

VINTEGRA® P20 & SA20

WATERPROOFING & GAS VAPOR PROTECTION MEMBRANE



PRODUCT MANUAL



CETCO®

PRODUCT OVERVIEW

VINTEGRA® advanced waterproofing membranes utilize a thick, 7 layer engineered polymeric film consisting of polyethylene (PE) and a EVOH barrier layers integrated with adhesive coatings that bond to cast-in-place concrete in various applications.



VINTEGRA® P20 membrane incorporates an adhesive layer that tenaciously bonds to poured concrete in under slab and property-line applications. The layer doubles as weather-resistant protection during construction. VINTEGRA® P20 membrane is manufactured with two factory-applied butyl adhesive strip selvedge edges, providing an adhesive-to-adhesive bond that seals the membrane overlaps.

VINTEGRA® SA20 membrane incorporates an adhesive coating that tenaciously bonds to cured concrete and other substrates in post-applied backfilled foundation wall applications.

In addition to superior waterproofing protection, the VINTEGRA® composite membranes are specially designed to resist methane and other gas vapors from entering the building through the concrete foundation. Lab studies have demonstrated the performance benefits of coextruded multi-layer EVOH barrier films, like that of the VINTEGRA® membranes. Compared to HDPE membranes of comparable thicknesses, EVOH-based barrier films can have a much lower methane gas transmission rate.

APPLICATIONS

VINTEGRA® P20 membrane resists water and gas ingress into the building foundation when properly installed. It can be used for both hydrostatic and non-hydrostatic below-grade pre-applied waterproofing applications.

VINTEGRA® P20 membrane is pre-applied horizontally under slabs to smooth prepared concrete, well rolled and compacted earth, crushed stone substrate, or vertically to a support of excavation (SOE) system for blindside waterproofing. Concrete is then cast directly against the white concrete bond coating side of the membrane. The specially engineered VINTEGRA® P20 membrane layers work together to form a continuous and integral seal bonded to the structure.

VINTEGRA® SA20 membrane resists water and gas ingress into the building foundation when properly installed. It can be used for both hydrostatic and non-hydrostatic below-grade post-applied waterproofing applications.

As part of a passive or active gas vapor mitigation system, VINTEGRA® P20 membrane and VINTEGRA® SA20 membrane can be installed, covering the entire below grade foundation. When installed for gas mitigation resistance, it is recommended to include a sub-slab ventilation (SSV) system such as the GEOVENT™ venting system.

LIMITATIONS

VINTEGRA® membranes should not be used in areas where they will be permanently exposed to sunlight or traffic. Do not use VINTEGRA® membranes for horizontal deck construction (e.g. split-slab plaza deck, greenroofs) or to waterproof expansion joints. Cover installed membrane with concrete or backfill within 60 days of installation.

VINTEGRA® waterproofing should only be installed after substrate preparation has been properly completed and is suitable to receive the waterproofing system. VINTEGRA® P20 membrane should not be used with conventional two-sided formwork. Formwork should not be removed until the concrete has achieved minimum 3,000psi (20N/mm²) compressive strength. For VINTEGRA® SA20 membrane backfilled cast-in-place applications, use conventional forms that produce a smooth surface. Do not use stay-in-place concrete forming; use removable forming products only.

VINTEGRA® membranes and accessory products should not be installed in standing water or over ice. Install VINTEGRA® membranes at temperatures of 25°F (-4°C) or above. VINTEGRA® membranes are designed for in-service temperatures below 130°F (54°C). Consult CETCO for special installation guidelines that apply to shotcrete, sub-slab carton forms, and precast concrete construction.

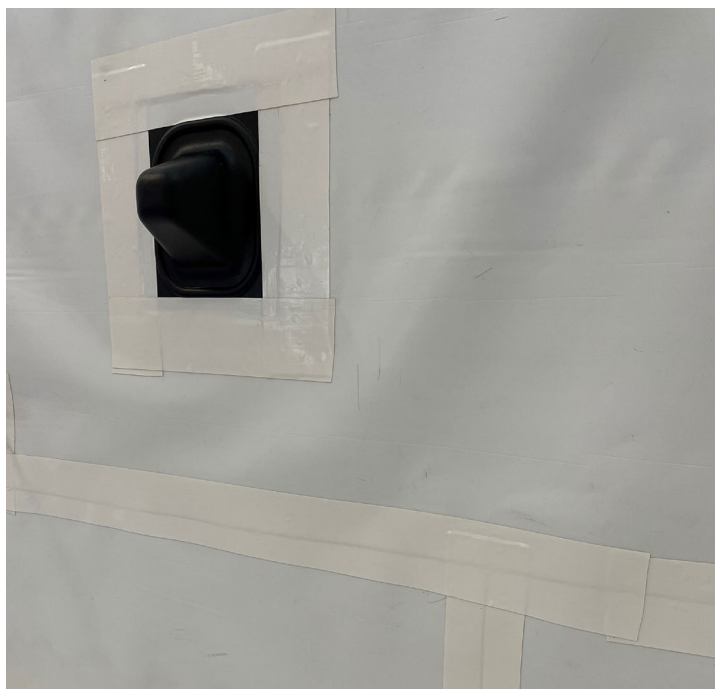
ACCESSORIES

From flashings to tapes, VINTEGRA® waterproofing membranes have a full line of ancillary products to support a proper application for your project.

- » **VCB-6 TAPE** - 150MM (6") WIDE CONCRETE BOND TAPE USED AT JOINTS IN CONCRETE THAT IS CAST AGAINST VINTEGRA® P20 MEMBRANE AND CRITICAL DETAIL CONDITIONS WHERE TAPE CAN REINFORCE THE WATERPROOFING MEMBRANE.
- » **VDS-100 TAPE** - T100MM (4") WIDE PREMIUM DOUBLE SIDE TAPE USED TO SEAL ROLL END AND FIELD CUT OVERLAPS OF VINTEGRA® P20 WATERPROOFING MEMBRANE COMPOSITE.
- » **BS-200 MASTIC** - TROWEL GRADE BUTYL MASTIC USED TO DETAIL AROUND PENETRATIONS, CORNER TRANSITIONS AND TERMINATIONS.
- » **VSA-300 FLASHING** - 300MM (12") WIDE SINGLE SIDE, SELF-ADHERING FLASHING USED TO SEAL ROLL ENDS, CORNER TRANSITIONS, TERMINATIONS, AND FACILITATE PATCHING OF VINTEGRA® WATERPROOFING MEMBRANE COMPOSITES.
- » **CETSEAL** - SINGLE-COMPONENT, POLYETHER SEALANT AND ADHESIVE USED TO SEAL THE EDGE OF TERMINATION BARS.
- » **TB-BOOT** - PRE-FORMED, SINGLE PIECE COVER FOR TIE-BACK HEADS AND SOIL NAILS. FOUR SIZES AVAILABLE: TB-3, TB-6SN, TB-8 & TB-10

ASSOCIATED SYSTEM PRODUCTS

- » **WATERSTOP-RX®** - EXPANDING CONCRETE JOINT WATERSTOP USED AROUND PENETRATIONS AND APPLICABLE CONCRETE JOINTS. SWELLS UPON HYDRATION
- » **AQUADRAIN®** - FOUNDATION DRAINAGE COMPOSITE CONSISTING OF A MOLDED PROFILE CORE AND A FILTER FABRIC. INCLUDES SHEET DRAINAGE AND BASE DRAIN COLLECTION.
- » **GEOVENT®** - 300MM (12") X 25MM (1") TRENCHLESS SUB-SLAB GAS VAPOR COLLECTION STRIP CONSISTING OF A MOLDED PROFILE CORE AND FILTER FABRIC.
- » **TERMINATION BAR** - MIN 25MM (1") WIDE ALUMINUM OR STAINLESS STEEL BAR WITH PRE-PUNCHED HOLES ON 200 MM (8") CENTERING FOR FASTENING
- » **CEMENTITIOUS BOARD** - 12MM (1/2") THICK CEMENTITIOUS WALL BOARD FOR PROTECTION OF WATERPROOFING DURING THE REMOVAL OF STEEL SOLDIER PILE CAP AND TOP LAGGING BOARDS.



INSTALLATION GUIDELINES

Before installing VINTEGRA® waterproofing membranes read this installation manual to gain familiarity with specific procedures and applications. This manual covers the general installation guidelines for the following cast-in-place concrete applications. For applications not covered in this manual, contact CETCO for specific guidelines.

