


BENTECH BENTONITE® HEAVY DUTY GCL TANKING MEMBRANE

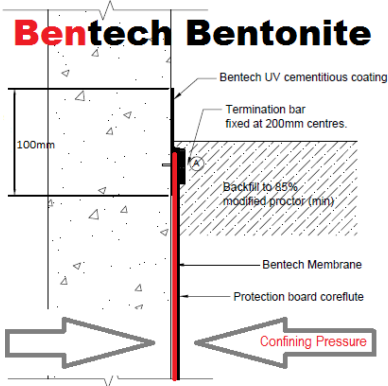
PRODUCT TECHNICAL STATEMENT (PTS) & INSTALLATION GUIDE

<p>Name Contact Details</p>	<p>Bentech Bentonite® Al Stephen Technical Consultant al@bentechbentonite.co.nz www.bentechbentonite.co.nz 24/7 Help Line +64 21 565 696</p> <p style="text-align: right;">Follow us on  View a video of Self-healing In Action</p>
<p>Building System</p>	<p>Bentech Bentonite® Heavy Duty GCL Tanking Waterproofing Membrane. <i>CodeMark Certification permits certified products to be substituted at will, by the Builder, without alteration to plans, consents or approvals issued by Local Government Authorities.</i></p>
<p>Product Description</p>	<p>1) BENTECH BENTONITE® Codemarked HD GCL TANKING MEMBRANE – Manufactured from high performance, 100% natural, non-toxic mineral Bentonite, our GCL waterproofing membrane contains a minimum of 5.5kg/m² of Sodium Bentonite, more commonly known as Montmorillonite and used for clay tanking and waterproofing since the Dark Ages. Bentech Bentonite® GCL can be installed on compacted sub base, piles, sacrificial shutters, concrete substrates and precast panels. Can also be installed on damp substrates or inclement weather provided backfilling & compaction happen the same day.</p> <p>2) BENTECH BENTONITE® HEAVY DUTY GCL TANKING MEMBRANE – HDPE – Bentech Bentonite® HDPE (High Density Polyethylene) membrane is also manufactured from 5.5kg/m² of high performance natural Sodium Bentonite Clay. Specified for high risk and/or contaminated conditions, Bentech Bentonite® HDPE can be installed as an impervious, self-healing and inert containment barrier in situations requiring a higher level of protection. In coastal applications, contaminated sites including old landfill sites, industrial waste sites or saline conditions; prehydration with fresh water immediately prior to pouring or back-filling is recommended.</p> <p>3) BENTECH BENTONITE® COMPOSITE WATER STOPS – Bentech 20/10 Water-stop is manufactured from rubberized high-performance Sodium Bentonite specified for sealing cold pour joints, columns and floor to wall transitions.</p> <p>4) BENTECH BENTONITE® GRANULES / MIXED PASTE – Bentech Granules are available in 20kg bags. Mixed with water to make a thick viscous paste used to seal membrane damage, transitions, details, penetrations and protrusions.</p> <p>5) BENTECH BENTONITE® CEMENTITIOUS COATING – Bentech Cementitious Coating (BCC) is an acrylic two-part composite (mixed 50/50, one-part BCC liquid/ one-part high grade cement powder) forming a flexible, UV stable, waterproof membrane compatible with most concrete, stone and metal building surfaces.</p> <p>6) BENTECH BENTONITE® ACCESSORIES –</p> <ul style="list-style-type: none"> ✓ Termination Bar (T-Bar) – Galvanized 50mm metal Flat Bar ✓ Nails & Washers - Mechanically Fixed Drive Pins & Flat Washers. ✓ Non-Rigid Protection Sheet 3.3mm Plastic CoreFlute® Protection Board

