



BUILDING MATERIALS

VOLCLAY WATERPROOFING SYSTEMS

BUILDING ENVELOPE SOLUTIONS

WATERPROOFING PRE-CAST CONCRETE PANELS USING VOLTEX OR ULTRASEAL MEMBRANES.



TECHNICAL DATA

CETCO the Leader in Waterproofing Innovation.

Volclay Waterproofing Products from **CETCO** offer total solution waterproofing. With CETCO's single source capability, you can be sure of a totally integrated waterproofing system that yields ultimate performance. CETCO manufactures and markets a complete line of quality waterproofing membranes, waterstops, drainage composites as well as a complete range of installation accessories—everything that you need from the bottom of the excavation up.

Each of CETCO's waterproofing membranes uses the natural swelling and self-healing properties of Volclay sodium bentonite. This unique mineral was formed from volcanic ash and saltwater millions of years ago, making CETCO products the most environmentally sensitive on the market today. All contain zero VOC, can be installed in almost any weather condition to green concrete, and most importantly, have proven effective for more than 40 years.

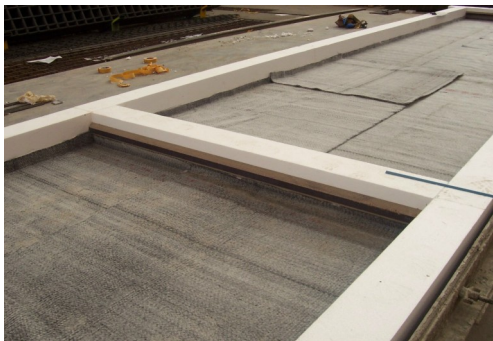
When wetted, unconfined bentonite can swell up to 15 times its dry volume. When confined under pressure, the bentonite forms an impervious, water-resistant membrane. With the Volclay Waterproofing System, the problem activates the solution, reliably and automatically. If penetrated after installation, the product will self-heal and can seal tiny cracks caused by ground settlement, concrete shrinkage, or seismic action; problems over which there is normally no control.

CETCO is a diversified specialty mineral & chemical company, providing bentonite based products for a wide range of construction, environmental and industrial applications. **AMCOL Corporation**, CETCO's parent company, is the world's largest producer and processor of bentonite and offers unique technical expertise to its customers worldwide.

AMCOL operates in two major industry segments; minerals & environment. The mineral segment mines, processors and distributes clays and products to various industrial and consumer markets. The environmental segment manufactures and distributes bentonite based products for use as sealant barriers in construction, landfill and lagoons and a variety of other industrial and commercial applications.

With a history of innovation and technical advancement, CETCO is able to call upon its worldwide network of resources to bring to market, ground-breaking products, technologies and process applications.

Casting Concrete Pre-Cast Panels directly onto Volclay Waterproofing Membranes is certainly an advancement in process applications and has been proven for over 15 years.



ADVANTAGES OF VOLCLAY WATERPROOFING SYSTEMS by CETCO

- ✓ **Easy to Install:** fast and easy installation in almost any weather saving time and money.
- ✓ **Self-Healing:** active, swelling properties of sodium bentonite seals small cracks and voids.
- ✓ **Natural Mineral:** bentonite consists of natural minerals without any primers or adhesives containing volatile organic compounds (VOC).
- ✓ **High Hydrostatic Resistance:** Volclay bentonite works under continuous and intermittent conditions.
- ✓ **Property Line Applications:** waterproofs blind-side property line development.
- ✓ **All Weather Installation:** can be applied to damp concrete or in freezing temperatures, increasing workable days.

TECHNICAL DATA

Using CETCO VOLTEX or ULTRASEAL waterproofing membranes to effectively waterproof Concrete Pre-Cast Panels by mechanical fixing methods has always proved to be the quickest, most cost effective way to apply a high performance membrane in order to prevent water ingress through a new structure.

This has involved the Panels being position on site and then the Waterproofing Applicator going behind the structure against the cut and mechanically fastening the VOLTEX/ULTRASEAL into the concrete surface.

To do this successfully, usually involves an over excavation to take place in order for the Applicator to gain a safe access to enter and if required erect scaffolding.

The Break-through!