- » *UNDERSLAB INSTALLATION*
- » *PROPERTY LINE CONSTRUCTION*
- » *BACKFILLED WALLS*
- » *SPECIAL CONDITIONS*

UNDERSLAB INSTALLATION

VINTEGRA® P20 membrane is engineered for use under reinforced concrete slabs 100mm (4") thick or greater on a compacted earth, crushed stone or mud slab substrate. Prior to installing VINTEGRA® P20 membrane the substrate must be properly prepared and, if specified on the project, install GEOVENT sub-slab ventilation system per project design. Complete all required elevator pit, sump pit, grade beam and piling work prior to installing VINTEGRA® P20 membrane under main slab area. These areas must be correctly tied into the under slab waterproofing to form a continuous system. Reinforcing steel support should be concrete or brick blocks (e.g. Dobies) unless otherwise approved by CETCO Technical services.



1.1 SUBSTRATE PREPARATION

Substrate may be concrete, compacted earth or crushed stone. Earth and crushed stone substrates should be compacted to ensure the substrate is sound and will not displace under construction traffic or concrete placement. Substrate should be smooth and without sharp deflections or pockets. Substrate can be damp but must be free of standing water or ice. Debris, loose and or sharp aggregate must be removed. Pipes and other mechanical penetrations must be secured in their permanent location prior to the waterproofing installation.

1.2 INSTALLATION

Install VINTEGRA® P20 membrane over the properly prepared substrate with the green liner side down toward the substrate; white adhesive bond coating side up facing the installer. VINTEGRA® P20 waterproofing membrane overlaps are sealed using the pre-applied adhesive strips on the selvage edges of the rolls. VINTEGRA® P20 membrane roll-edges and roll butt-ends should be overlapped minimum 100mm (4"). Taped overlaps with accessory products should also be overlapped minimum 100mm (4"). VINTEGRA® P20 waterproofing membrane overlaps should be dry, clean, and flat without wrinkles or defects prior to removing the selvage release liners.

Install VINTEGRA® P20 membrane in longest possible lengths with green film side down toward the prepared substrate; the white concrete bond

coating side facing upward. Roll end laps should be staggered minimum 300mm (12") to avoid a build-up of layers.

Accurately position adjacent sheet of VINTEGRA® P20 membrane with pre-applied adhesive selvage edge overlapping the previous sheets adhesive edge 100mm (4"). Avoid membrane overlapping beyond the 100mm (4") wide factory applied adhesive edges and then follow the seaming installation steps below:

1. Leave the two release films on the edge adhesive strips until the membrane overlap positioning is completed.
2. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. If there is dirt or debris on the membrane, gently wipe with a damp clean cloth; then allow to dry.
3. Simultaneously, peel off and remove the two release liner films in the membrane edge overlap to achieve adhesive to adhesive bond. Ensure continuous bond is achieved without creases or defects.
4. Firmly roll entire lap with a silicone roller. (Figure 1.1).

For roll ends, overlap the VINTEGRA® P20 membrane to the adjacent sheet end a minimum 100mm (4").

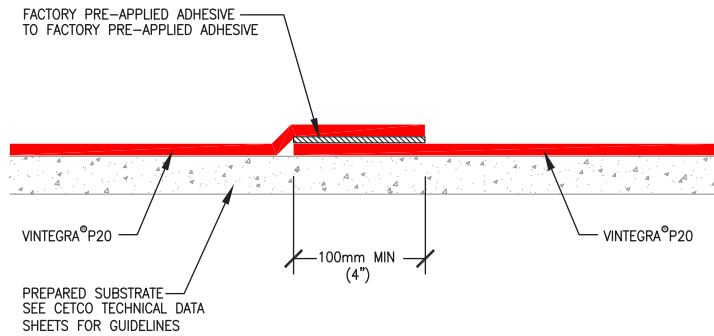


FIGURE 1.1

Cut and apply VCB-6 TAPE centered along the membrane end lap and extend the tape past both side lap edges of the end lap a minimum 100mm (4"). The T-Joints formed at either side of the end lap shall be sealed with a 300mm (12") strip of VCB-6 TAPE. Align the tape strip parallel with the side laps, centered at the roll end lap. Care should be taken to ensure the tape strip has

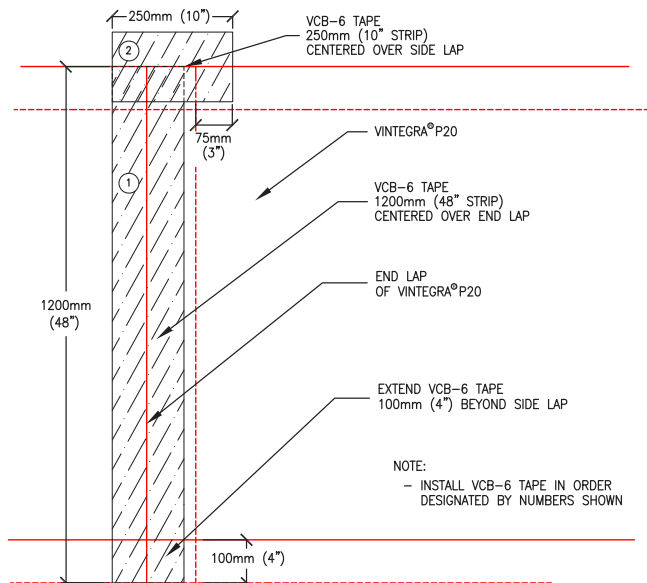


FIGURE 1.2

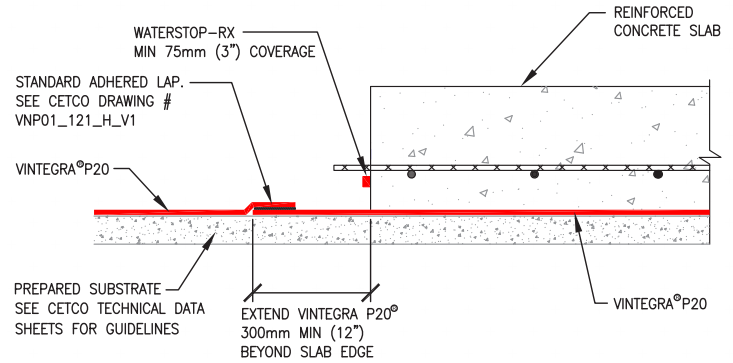


FIGURE 1.3

adequate contact to all three membrane sheets that formed a T-Joint. (Figure 1.2) Firmly press all taped areas with a silicone roller. Sealing tape at membrane edge lap transitions is best accomplished using a "V" roller or the edge of the silicone roller pressed into the membrane edge crease.

When the slab is poured in sections, VINTEGRA® P20 membrane should extend a minimum 300mm (12") beyond the slab section edge (Figure 1.3). This enables VINTEGRA® P20 waterproofing membranes to be properly overlapped for subsequent slab section work. Protect the exposed membrane to prevent damage prior to subsequent membrane installation and concrete pour. Install continuous strip of WATERSTOP-RX® in all applicable slab concrete construction joints; including around penetrations. Refer to Waterstop-RX Product Manual for installation guidelines.

1.3 PILE CAPS AND GRADE BEAMS

VINTEGRA® P20 waterproofing membrane is typically not installed over pile caps and grade beams. For non-hydrostatic applications, extend the waterproofing membrane a minimum 50mm (2") onto the top of the pile or grade beam. Apply BS-200 MASTIC® a minimum 3.0mm (3/16") thick by 50mm (2") wide on the concrete underneath the membrane. Terminate the membrane edge with a termination bar fastened a maximum 200mm (8") on center. Apply a minimum 3.0mm (3/16") thick counter flashing of BS-200 MASTIC encapsulating the termination bar and extending onto the concrete a minimum 50mm (2") (Figure 1.4).