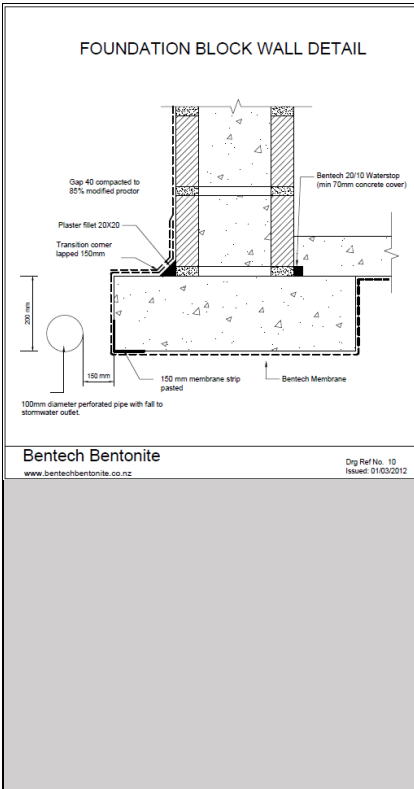


BENTECH BENTONITE®

Watertight Since the Dawn of Time

<p>Scope of Use</p>	<p>Bentech Bentonite® works through a pressure mechanism of molecular swelling when hydrated with water. When 'confined' between stone 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 action should a leak become apparent over, potentially, 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>. It is important in both horizontal and vertical applications that the membrane be completely confined between concrete and rock. Note when installing in hydrostatic situations, the engineer should specifically design the floor slab thickness/reinforcement to accommodate the potential hydrostatic pressure of 100PSI when the clay hydrates and expands.</p> <p>Bentech Bentonite® is recommended for all below ground basement, lift-pit, foundation, sump, wall, tunnel, reservoir, landfill, pond and canal waterproofing, confining and 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 basement waterproofing is critical, eg. below the water table or in large/complex constructions or excavations.</p>
<p>NZBC Compliance</p>	<p>Bentech Bentonite® GCL meets the requirements of the CodeMark Certificate CM20220 when used within the conditions of its Certificate of Conformity as detailed in this guide. Achieves compliance with NZBC B2.3.1 & E2.3.3 Bentech Bentonite® is accredited to AS/NZS ISO 9001:2008.</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 tags and surface splatter. Shotcreted 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 are to be at least 100mm thick and contain steel mesh or rebar to spec.</p>
<p>Installation</p> 	<ol style="list-style-type: none"> 1) Install GCL / HDPE rolls with <u>white geotextile side facing concrete surface</u> to be waterproofed. Laps should be no less than 150mm and staggered between rolls. <ul style="list-style-type: none"> ✓ Precast panels - Pour granules behind GCL & between slab gaps. Seal with BCC. ✓ Ensure all concrete is poured 'with' the direction of the overlap and not against it, making sure the membrane is not lifted by the pressure of the wet concrete flowing under the lap. ✓ '★ Star-cut' and cable-tie GCL membrane around all pipe/cable penetrations. ✓ Ensure Bentech Bentonite® Paste is applied around all holes & penetrations. 2) Install CoreFlute® - Ramset or Hilty securely over entire tanked area taking extra care to not leave corner voids. <i>NB - It's better to NOT have the protection of the CoreFlute® than have any voids created due to inaccurate cutting of the plastic sheet. Take extra care.</i> 3) Fix Termination Bar to top edge of CoreFlute®/GCL with Ramset nails every 200mm. <ul style="list-style-type: none"> ✓ Apply Masking tape along a line on the wall 50mm above Termination Bar. ✓ Precast panels require removal of release agent coated concrete by disc grinding off >1mm of concrete up to 75mm from top of GCL, providing an effective bonding surface between raw concrete and BCC.





4) Mix Bentech Cementitious Coating (BCC) per instructions on label. *Drill stir very well.*

- ✓ Using gloves and a 2" paint brush, apply liberally within the taped area, completely covering T-bar and 50mm onto concrete. Stir every 5 minutes and apply a second coat after 20 minutes paying special attention to top of Termination Bar.
- ✓ Wash hands and tools thoroughly after use.

5) BACK FILL – Inspect all **Bentech Bentonite®** elements to ensure membrane hasn't been damaged during installation. Repair by cutting GCL '100mm oversize' and paste over any holes. Take a close look at your work. Damage is easily patched now but it'll be a different story once you've backfilled – *Take your time – Do It Once – Do It Right!*

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 ensuring NO loose stones get behind the membrane during installation.

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 substrate.

- ☑ **Remove ALL organic, wood & plant material.**
- ☑ **Do NOT use sand, scoria or soil for backfill.**
- ☑ **Drain coil must be at least 150mm from GCL.**
- ☑ **No rocks over 40mm 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.

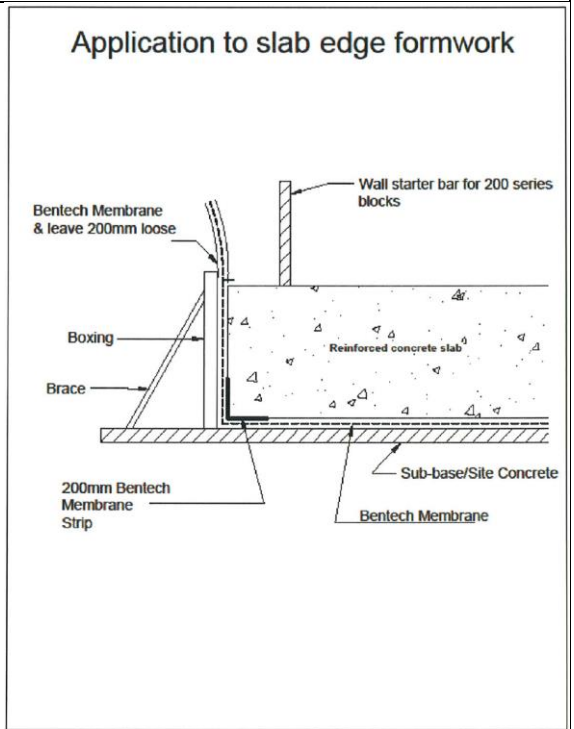
QUALITY ASSURANCE

Ensure preparation of surface is in accordance with **Bentech Bentonite®** system 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 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 **Bentech Bentonite®** installation methodology.*

- ✓ CLEAN UP as the work proceeds.
- ✓ 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.



Bentech Bentonite
www.bentechbentonite.co.nz

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NOTES

Specify Tanking?... Specify **Bentech Bentonite**®
Rock Science – Not Rocket Science

