



APPLICATION INSTRUCTIONS

TREMproof® AMPHIBIA™ BLINDSIDE WALL

1. PURPOSE

- 1.1 The purpose of this document is to establish uniform procedures for installing TREMproof Amphibia membranes on blindside walls.
- 1.2 The techniques involved may require modifications to adjust to job site conditions. Tremco recognizes that site specific conditions, weather patterns, contractor preferences and membrane detailing may require deviation or alteration from these prescribed installation procedures. When such circumstances exist on a project, Tremco recommends that the local Tremco Sales Representative or Technical Services be contacted for assistance as required.

2. SCOPE

- 2.1 This document will provide the necessary instructions for the application of TREMproof Amphibia membranes to qualify for the manufacturer's warranty.

3. POSSIBLE SYSTEM COMPONENTS

- 3.1 Recommended materials and their use are as follow. For more information on the following materials, please contact your local Tremco Sales Representative or visit our website for product specific data sheet and application instructions at www.tremcosealants.com.
 - TREMproof Amphibia Waterproofing Membrane
 - TREMCO® BG Grip tape
 - Ultraseal P-201A Hydro-Reactive Mastic, or other approved material
 - Superstop Waterstop
 - Paraterm™ Bar
 - Parastick N Dry®
 - Paraprimer®
 - Paragranular®
 - Paramastic®
 - Dymonic® 100 Sealant
 - TREMDrain™ Series Drainage Mat
 - TREMproof Amphibia WS

4. LIMITATIONS

- 4.1 . Due to the variables present when installing shotcrete, all shotcrete applications must be first reviewed and approved by Tremco prior to installation.
- 4.2 Reinforced concrete structures need to be designed to withstand hydrostatic pressures.

5. STORAGE

- 5.1 Store in a dry place protected for UV and humidity, preferably in a horizontal position. Do not double stack pallets.

6. SUBSTRATE PREPARATION

6.1 WOOD LAGGED STEEL PILE WALL

- 6.2 Be sure all lagging board nails are pounded flush or removed. Check for missing or damaged lagging boards and repair using concrete grout, treated wood or both. Fill or cover any gaps between lagging board exceeding 1" (2.5 cm) using concrete grout or treated plywood.
- 6.3 If the tops of steel I-beams, rebar, or other metallic objects are to be removed by way of a torch or other mechanical cut-off method, be certain to cover/protect the front face of the Amphibia with a cement board to prevent damage to the installed membrane.
- 6.4 Please refer to Tremco's detail drawings for various treatment options for front, mid, and back-lagged support of excavation configurations.

6.5 AUGERED CAISSON WALL

- 6.6 When the surfaces of the individual augered piers, which make up the caisson wall, are relatively flat and smooth (coplanar to +/- 1/2" or less), TREMproof Amphibia may be installed directly against the piers without any surface treatment. If the Vshaped "notch" between piers is deeper than 1/2" (13mm)", or, if the wall expanse is out of plane greater than 1/2" (13mm), a cementitious parge coat or grout screed should be installed to create a relatively flat and smooth surface (coplanar to +/- 1/2" or less) for the Amphibia to be installed against.
- 6.7 When the surfaces of the augered piers are very rough and irregular, continuous minimum 3/4" (19mm) or thicker (as determined by the engineer-of-record) pressure-treated plywood must be anchored every 12" (30 cm) O.C. to the caisson wall. The void created behind the plywood shall be filled with sand or aggregate. The proper plywood thickness and anchor spacing shall be determined by a civil, structural or soil engineer at the site and depend on the height of the caisson wall, the span of the plywood between piers and the resultant lateral pressure exerted by the sand/aggregate fill.
- 6.8 Please refer to Tremco's detail drawings for various treatment options for augered caisson wall support of excavation configurations.