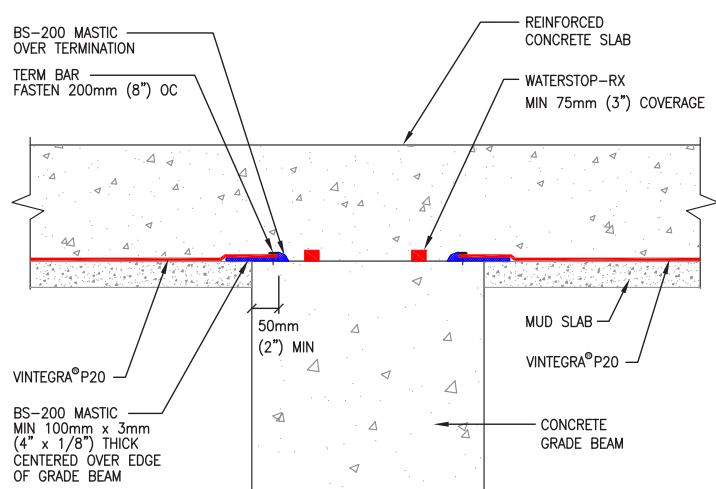


FIGURE 1.4

Prior to installation of VINTEGRA® P20 membrane around concrete piles in hydrostatic conditions, apply BS-200 MASTIC® a minimum 3.0mm (3/16") thick in corner extending a minimum 100mm (4") on vertical and 100mm (4") on horizontal mud

slab substrate. Cut and install VINTEGRA® P20 membrane to closely fit around pile cap. Then apply a 20mm (3/4") thick fillet of BS-200 MASTIC around base of the piling (Figure 1.4). Apply a minimum 3.0mm (3/16") thick counter flashing of BS-200 MASTIC encapsulating cut edge of the VINTEGRA® P20 membrane; extending onto the membrane a minimum 50mm (2"). Install continuous strip of WATERSTOP-RX® on top surface of pile cap around reinforcing steel.

For compacted soil or gravel substrate, first cut and fit a collar of VINTEGRA® P20 membrane extending outward minimum 300mm (12") around pile cap, placed with green film side facing down, prior to installing the pile cap detailing (Figure 1.5).

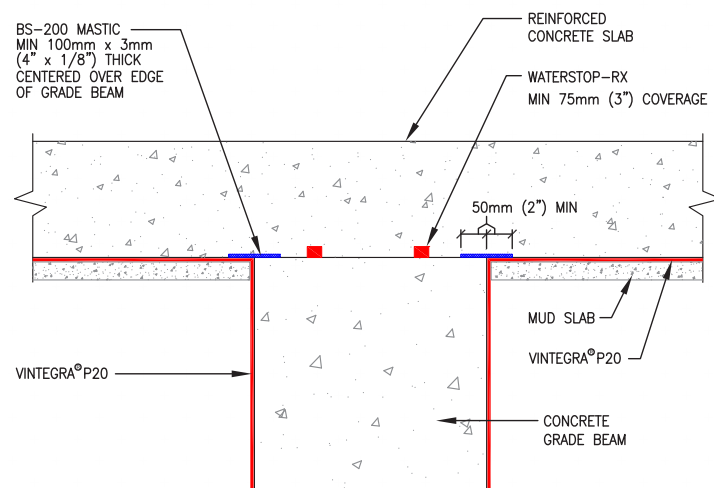


FIGURE 1.5

Detail grade beams the same as pile caps in non-hydrostatic conditions. For hydrostatic conditions, VINTEGRA® P20 membrane should be installed under the entire grade beam and

footings. Line the grade beam formwork with VINTEGRA® P20 membrane prior to placement of reinforcement steel. Leave and protect a minimum 300mm (12") of membrane exposed at the top of the grade beam to tie into adjacent under slab VINTEGRA® P20 membrane course.

1.4 SLAB PENETRATIONS

All penetrations should be secured in their permanent location Prior to installation. All penetrations should have minimum 150mm (6") clearance to allow waterproofing installation. Apply BS-200 MASTIC extended minimum 100mm (4") onto horizontal mud slab substrate surface at minimum 3.0mm (1/8") thickness. If compacted soil or gravel substrate, first cut and closely fit a minimum 200mm x 200mm (8" x 8") collar sheet of VINTEGRA® P20 membrane or VSA-300 FLASHING around the penetration, placed with green film side facing upward (toward installer), prior to installing BS-200 MASTIC around penetration minimum 100 mm (4") at 3mm (1/8") thickness. Cut and install VINTEGRA® P20 membrane to closely fit around pipes and other penetrations (Figure 1.6). Apply a minimum 20mm (3/4") thick fillet of BS-200 MASTIC around the penetration base to completely fill any void area between VINTEGRA® P20 membrane and the pipe penetration. Then apply minimum 3.0 mm (1/8") thick counter flashing of BS-200 MASTIC encapsulating cut edge of VINTEGRA® P20 membrane; with counter flashing extending onto VINTEGRA® P20 membrane and pipe minimum 75mm (3"). Install WATERSTOP-RX® around pipe penetrations in accordance with manufacturer's installation guidelines.

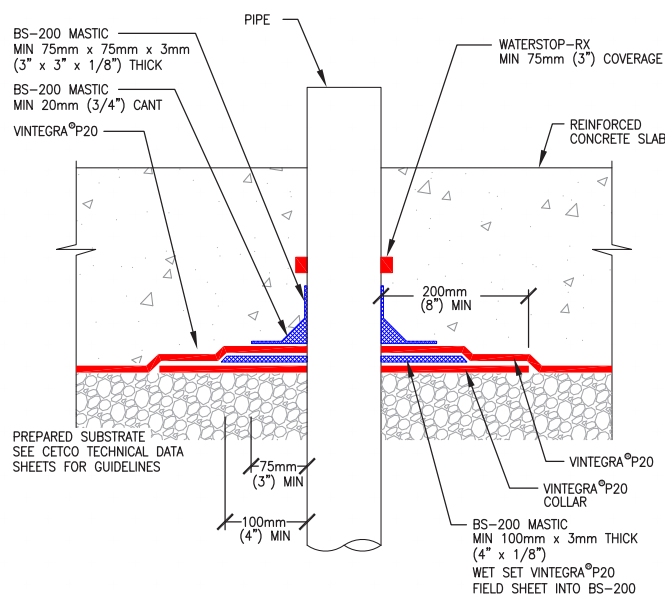


FIGURE 1.6

1.5 ELEVATOR PITS

VINTEGRA® P20 membrane should be placed on vertical surfaces and on the substrate below the slab to form a continuous waterproofing system around the elevator pit (Figure 1.7). If the vertical soil cut is smooth and stable, VINTEGRA® P20 membrane may be installed directly against the soil. Contain unstable soils with a retaining wall or prepare per CETCO substrate guidelines. Install VINTEGRA® P20 membrane directly against the retaining wall. Elevator piston plunger designs vary, consult CETCO for specific installation and detailing for piston plungers that penetrate the waterproofing system.

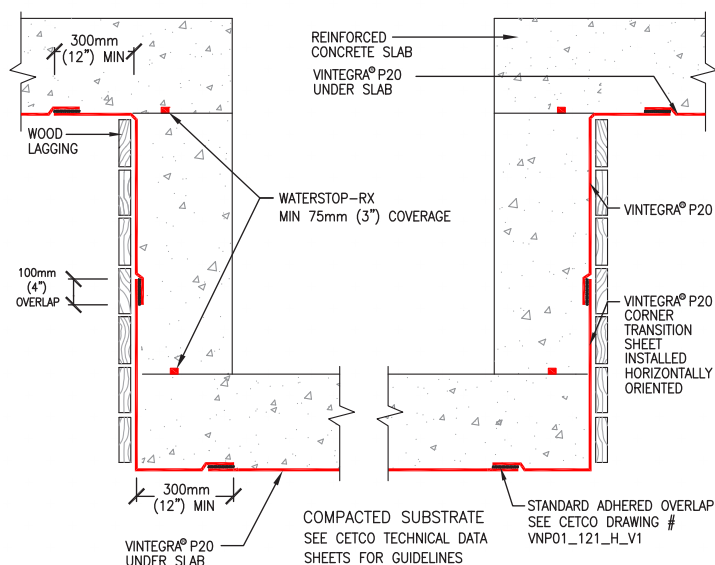


FIGURE 1.7

1.6 EDGE OF SLAB, BACKFILLED WALLS

When the installation reaches the outer edge of the slab, continue VINTEGRA® P20 membrane up inside the surface of the form; trimmed off to a height 50mm (2") less than the top of the formwork. (Figure 1.8). Ensure VINTEGRA® P20 membrane is installed tight to the corner and other formwork without voids or gaps. After form removal, overlap with subsequent foundation wall waterproofing a minimum 150mm (6") past the top edge of VINTEGRA® P20 membrane.