There is a way to improve the installation process by applying VOLTEX/ULTRASEAL to the Pre-Cast Panel at the time of Panel Manufacturing and to gain the following benefits:

- **Save Waterproofing Installation Time & Labor Costs.**
- **Eliminate Costs due to Over-Excavation Needs.**
- **Difficult Property-Line Waterproofing Design Issues are Eliminated.**
- **OH & S issues and compliance costs are resolved.**
- **Better Performance as 'other Trades' cannot damage or remove the membrane from the wall during backfilling or subsequent operations.**
- **Programing Time is saved as one operation is all but eliminated.**



VOLTEX & VOLTEX DS BENTONITE GEOTEXTILE WATERPROOFING SYSTEMS

VOLTEX is a highly effective waterproofing membrane ideal for below-grade vertical and horizontal foundation surfaces. VOLTEX uses the high-swelling and self-sealing properties of sodium bentonite to form a monolithic, low permeable membrane to protect the structure from water.

Installation is fast and easy and requires no primers or special tools.

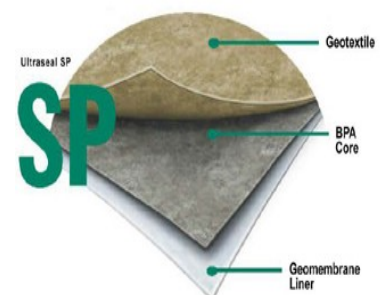
VOLTEX is a unique composite comprised of two high strength geotextiles and a minimum of 4.8 kg of sodium bentonite per square metre. The fibers of the geotextiles are interlocked by a needle-punching process which encapsulates the bentonite and keeps it uniformly distributed. VOLTEX DS combines the proven waterproofing technology of a bentonite geotextile composite with a high-strength polyethylene liner. VOLTEX DS is designed for projects that require additional chemical resistance, and lower water vapor performance.

ULTRASEAL SP

ADVANCED APC WATERPROOFING TECHNOLOGY WITH INTEGRATED GEOMEMBRANE LINER

ULTRASEAL waterproofing systems are engineered to provide the most effective below-grade waterproofing protection available. Utilizing an advanced Active Polymer Core (APC) technology, ULTRASEAL is ten times less permeable and more chemically resistant than traditional hydrophilic waterproofing membranes. Additionally, ULTRASEAL weighs less than half that of other membranes allowing quick and easy installations.

ULTRASEAL is quickly installed to provide greater flexibility to the construction schedule. The membranes are extremely durable and stand up to construction traffic and inclement weather. ULTRASEAL can actually be installed in freezing temperatures and applied to green concrete without having to wait for the concrete to cure.