6.9 CORRUGATED STEEL SHEET PILING WALL

- 6.10 Seams joining adjacent courses of corrugated steel sheet piling should be continuously welded together or otherwise previously rendered waterproof by others prior to application of Amphibia.
- 6.11 When the waterproofing is going to be in continuous contact with the profile of the steel piling, all sharp protrusions must be removed. In these areas where steel has been removed, the resultant surface shall be smooth and flat to the bare hand.
- 6.12 When the waterproofing installation is to span the sheet piling corrugation voids, sheets of a minimum 3/4" (19mm) or thicker (as determined by the engineer-of-record) pressure-treated plywood should first be installed across the void and anchored TREMproof® Amphibia™ Blindside Wall 0320/TPABSAI-BG Tremco Commercial Sealants & Waterproofing 3735 Green Rd Beachwood OH 44122 216.292.5000 / 800.321.7906 1451 Jacobson Ave Ashland OH 44805 419.289.2050 / 800.321.6357 220 Wicksteed Ave Toronto ON M4H1G7 416.421.3300 / 800.363.3213 1445 Rue de Coulomb Boucherville QC J4B 7L8 514.521.9555 www.tremcosealants.com Page 2 of 4 into place every 12" (30 cm) O.C. The void behind the plywood should be filled with sand and/or aggregate. The proper plywood thickness and anchor spacing shall be determined by a civil, structural or soil engineer at the site and depends on the height of the piling, the span of the plywood and the resultant lateral pressure exerted by the sand fill.
- 6.13 Please refer to Tremco's detail drawings for various treatment options for corrugated steel sheet piling walls. DIRECT-TO-SOIL SHOTCRETE RETAINING WALL WITH CONCRETE PILES
- 6.14 Prior to the installation of TREMproof Amphibia against the shotcrete wall, remove all sharp protrusions and fill all voids which exceed 2" (5cm) wide by 1" (2.5cm) deep with a cementitious grout. Fill smaller voids with Paramastic, TREMproof 250GC, Ultraseal P-201A Hydro-reactive mastic (or approved equivalent), or other approved cementitious patch/repair material.
- 6.15 Please refer to Tremco's detail drawings for various treatment options for direct-to-soil shotcrete retaining walls with concrete piles.

6.16 SLURRY WALL

- 6.17 Prior to the installation of TREMproof Amphibia against the exposed slurry wall, clean off all mud and dirt.

- 6.18 Remove all sharp protrusions and fill all voids which exceed 2" (5 cm) wide by 1" (2.5 cm) with concrete grout.
- 6.19 Please refer to Tremco's detail drawings for various treatment options for slurry retaining walls.

7. DETAIL WORK

- 7.1 All penetrations shall be secured prior to detailing. For single pipe penetrations, refer to Tremco details. Multiple penetrations shall be spaced a minimum of 6" (15 cm) apart to allow for proper detailing. If 6" (15 cm) spacing is not available, contact Tremco for a job-specific recommendation. If sealed or cored pipes are present, contact Tremco.
- 7.2 Following good concrete industry practices, a waterstop should be used at all construction cold joints. Install TREMproof Amphibia WS a minimum of 2" (5 cm) from face of wall or floor slab. Butt ends together and fasten with nails and 1" (2.5 cm) washer every 12" (30 cm) O.C. if installing in keyways.
- 7.3 Please refer to Tremco's detail drawings for various methods to address different project-specified detailing requirements.

8. MEMBRANE APPLICATION

- 8.1 If required, install the proper TREMDrain drainage mat. This should be done in accordance with the associated application instructions, which are available on Tremco's website. Contact your Tremco Sales Representative or Technical Services for assistance in making the proper selection for the application.
- 8.2 TREMproof Amphibia shall be installed with the white, non-woven "fleece" fabric layer facing the installer. TREMproof Amphibia may be installed with the long seams running either vertically or horizontally with equal performance. Pre-cut the membrane to the size required – the sheets can be folded and cut in any direction.
- 8.3 **WOOD LAGGED STEEL PILE WALL**
- 8.4 Tack the top edge of the membrane into the wood lagging boards every 16" (40cm) O.C. Leaving a 12" to 18" (30cm to 45cm) flap of excess material above the tack line is optional; if employed, be sure to fold back and secure this material until a final termination or tie-in to above grade materials takes place. Ensure that fasteners do not interfere with any potential seam overlap areas. Either 6mm mild or galvanized steel staples, or, 1-1/2" (3.8cm) long low-profile head (no integral washer) powder actuated nails may be used. The membrane can then be draped over the lagging wall.
- 8.5 Ensure that adjacent courses of draped membrane are overlapped a minimum of 2" (5cm) and sufficiently perpendicular to each other. The membrane features a red printed dashed line, which is 2" (5cm) from the sheet edge for quick reference when installing. This will ensure that the seam detail treatment in section 8.6 can be properly completed.
- 8.6 Once draped, only if needed, fasteners may be used intermittently in locations where the membrane needs to be in closer contact with the soil retention structure. Please note, as few fasteners as practical should be used to ensure the membrane is allowed to break free of the soil retention structure and move with the structural wall once complete. Ensure fasteners do not interfere with any seams.
- 8.7 Proceed to section 8.8 for proper seam detailing instructions.
- 8.8 **AUGERED CAISSON WALL**
- 8.9 Tack the top edge of the membrane into the augered caisson wall every 16" (40cm) O.C. Leaving a 12" to 18" (30cm to 45cm) flap of excess material above the tack line is optional; if employed, be sure to fold back and secure this material until a final termination or tie-in to above grade materials takes place. Ensure fasteners do not interfere with any potential seam TREMproof® Amphibia™ Blindside Wall overlap areas. 1-1/2" (3.8cm) long low-profile head (no integral washer) powder-actuated or manually installed nails should be used. The membrane can then be draped over the lagging wall.
- 8.10 Ensure that adjacent courses of draped membrane are overlapped a minimum of 2"(5cm) and sufficiently perpendicular to each other. The membrane features a red printed dashed line, which is 2" (5cm) from the sheet edge for quick reference when installing. This will ensure that the seam detail treatment in section 8.8 can be properly completed.
- 8.11 Once draped, only if needed, fasteners may be used intermittently in locations where the membrane needs to be in closer contact with the soil retention structure. Please note, as few fasteners as practical should be used to ensure the membrane is allowed to break free of the soil retention structure and move with the structural wall once complete. Ensure fasteners do not interfere with any seams.