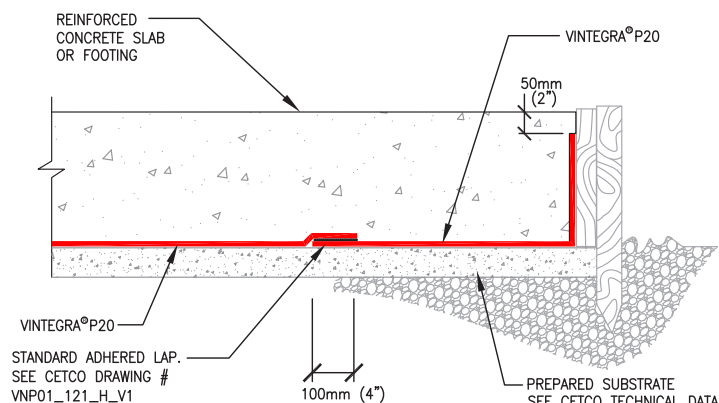


FIGURE 1.8

1.7 EDGE OF SLAB, PROPERTY LINE CONSTRUCTION

Where property line soil retaining walls, such as soldier pile and lagging, are used as the outside form, install VINTEGRA® P20 membrane sheet horizontally oriented (white side facing installer) with minimum 300mm (12") of the sheet bottom edge extending out onto the horizontal substrate. Fit the membrane tight into the corner with the adhesive selvage edge placed on the shoring wall. Installers should take a sheet of VINTEGRA® P20 membrane and fold it horizontally to place a crease to fit into the transition corner. The top edge of the VINTEGRA® P20 membrane sheet on the retaining wall must extend a minimum 300mm (12") above the elevation of the finished slab surface. The extra 300mm (12") sheet extension is very important since there is no access to the outer edge of the slab after it is poured. Secure VINTEGRA® P20 membrane sheet to shoring wall

with low profile fasteners typically 600mm (24") on center along the top edge. Ensure fasteners are installed no further than 25mm (1") from the top edge of the membrane within the adhesive selvedge edge. (Figure 1.9).

At corner transition sheet ends, overlap the VINTEGRA® P20 membrane to the adjacent sheet end a minimum 100mm (4"). Cut and apply VCB-6 TAPE centered along the membrane end lap and extend the tape past on both sides of the end lap a minimum 100mm (4") (Figure 1.2, Page 7). Then install a minimum 300mm (12") long strip of VCB-6 TAPE on both sides of the sheet end, sealing the entirety of the T-Joint overlap. Firmly press all taped areas with a silicon roller.

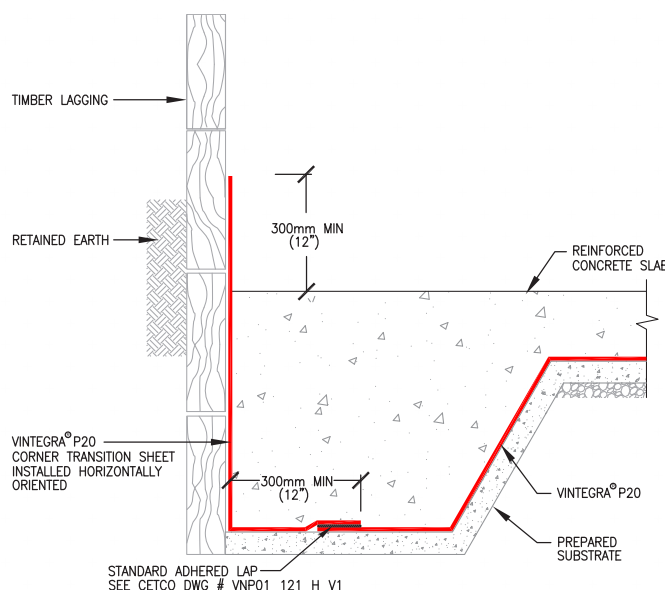


FIGURE 1.9

PROPERTY LINE CONSTRUCTION

The use of construction techniques described in this section allow the exterior building dimensions to coincide with the property line, thereby maximizing use of available land for building. Cast-in-place property line construction methods include soldier pile & lagging, metal sheet piling, earth-formed shotcrete retention walls, and secant caisson walls.



Support of excavation (SOE) work should provide shoring wall in good condition to receive waterproofing system. For all property line construction methods, VINTEGRA® P20 membrane is installed to the shoring wall prior to concrete placement. Install VINTEGRA® P20 membrane with the white adhesive bond coating side inward, facing the installer. For non-hydrostatic conditions, AQUADRAIN sheet drainage and AQUADRAIN 100BD when used should be installed prior to VINTEGRA® P20 membrane and connected to an operable water discharge system. Refer to each applicable construction method in Section 2 for specific substrate preparation and detailing installation guidelines.

2.1.A SOLDIER PILE & LAGGING RETAINING WALL

Verify the following substrate preparation work has been completed. Then install VINTEGRA® P20 membrane following the property line installation guidelines in Section 2.2.

Wood lagging shoring should extend to the lowest level of the waterproofing installation with any voids or cavities exterior of the lagging filled with compacted soil or cementitious grout. Voids or cavities at tiebacks should be filled with grout or compacted soil prior to VINTEGRA® P20 membrane installation. Interior surface of lagging timbers should be planar and tight together with gaps less than 25mm (1"); gaps less than 62mm (2-1/2") when AQUADRAIN® sheet drainage is used. Securely fasten AQUADRAIN® sheet drainage composite to the lagging surface with washer head nails before installing VINTEGRA® P20 membrane. Gaps larger than 62mm (2-1/2") between lagging should be completely filled with grout, wood, or compacted soil even if AQUADRAIN® sheet drainage composite is installed prior to VINTEGRA® P20 membrane. Do not use plywood or other surface treatment over large lagging gaps that leaves the cavity void. If water is flowing through the lagging, a thin polyethylene sheeting can be installed over the area before VINTEGRA® P20 membrane is installed.

2.1.B METAL SHEET PILING RETAINING WALL

Verify the following substrate preparation work has been completed. Then install VINTEGRA® P20 membrane following the property line installation guidelines in Section 2.2.

On or outward of the metal sheet piling per the project design, create a planar substrate surface with 12mm (1/2") thick plywood upon which VINTEGRA® P20 membrane is installed. All void spaces between the plywood and sheet piling must be filled with compacted earth or concrete (Figure 2.1). Install VINTEGRA® P20 membrane to plywood following "Property Line Construction" Guidelines in Section 2.2.

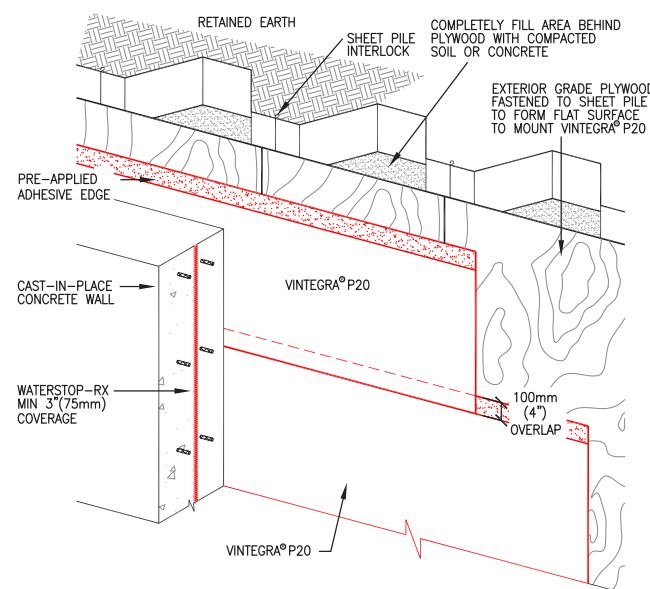


FIGURE 2.1

2.1.C EARTH FORMED SHOTCRETE RETAINING WALL

Verify the following substrate preparation work has been completed. Then install VINTEGRA® P20 membrane following the property line installation guidelines in Section 2.2.

The surface of the earth formed shotcrete diaphragm wall must be sufficiently planar to provide an adequately smooth surface to apply VINTEGRA® P20 membrane. VINTEGRA® P20 membrane can be applied over large, relatively shallow angled changes in plane. The surface should not contain sharp protrusions or sharp changes in plane. Fill all voids with cementitious grout and remove protrusions prior to installing VINTEGRA® P20 membrane. (Figure 2.2).