TECHNICAL DATA

WATERPROOFING CONCRETE PRE-CAST PANELS



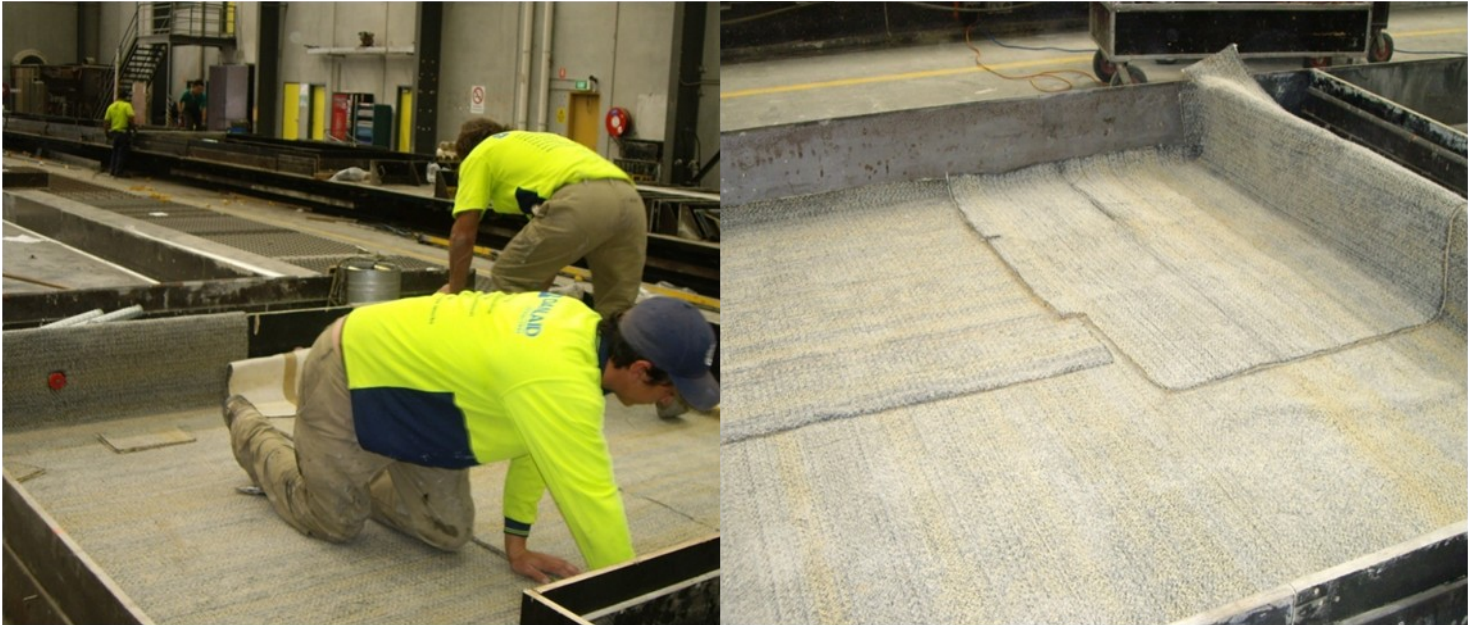
VOLTEX, VOLTEX DS or ULTRASEAL SP rolls are delivered to point of Panel Manufacturing. The VOLTEX range comes in two size rolls: 1.2 m x 5.0 m or 1.66 m x 40.0 m, whilst ULTRASEAL SP is available in 1.2 m x 7.6 m rolls.



VOLTEX or ULTRASEAL can be either placed on top of the still wet Panel or placed directly on to the Panel Table and Mould depending on the desired internal Panel finish.

TECHNICAL DATA

WATERPROOFING CONCRETE PRE-CAST PANELS



If the membrane is to be placed within the mould VOLTEX, VOLTEX DS or ULTRASEAL SP rolls are placed on the table, cut and fitted to the shape of the Panel. VOLTEX is overlapped on each sheet by 100 mm whilst ULTRASEAL SP is overlapped by a minimum of 50 mm. This operation is usually carried out or overseen by CETCO's Approved Applicators.



Corners are usually sealed or held in place using CETSEAL. Grouting tubes or penetrations are cut around and sealed using BENTOSEAL. If a termination or grade level is at a point through the Panel the membrane is simply just installed to that mark.

TECHNICAL DATA

WATERPROOFING CONCRETE PRE-CAST PANELS



Once the membrane has been installed and detailed, all steelwork is installed as per normal. Concreting pouring and vibration continues as is normally carried out. There is no need for mould release oils to be placed on the Table when VOLTEX or ULTRASEAL are used.



Panels are then lifted from the mould or table and stored in the normal fashion. VOLTEX or ULTRASEAL will not effect drying or curing times.

TECHNICAL DATA

WATERPROOFING CONCRETE PRE-CAST PANELS



The finished Panel with either VOLTEX, VOLTEX DS or ULTRASEAL SP membranes attached are then ready for transport to site. Once the membrane is attached in this way, it is extremely difficult to remove or damage. If damage does occur a patch of membrane is mechanically fastened over the effected area. If grade levels are not known it is best to leave the membrane at a lower point and mechanically fix it to the height on site.



The Panels are lifted into place. The CETCO Approved Applicator should be on site to carry out any detailing or installation of HYDROBAR TUBES should they be required as the Panels are erected.

