar) – 2 or 4 fold 1.2mm Aluminium Termination Bar ✓ Nails & Washers - Mechanically Fixed 316SS Drive Pins & Flat Washers. ✓ Non-Rigid Protection Sheet 3.3mm Plastic Coreflute Protection Board
<p>Scope of Use</p>	<p>BENTECH BENTONITE® works through a pressure mechanism of molecular swelling when hydrated with water. When 'confined' between hardfill and cement this swelling creates pressure that enables post construction self-healing, the key advantage of the product. This mitigates the risk of expensive remedial earthworks should a leak become apparent over the service life of the building (depending on the situation and quality of the installation) and thus we are able to offer a <i>Service Life of Structure Warranty</i>.</p> <p>It is imperative in both horizontal (GCL) and vertical (HDPE) applications that the membrane be completely confined between concrete and hardfill. Note when installing in hydrostatic situations, the engineer should specifically design the floor/wall slab thickness/reinforcement to accommodate the potential hydrostatic pressure of 100PSI when the clay hydrates and expands. <i>A minimum of 100mm cover is recommended.</i></p>

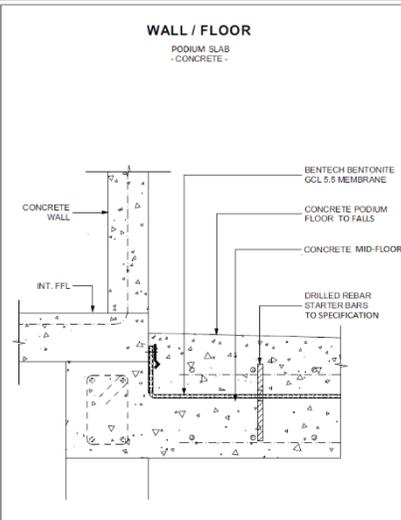
	<p>BENTECH BENTONITE® is recommended for all below ground basement, lift-pit, foundation, sump, wall, tunnel, reservoir, landfill, pond/canal waterproofing, and most other confined tanking applications with hydrostatic pressures up to 70m/6.8Bar/100PSI and when basement waterproofing is critical, such as large and complex construction projects.</p> <p>BENTECH BENTONITE® is specified for deep excavations where a full tanking system is required and below grade waterproofing is critical, eg. below the water table or in large/complex constructions or excavations.</p>
<p>NZBC Compliance</p>	<p>BENTECH BENTONITE® NP5500 GCL & BENTECH BENTONITE® NP5500 GCL/HDPE meet the requirements of CodeMark Certificate CMNZ70161 when used within the conditions of its Certificate of Conformity as detailed in this guide.</p> <p>Achieves compliance with NZBC B2.3.1(a) B2.3.2, E2.3.3 & F2.3.1</p> <p>BENTECH BENTONITE® GCL & GCL/HDPE are accredited to AS/NZS ISO 9001: 2015</p>
<p>Preparation</p>	<p>Concrete, block or slab surfaces should all be rubbed smooth with a cinder block or brick and MUST be free of ALL dags and surface splatter. Exposed shotcrete surfaces are to be finished and presented to at least 80% of a normal well-finished surface. Plaster-fill all holes >5mm so to present as smooth a surface as possible. NB - All concrete surfaces contacting the membrane to be >= 100mm thick and contain steel mesh or rebar to spec.</p>
<p>Installation</p> 	<ol style="list-style-type: none"> <p>1) Install GCL rolls with <u>black woven geotextile side facing down to backfill.</u> Install GCL/HDPE with <u>HDPE facing out to backfill.</u></p> <ul style="list-style-type: none"> ✓ Laps 150mm wide and staggered between rolls. ✓ Precast Panels PC joints, post install. Granules to be poured down the joints up to the T-Bar and capped with >50mm PU - Polyurethane sealant. ✓ Ensure all concrete is poured <u>'with' the direction of the overlap and not against it, ensuring the membrane is NOT lifted by the flow of wet concrete under the lap.</u> ✓ Pipe/cable penetrations - '★ Star-cut' and securely cable-tie GCL/HDPE. ✓ Ensure BENTECH BENTONITE® Paste is applied liberally to all penetrations. <p>2) Install Coreflute - Ramset or Hilti galvanized drive pins through washers, securing Coreflute to wall and ready for back filling.</p> <ul style="list-style-type: none"> ✓ Pay careful attention to accurately cut Coreflute so there are NO gaps behind it. ✓ Remove all loose stones from behind the Coreflute before attaching T-Bar. <p>3) Fix Termination Bar to top edge of Coreflute/GCL with pre-drilled Suredrive 316SS drive pins approx. 3-400mm centres.</p> <p>4) Apply TREMCO Dymonic FC® or BOSTIK SafeSeal® between the T-Bar and wall or Cinder block wall. <i>This isn't required if the T-Bar is below the concrete level.</i></p> <p>5) BACK FILL – Inspect all BENTECH BENTONITE® elements to ensure membrane hasn't been damaged during installation. Repair by cutting GCL/HDPE '100mm oversize' and paste over holes. Take a close look at your work. Damage is easily patched now but it'll be a different story once you've backfilled – <i>Take your time – Do It Once – Do It Right!</i></p> <p>Ensure the quality of the back fill (Gap 20/40) is such that the BENTECH BENTONITE® membrane is not damaged and it allows uniform compaction and confinement of the membrane. Use a suitable Compactor to compact the backfill <u>ensuring NO loose stones get behind the membrane during installation.</u></p>