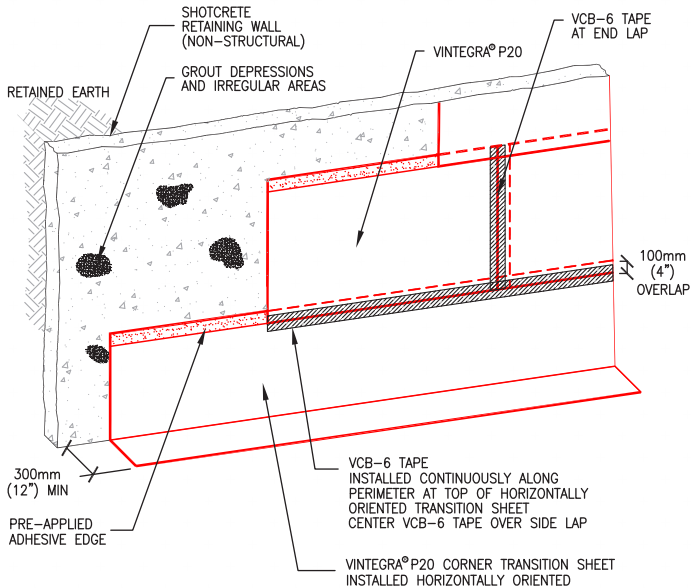


FIGURE 2.2

2.1.D SECANT PILE & CUT ROCK WALLS

Verify the following substrate preparation work has been completed. Then install VINTEGRA® P20 membrane following the property line installation guidelines in Section 2.2.

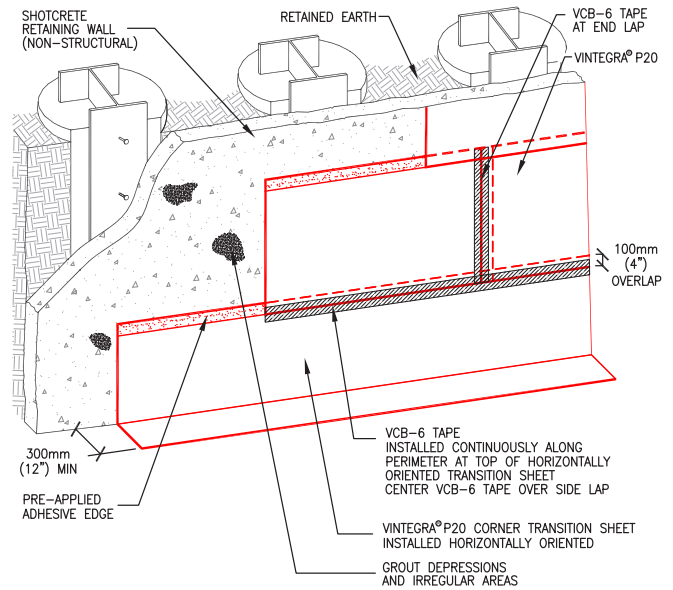


FIGURE 2.3

The surface of secant / contiguous piled and cut rock excavation walls must be sufficiently planar to provide an adequately smooth surface to apply VINTEGRA® P20 membrane. Secant pile and cut rock excavations typically require a shotcrete leveling layer to provide planar substrate surface to install VINTEGRA® P20 membrane (Figure 2.3). The surface should not contain sharp protrusions or sharp changes in plane. VINTEGRA® P20 membrane can be applied over large, relatively shallow angled changes in plane.

2.2 PROPERTY LINE WALL INSTALLATION

After the slab-to-wall corner transition sheet course has been installed per Section 1.7, VINTEGRA® P20 membrane can be applied vertically or horizontally to support of excavation retaining wall or adjoining structures with the green film side outward toward the substrate; white concrete bond coating side facing inward toward the installer. The membrane may be installed in any convenient length. However, a best practice is to install VINTEGRA® P20 membrane sheets vertically oriented in one full length up the shoring wall. Install the VINTEGRA® P20 membrane into position with low profile fasteners appropriate for the substrate spaced across the top edge of the sheet and installed down the one side of the sheet within the adhesive selvage edge so that succeeding sheet edge covers all fasteners. Install fasteners no further than 25mm (1") from the edge of the membrane. As applicable to maintain the sheet tight against the substrate, low profile fasteners can be placed in the field of the sheet and then covered with a 150mm x 150mm (6" x 6") patch of VCB-6 TAPE. Ensure the membrane lays flat and is tight against the shoring wall without wrinkles or billowing, especially at corners, overlaps and transitions.

Accurately position adjacent sheet of VINTEGRA® P20 membrane with pre-applied adhesive selvage edge overlapping the previous sheets adhesive edge 100mm (4"). Avoid membrane overlapping beyond the 100mm (4") wide factory applied adhesive edges and then follow the

seaming installation steps below:

1. Leave the two release films on the edge adhesive strips until the membrane overlap positioning is completed.
2. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. If there is dirt or debris on the membrane, gently wipe with a damp clean cloth; then allow to dry.
3. Simultaneously, peel off and remove the two release liner films in the membrane edge overlap to achieve adhesive to adhesive bond. Ensure continuous bond is achieved without creases or defects.
4. Firmly roll entire lap with a silicone roller. For roll ends, overlap the VINTEGRA® P20 membrane to the adjacent sheet end a minimum 100mm (4"). Cut and apply VCB-6 TAPE centered along the membrane end lap and extend the tape past both sides of the end lap a minimum 100mm (4") (Figure 1.2, Page 7) The T-Joints formed at either side of the end lap shall be sealed with a 300mm (12") strip of VCB-6 TAPE. Align the tape strip parallel with the side laps, centered at the roll end lap. Care should be taken to ensure the tape strip has adequate contact to all three membrane sheets that formed a T-Joint. Firmly press all taped areas with a silicone roller. Sealing tape at membrane edge lap transitions is best accomplished using a "V" roller or the edge of the silicone roller pressed into the membrane edge crease.

Reinforced Perimeter Slab to Wall Seam:

Install a horizontally oriented strip of VCB-6 TAPE on the inside surface of the membrane centered at the VINTEGRA® P20 membrane overlap seam along the top of the horizontally oriented corner transition sheet installed per Section 1.7. Overlap tape roll ends minimum 2" (50mm) to form continuous strip installation around entire perimeter of project (Figure 2.4).

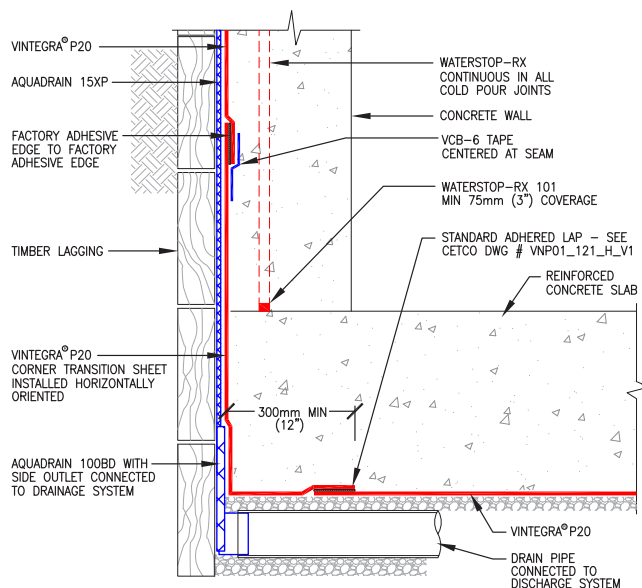


FIGURE 2.4

Pipe Penetrations:

Prior to installation, all penetrations should be secured in their permanent location. All penetrations should have minimum 150mm (6") clearance to allow waterproofing installation. First cut and closely fit a minimum 200mm x 200mm (8" x 8") collar sheet of VINTEGRA® P20 membrane or VSA-300 FLASHING around the penetration, placed with green film side facing inward (toward installer), prior to installing BS-200 MASTIC (Figure 2.5). Apply BS-200 MASTIC minimum 3.0mm (1/8") thick extended a