TECHNICAL DATA

WATERPROOFING CONCRETE PRE-CAST PANELS

<p>VOLTEX DS WATERPROOFING</p> <p>PRECAST PANELS</p> <p>Horizontal Joint</p>	<p>DETAIL</p> <p>WP</p> <p>SCALE: NTS 08/10</p>
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INSTALL VOLTEX DS WITH GRAY GEOTEXTILE FACING CONCRETE

This information is based on data and knowledge considered to be true and accurate. The information is offered for the users' consideration, verification, and requires project designer's approval before installation. CETCO does not warrant the results obtained and assumes no liability for the use of the information. Please contact CETCO with any questions or deviations from this information. CETCO waterproofing products are not expansion joint materials. Expansion joints should be sealed with a proper expansion joint material by others. This information is subject to change.

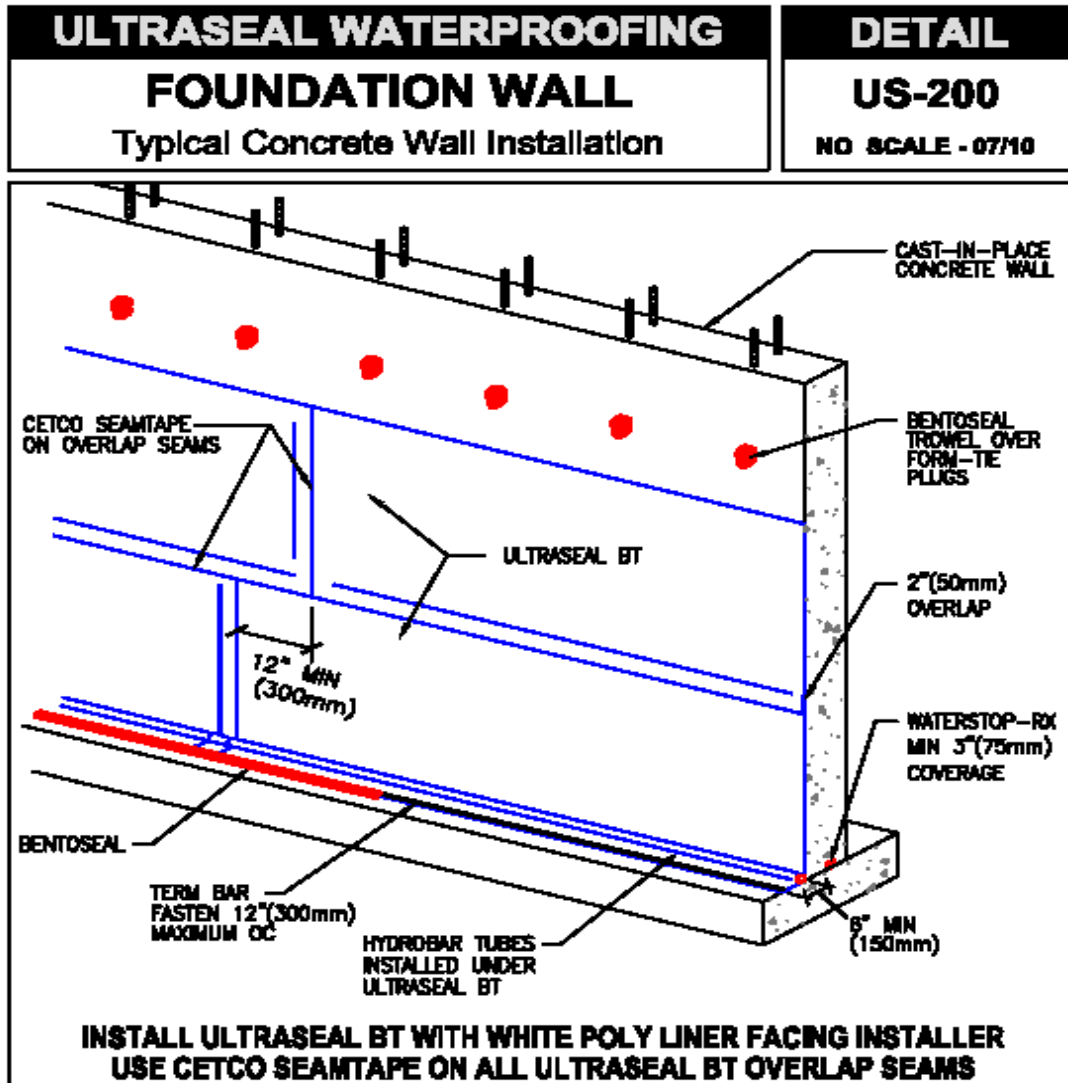
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Horizontal Joint detail where the Panel sits flush with the Slab.