8.12 Proceed to section 8.8 for proper seam detailing instructions.

8.13 CORRUGATED STEEL SHEET PILING WALL

8.14 Allow for a 12" to 18" (30cm to 45cm) flap of excess material above the top edge of the piling system. This will be used to secure the draped courses of membrane temporarily until the structural wall has been placed and is cured.

8.15 Utilize form stakes or other robust, temporary anchors spaced every 24" (60cm) to nail through the flap of excess material directly into the soil. The membrane can then be draped over the lagging wall. These temporary anchors will allow the membrane courses to hang draped over the edge of the piling system until the structural wall has been placed and is cured.

8.16 Ensure that adjacent courses of draped membrane are overlapped a minimum of 2" (5cm) and sufficiently perpendicular to each other. The membrane features a red printed dashed line, which is 2" (5cm) from the sheet edge for quick reference when installing. This will ensure that the seam detail treatment in section 8.8 can be properly completed. Please refer to Tremco's detail drawings for various corrugated steel sheet piling treatment options.

8.17 Proceed to section 8.8 for proper seam detailing instructions.

8.18 DIRECT-TO-SOIL SHOTCRETE RETAINING WALL WITH CONCRETE PILES

8.19 Tack the top edge of the membrane into the shotcrete retaining wall every 16" (40cm) O.C. Leaving a 12" to 18" (30cm to 45cm) flap of excess material above the tack line is optional; if employed, be sure to fold back and secure this material until a final termination or tie-in to above grade materials takes place. Ensure fasteners do not interfere with any potential seam overlap areas. 1-1/2" (3.8cm) long low-profile head (no integral washer) powder actuated or manually installed nails should be used. The membrane can then be draped over the lagging wall.

8.20 Ensure that adjacent courses of draped membrane are overlapped a minimum of 2" (5cm) and sufficiently perpendicular to each other. The membrane features a red printed dashed line, which is 2" (5cm) from the sheet edge for quick reference when installing. This will ensure that the seam detail treatment in section 8.8 can be properly completed.

8.21 Once draped, only if needed, fasteners may be used intermittently in locations where the membrane needs to be in closer contact with the soil retention structure. Please note, as few fasteners as practical should be used to ensure the membrane is allowed to break free of the soil retention structure and move with the structural wall once complete. Ensure fasteners do not interfere with any seams.

8.22 Proceed to section 8.8 for proper seam detailing instructions.

8.23 SLURRY WALL

8.24 Tack the top edge of the membrane into the slurry retaining wall every 16" (40cm) O.C. Leaving a 12" to 18" (30cm to 45cm) flap of excess material above the tack line is optional; if employed, be sure to fold back and secure this material until a final termination or tie-in to above grade materials takes place. Ensure fasteners do not interfere with any potential seam overlap areas. 1-1/2" (3.8cm) long low-profile head (no integral washer) powder actuated or manually installed nails should be used. The membrane can then be draped over the lagging wall.