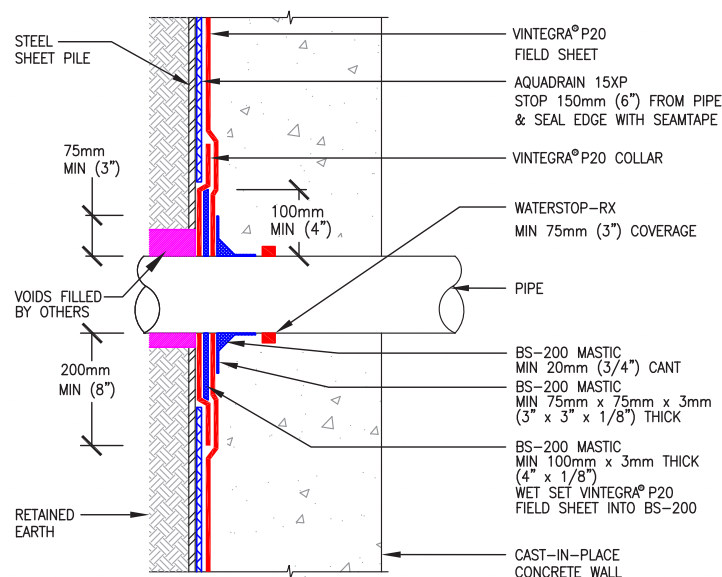


FIGURE 2.5

minimum 100mm (4") onto the collar surface. Cut VINTEGRA® P20 membrane field sheet to closely fit around penetration and install with the green film side outward pressed into BS-200 MASTIC. Trowel a minimum 20mm (3/4") thick fillet of BS-200 MASTIC around the penetration base to completely fill any void area between VINTEGRA® P20 membrane edge and the pipe penetration. Seal cut edge of VINTEGRA® P20 membrane with minimum 3.0mm (1/8") thick counter flashing of BS-200 MASTIC; extending counter flashing minimum 75mm (3") onto VINTEGRA® P20 membrane and pipe.

Tie-Back Heads/Soil Nails:

Install the appropriate size TB-BOOT over the Tie-Back head or soil nail in accordance with CETCO installation guidelines. Apply VDS-100 TAPE strips along all four outward edges of the TB-BOOT flange; with the VDS-100 TAPE strip ends overlapped a minimum 50mm (2") to form a continuous installation. Verify that all fasteners

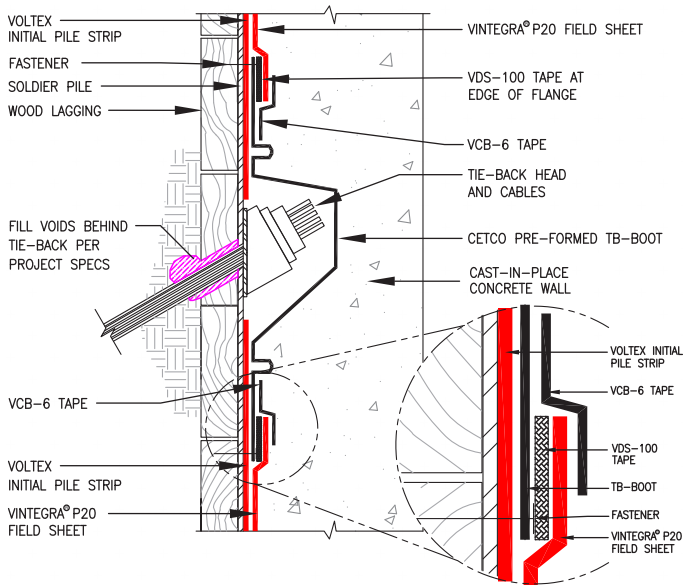


FIGURE 2.6

securing the TB-BOOT flange are outward to, or covered by, the VDS-100 TAPE. Cut the field sheet of VINTEGRA® P20 membrane to fit over the edge the TB-BOOT flange (and the VDS-100 TAPE) a minimum 100mm (4"). Firmly press the VINTEGRA® P20 membrane edge into the VDS-100 TAPE. Then apply a continuous flashing of VCB-6 TAPE centered along the inward exposed edge of the VINTEGRA® P20. (Figure 2.6).

Grade Termination:

Prior to installing VINTEGRA® P20 membrane to finished grade, install a 12mm (1/2") thick cementitious wall board centered over the steel soldier pile from finished grade elevation to the specified depth that the soldier pile and wood lagging will be removed (Figure 2.7). This will protect the membrane from getting burned or damaged during subsequent removal of the retaining wall structure. Any areas damaged during removal of the soldier pile and lagging will need to be repaired.

Terminate VINTEGRA® P20 membrane within the formwork at finished grade elevation per project details and specification. After form removal, secure top edge of membrane with termination bar fastened maximum 200mm (8") on center. Complete termination by applying a tooled bead of CETSEAL along the top termination edge. If VINTEGRA® P20 is terminated below finished grade elevation, install VINTEGRA® SA20 membrane to concrete wall above top edge of VINTEGRA® P20 membrane; with bottom edge of VINTEGRA® SA20 overlapping top edge of VINTEGRA® P20 minimum 100mm (4"). Overlap all roll ends of VINTEGRA® SA20 membrane a minimum 100mm (4") to form a continuous grade flashing. Elevation of grade flashing shall be per project details and specifications. Install a rigid termination bar along top edge of VINTEGRA® SA20; fastened maximum 200mm (8") on center. Complete grade termination detail with tooled bead of CETSEAL™ sealant/adhesive along the top edge.

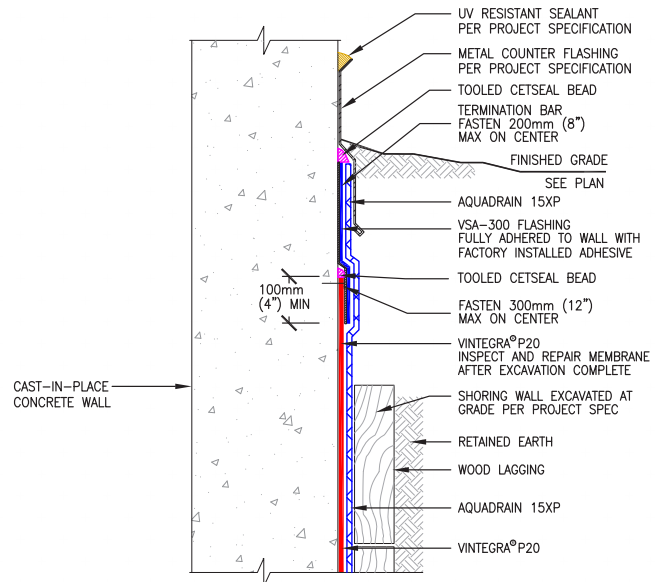
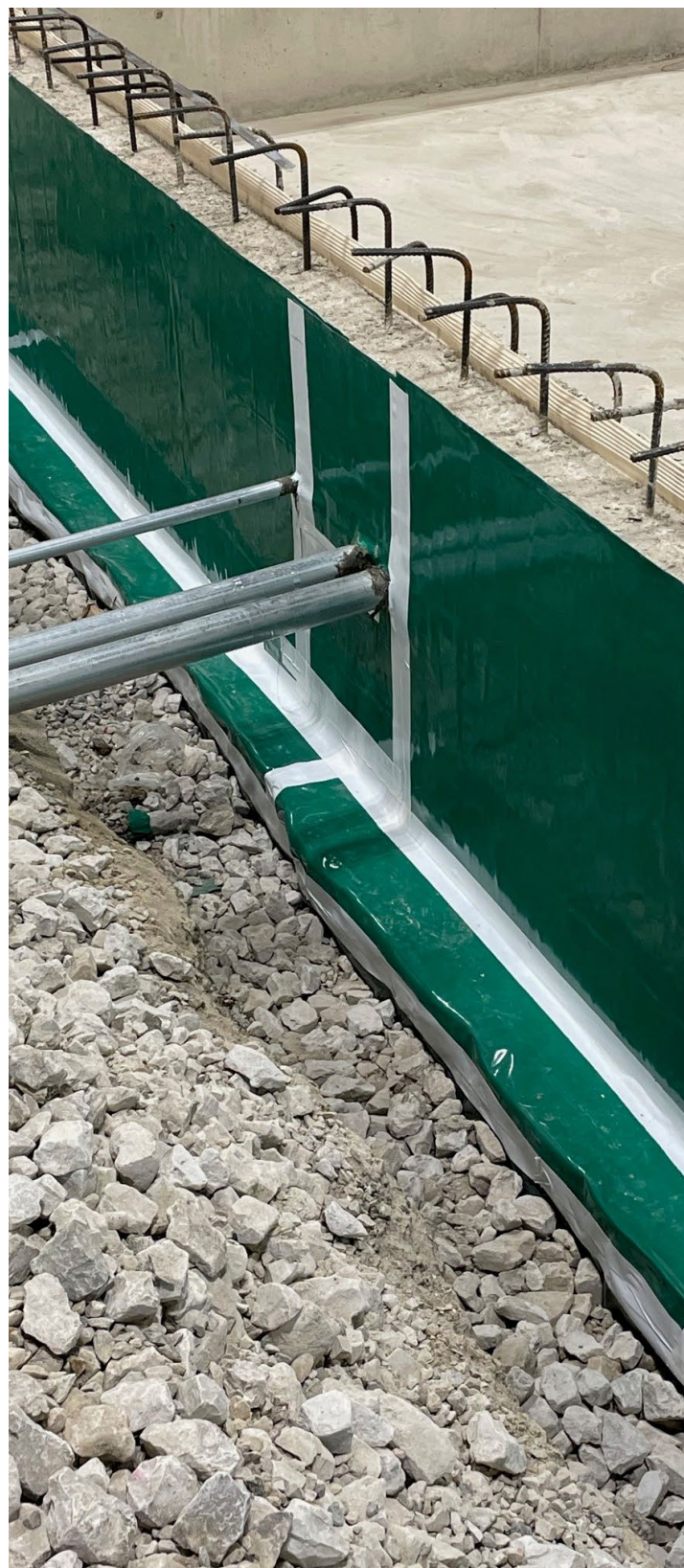