If concrete is used to confine, **vibrate thoroughly**, ensuring no voids and taking care to *get right into the corners*, compressing the membrane completely against the structure.

- ✔ Site to be de-watered 24/7.
- ✔ Remove **ALL** organics, wood & plant material.
- ✔ Do **NOT** use sand, scoria or soil for backfill.
- ✔ Drain coil must be **at least 150mm** from GCL.
- ✔ No rocks over 20mm to be compacted in contact with GCL.

6) COMPACTION- Compact and confine **BENTECH BENTONITE®** in 400mm layers between concrete, shotcrete, masonry, rock (GAP20/40), brick, PolyRock®, concrete, plaster or compacted clay substrates. Compact to >85% Modified Proctor.

QUALITY ASSURANCE



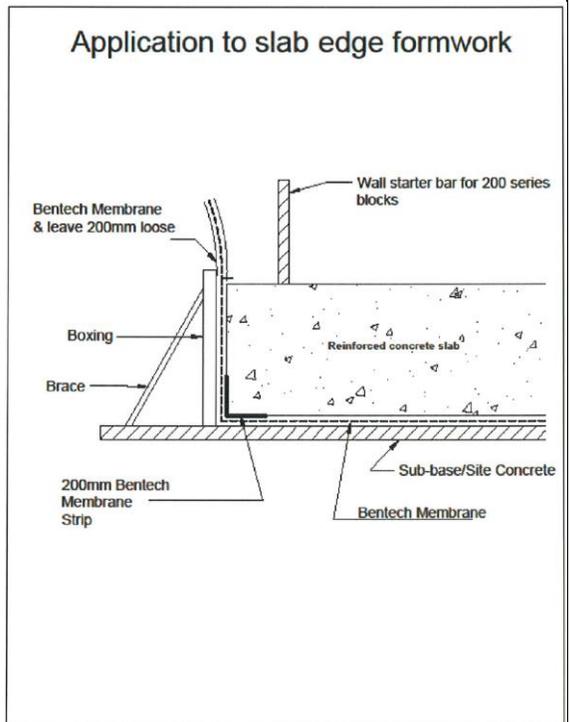
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Ensure surface preparation is in accordance with **BENTECH BENTONITE®** requirements. It's important to spend the time required to get the installation surfaces properly prepared. Installation is much the same as laying carpet, but GCL/HDPE is cut to maximise the product staying in the ground. Simply put, the more Sodium Bentonite you put in the ground; the greater the self-healing capacity of the membrane.

*Photograph/video diary all application stages completely from start to finish to warrant the installation is performed in accordance with approved **BENTECH BENTONITE®** installation methodology.*

- ✔ REMOVE all rubbish from the site.
- ✘ **Do NOT use the excavation for a rubbish tip!** Your building actually stops a metre outside the wall – not at it 😊. The quality of the back-filling is important to the success of the job.
- ✔ LEAVE the work in a safe and sound condition, free of all hazards.



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NOTES

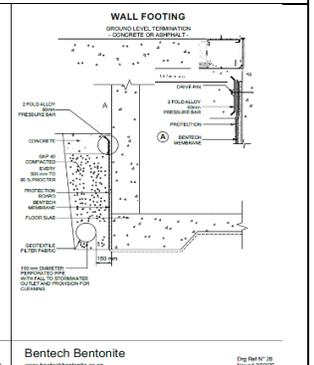
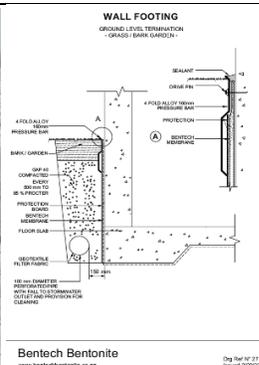
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Specify Tanking?... Specify **Bentech Bentonite**®

Rock Science – Not Rocket Science