8.25 Ensure that adjacent courses of draped membrane are overlapped a minimum of 2" (5cm) and sufficiently perpendicular to each other. The membrane features a red printed dashed line, which is 2" (5cm) from the sheet edge for quick reference when installing. This will ensure that the seam detail treatment in section 8.8 can be properly completed.

8.26 Once draped, only if needed, fasteners may be used intermittently in locations where the membrane needs to be in closer contact with the soil retention structure. Please note, as few fasteners as practical should be used to ensure the membrane is allowed to break free of the soil retention structure and move with the structural wall once complete. Ensure fasteners do not interfere with any seams.

8.27 Proceed to section 8.8 for proper seam detailing instructions.

8.28 All seams for blindside applications should be overlapped a minimum of 2" (5 cm). Gun a 1/2" (12mm) bead of Dymonic 100 sealant between the overlaps. The seam shall then be compressed with a 2"x2" (5cm x 5cm) steel seam roller using pressure sufficient to adequately flatten/spread the sealant bead, taking care not to completely drive sealant out of overlap. Immediately following the rolling operation, seal all overlaps with TREMCO BG Grip Tape centered on the adjacent sheet edge. The Tremco BG Grip Tape should be adhered to the white, non-woven "fleece" fabric layer facing the installer and pressed or rolled down to ensure full adhesion. The white fleece Grip side must be clean, dry, and free of debris prior to installation of BG Grip Tape. Care must be taken to minimize wrinkles, fishmouths, or other irregularities in the adhered tape to maximize seam performance.

- 8.29 Traffic or disturbances to bare membrane must be minimized; care must be taken that seams are not displaced. Sealant cure time in this application is typically 24 hours minimum, dependent upon temperature and humidity. Seams should be allowed to cure in accordance with Tremco's published Dymonic 100 instructions prior to concrete placement. Dymonic 100 generally cures at a rate of 3/32" (2mm) per day at 75 °F (24 °C) and 50% RH. It will skin in 2 hrs. and be tack free in 6 to 8 hrs. The cure time will increase as temperatures and/or humidity decrease. A typical rule of thumb is one additional day for every 10 °F (12 °C) decrease in temperature.
- 8.30 If additional seam strength is required for horizontal installations to receive concrete, the use of additional fasteners and/or crown/carton staples is permitted. The number of additional mechanical fasteners should be minimized to ensure the highest system performance. Carton staples should have 1-1/4" (3cm) wide crowns and 5/8" (1.6cm) or 3/4" (2cm) long legs. Carton stapler should be setup to curl staple legs creating a clinch-fit connection between adjacent membrane sheets.
- 8.31 Please refer to Tremco's detail drawings for various penetration detailing options.
- 8.32 If required, install the proper TREMDrain drainage mat. This should be done in accordance with the associated application instructions, which are available on Tremco's website. Contact your Tremco Sales Representative or Technical Services for assistance in making the proper selection for the application.
- 8.33 When the placement of either footings or a mat slab is scheduled prior to the blindside waterproofing installation, ensure that a 12" to 18" (30cm to 45cm) horizontal starter strip of Amphibia is provided for adequate tie-in to the vertical membrane installation.
- 8.34 When there is below-slab and/or below-footing waterproofing, the tie-in detail between wall and floor waterproofing varies depending on the floor waterproofing system. Contact Tremco for recommendations.
- 8.35 Temporarily terminate TREMproof Amphibia at the top of the earth retaining system by folding it over and tacking it in place.
- 8.36 **Concrete Wall Placement**
- 8.37 Prior to concrete wall placement, repair any TREMproof Amphibia which has been damaged. This is typically accomplished by adhering an appropriately sized piece (or pieces) of TREMCO BG Grip Tape to the white, non-woven "fleece" fabric layer facing the installer. These repairs shall be pressed or rolled down to ensure full adhesion. Care must be taken to minimize wrinkles, fishmouths, or other irregularities in the adhered tape to maximize repair performance.
- 8.38 Detail all rebar support anchors. Contact Tremco for specific instructions.
- 8.39 If the structural wall is poured-in-place, the concrete should not be dropped from higher than 4' (1.2M), and the concrete should be forced towards the form work and not the membrane. If the structural wall is shotcrete, the spray should be blown in at an upward direction in 4' (1.2M) lifts so as not to damage the overlap seams.
- 8.40 **Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.**
- 8.41 **NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.**
- 8.42 TPASI-AI /0126

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tremcosealants.com | 800.321.7906



Construction Products Group

3735 Green Rd. | Beachwood, OH 44122
800.321.7906 | tremcocpg.com