FIGURE 2.7

VINTEGRA® P20 & SA20 MEMBRANE PRODUCT MANUAL

Prior to backfilling work apply protection layer over the VINTEGRA® SA20. Backfill should consist of compactable soil or angular aggregate 20mm (3/4") diameter or less, free of debris, sharp objects, and stones larger than 20mm (3/4").



BACKFILLED FOUNDATION WALLS (VINTEGRA® SA20 MEMBRANE)



Install VINTEGRA® SA20 membrane composite with the adhesive side directly in contact with the cast-in-place concrete foundation walls prior to backfilling. Remove release liner once membrane is properly aligned into position. Roll firmly over entire membrane and overlaps with a silicon roller to ensure a continuous bond without creases or defects. Use VINTEGRA® SA20 membrane with concrete cast with conventional forms that produce a smooth surface. CMU foundation walls shall have all joints filled and struck flush with planar surface of block. Concrete must be properly cured minimum 14 days for normal structural concrete. Certain conditions may require longer dry times, such as unusually wet weather or late removal of forms. For each application the applicator should install a test sheet patch on the wall to verify sufficient adhesion to the substrate. Cure concrete with clear, resin-based curing compounds which do not contain oil, wax or pigment. For non-hydrostatic conditions, AQUADRAIN sheet drainage and AQUADRAIN 100BD when used should be installed after VINTEGRA® SA20 membrane course and connected to an operable water discharge system.

3.1 SURFACE PREPARATION

The wall surface must be properly prepared before VINTEGRA® SA20 membrane is installed. Surface to be waterproofed must be clean, sound, and free of release agents or any other substances that might prevent bonding of the membrane. Remove dirt, dust, mud, rocks, and debris to provide VINTEGRA® SA20 membrane with direct contact to the concrete in the application area. Areas of surface honeycombing or voids should be filled with cementitious grout or BS-200 MASTIC. Form fins and protrusions should be knocked off or ground flush with the concrete surface. Apply thin patch of BS-200 MASTIC over exterior surface of all grouted form tie holes. (Figure 3.1). Allow concrete to thoroughly dry following rain. Excess moisture may lead to blistering of the membrane.

3.2 VINTEGRA® SA20 MEMBRANE INSTALLATION

Before installing the VINTEGRA® SA20 membrane, trowel a minimum 20mm (3/4") thick fillet of BS-200 MASTIC at the wall/footing inside corner. Install a strip of VSA-300 FLASHING along the wall-to-footing inside corner over the 20mm (3/4") cant of BS-200 MASTIC. Center the VSA-300 FLASHING roll to extend 150mm (6") onto the surface of the wall and 150mm (6") out onto the footing. Remove the release liner and then firmly press the entire VSA-300 FLASHING strip to the substrate with a silicone roller. Lap roll ends minimum 75mm (3") to form a continuous installation. Then install VINTEGRA® SA20 membrane on the foundation wall with the bottom edge overlapping the VSA-300 FLASHING strip down to the wall/footing inside corner. (Figure 3.2)

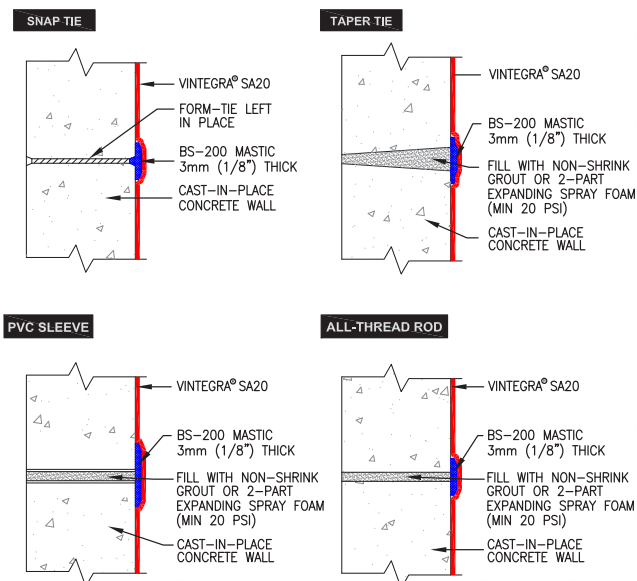


FIGURE 3.1

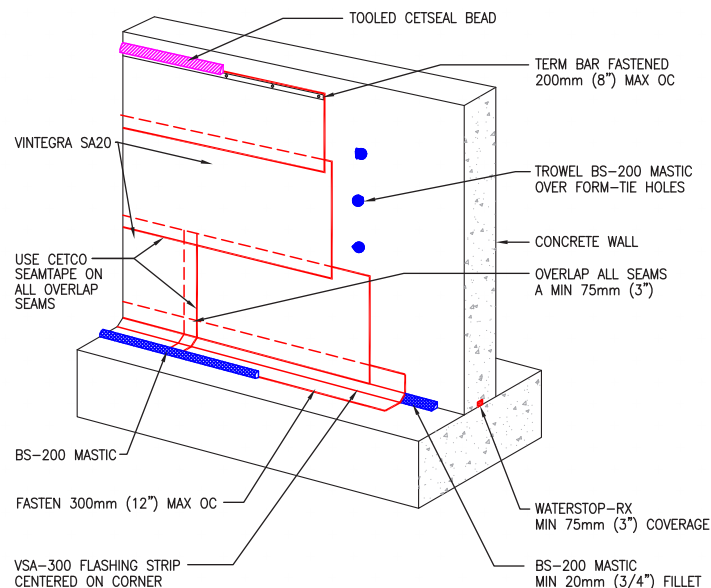


FIGURE 3.2

On the foundation wall, VINTEGRA® SA20 membrane sheet can be installed vertically or

horizontally oriented. Place membrane with adhesive side toward concrete, remove release liner and then firmly roll all membrane with hand roller. Overlap all membrane edges minimum 75mm (3"). Shingle all horizontal laps to shed water. Install CETCO SEAMTAPE centered over all membrane overlap seams with strip ends overlapped minimum 50mm (2") to form a continuous installation. Install VSA-300 FLASHING strip centered at all outside wall corners prior to the membrane sheet. At vertical inside corners, apply a continuous 20mm (3/4") fillet of BS-200 MASTIC directly in the corner on the concrete prior to installing a strip of VSA-300 FLASHING centered at the corner.

For hydrostatic conditions, at the base of the wall install the VINTEGRA® SA20 membrane completely covering the VSA-300 FLASHING strip and the top of the footing; extending the membrane down the outward face of the footing a minimum 150mm (6") overlapping the underslab waterproofing membrane.

3.3 BACKFILLED WALL PENETRATIONS

Prior to installation, all penetrations should be secured in their permanent location. All penetrations should have minimum 150mm (6") clearance to allow waterproofing installation. Cut VINTEGRA® SA20 membrane to closely fit around penetration and install with adhesive side pressed firmly to substrate. If a relief cut is required to place membrane around penetration, cut a minimum 150mm (6") wide strip of VINTEGRA® SA20 membrane and place centered over relief cut. Apply

BS-200 MASTIC minimum 3.0mm (1/8") thick extended minimum 75mm (3") onto penetration and minimum 75mm (3") onto VINTEGRA® SA20 membrane. Trowel a minimum 20mm (3/4") thick fillet of BS-200 MASTIC around the penetration base to completely fill any void area between VINTEGRA® SA20 membrane and the pipe penetration. (Figure 3.3)

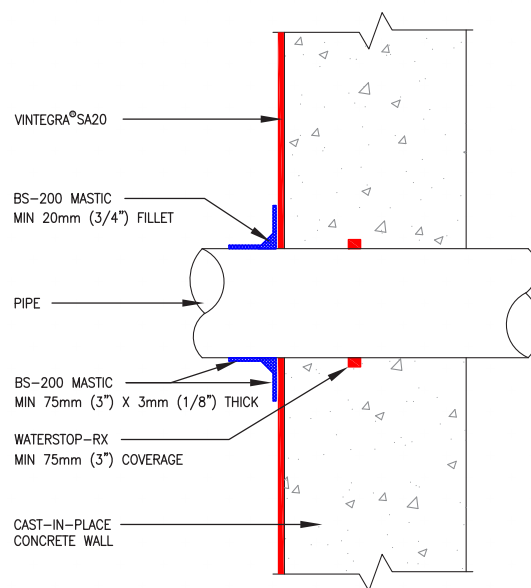


FIGURE 3.3

3.4 GRADE TERMINATIONS

Terminate VINTEGRA® SA20 membrane at finished grade elevation with termination bar fastened maximum 200mm (8") on center along top edge of membrane. Complete termination detail with continuous tooled bead of CETSEAL sealant along top termination edge (Figure 3.4); tool bead so that it extends onto concrete substrate and seals the top termination edge. Prior to backfilling, protect membrane to avoid damage from other trades, construction materials or backfill.

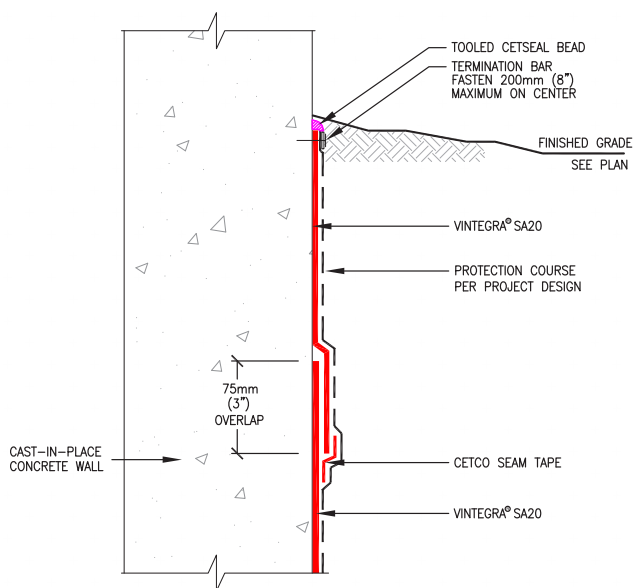


FIGURE 3.4

3.5 DRAINAGE

AQUADRAIN sheet drainage composites are recommended for positive drainage and protection of the membrane. AQUADRAIN drainage sheets can be installed over VINTEGRA® SA20 membrane using strips of VDS-100 TAPE.

3.6 BACKFILL

The excavated area should be promptly backfilled after VINTEGRA® SA20 membrane is installed. Backfill should consist of compactable soils or angular aggregate 20mm (3/4" or less) free of debris, sharp objects, and stone larger than 20mm (3/4").

3.7 MASONRY BLOCK WALLS

Verify the following substrate preparation work has been completed. Then install VINTEGRA® SA20 membrane following the backfilled wall installation guidelines in Section 3.2. Remove dirt, debris, oil, grease, cement laitance, or other foreign matter which will impair or negatively affect the adhesion or performance of the waterproofing and drainage system. Concrete block or brick should be sound with mortar joints struck flush to masonry face. Install membrane only onto smooth, uniform face masonry block that provides a monolithic surface

SPECIAL CONDITIONS

VINTEGRA® P20 MEMBRANE REPAIR

Inspect the VINTEGRA® P20 membrane before installation of reinforcement steel, formwork and placement of concrete. The membrane can be easily cleaned by sweeping or power washing, if required. Repair damage by wiping the area with a damp cloth to ensure the area is clean and free from dust, and other contaminants and allow the membrane to dry. Repair small punctures and slices 12 mm (1/2") or less by applying VCB-6 TAPE centered over the damaged area. Repair punctures and slices larger than

12mm (1/2") by applying a patch of VINTEGRA® P20 membrane. Extend the patch 150 mm (6") beyond the damaged area on all sides. Seal all edges of the patch with VCB-6 TAPE centered on VINTEGRA® P20 membrane patch edge; overlapping VCB-6 TAPE roll ends minimum 100mm (4"). All VCB-6 TAPE must be rolled firmly with a silicone roller.

Where exposed adhesive selvage edge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover the lap with VCB-6 TAPE. Any areas of damaged adhesive should be covered with VCB-6 TAPE. All VCB-6 TAPE must be rolled firmly with a silicone roller. Slices or relief cuts can be butted or overlapped and repaired by applying VCB-6 TAPE centered over the edge of the overlap or center of the butt joint. Where it is not possible to create a butt joint or overlap, repair with fresh membrane and VCB-6 TAPE per large hole repair procedure.

POURING OF CONCRETE

Ensure the plastic release liner is removed from all installed VINTEGRA® products. Under most climatic conditions concrete should be poured within 60 days of membrane installation. Where ambient temperatures will exceed 100°F (38°C) for more than a total of 7 days, concrete should be placed within 45 days of installation of the membrane. Concrete must be placed and vibrated carefully to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

REMOVAL OF FORMWORK

Formwork should not be removed until the concrete has had sufficient time to cure. A minimum concrete compressive strength of 3,000 psi (20 N/mm²) is required prior to stripping formwork supporting VINTEGRA® P20 membrane. Premature stripping of forms may result in displacement of the membrane and/or spalling of the concrete. After removal of the formwork and prior to backfilling, all exposed VINTEGRA® membranes must be protected from damage with an approved protective course.



SAFETY AND HANDLING

Users must read and understand the product label and Safety Data Sheets (SDS's) for each system component before use. All users should acquaint themselves with this information prior to working with the material. Carefully read precaution statements on the product labels and SDS's before use.



STORAGE

- Observe one year shelf life and use on a first in, first out basis.
- Store in dry conditions between 40°F (4.5°C) and 90°F (32°C)
- Store off ground under tarps or otherwise protected from prolonged sunlight, rain and ground moisture.

IMPORTANT NOTICE

FOR SHOTCRETE, PRECAST CONCRETE, EXPANSION JOINTS AND OTHER APPLICATIONS NOT COVERED IN THIS MANUAL, CONTACT CETCO FOR TECHNICAL ASSISTANCE AND INSTALLATION GUIDELINES. Contact CETCO for verification of specification and installation requirements to comply for eligibility of CETCO HYDROSHIELD® Warranty for waterproofing. Gas barrier performance is not eligible for CETCO HYDROSHIELD® Warranty. Gas barrier performance is limited to a standard material only warranty.



QUALITY PRODUCTS PROVEN PERFORMANCE

Since 1963, more than a billion square feet of CETCO waterproofing products have been installed worldwide, becoming the standard by which all other waterproofing membranes are measured. By specifying CETCO products, you ensure that your project will benefit from best-in-class waterproofing products specifically engineered to be integrated and installed as a complete waterproofing system. CETCO offers a full line of quality waterproofing membranes, waterstops, and drainage composites, as well as a complete line of installation accessories—everything you need from the bottom of the excavation up to your green roof. Our broad product range of waterproofing systems provides installation versatility, allowing you to work with a single manufacturer to cover all of your waterproofing needs.

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