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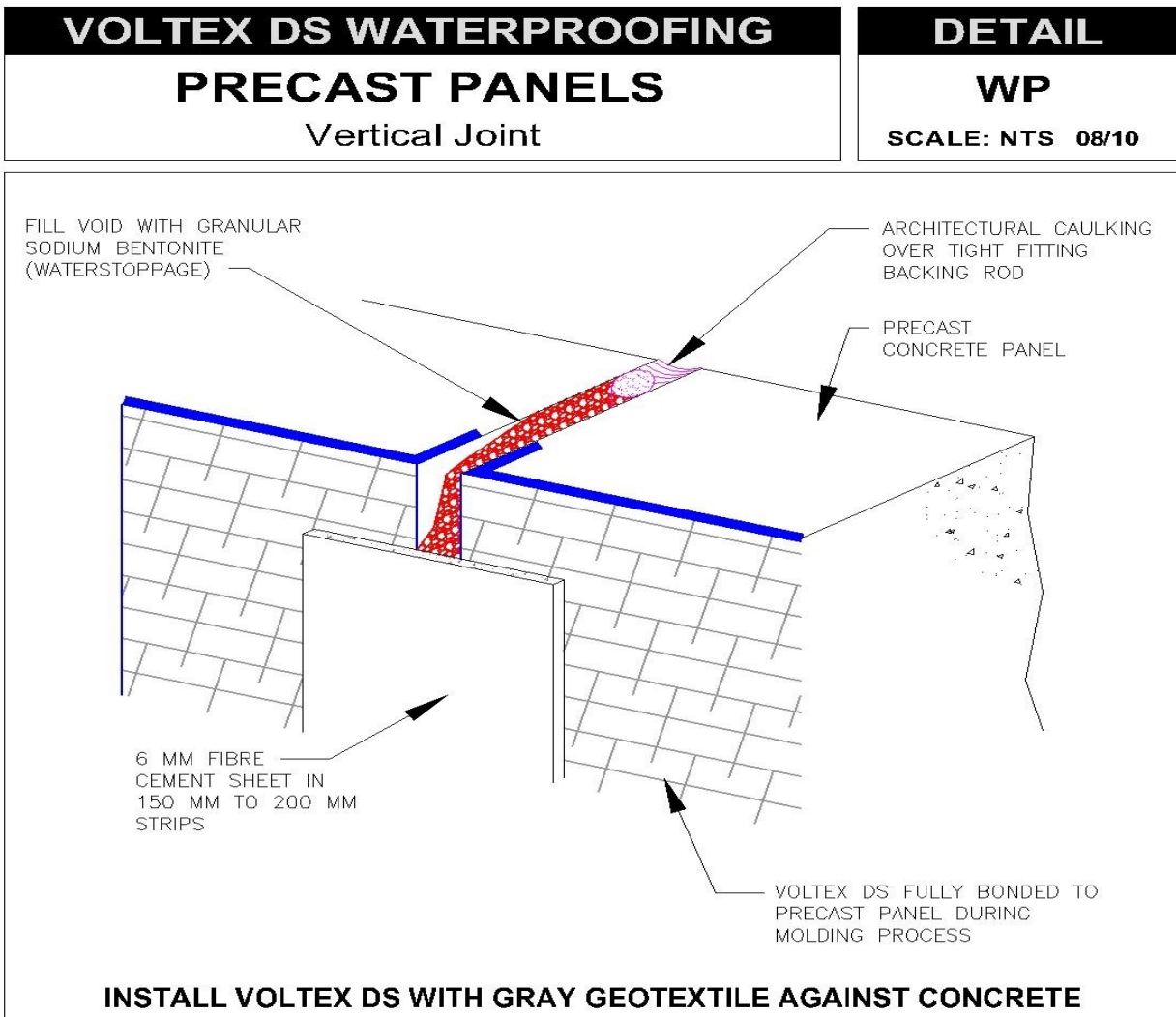
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If the Panel sits on footing or the slab extends past where the Panel will sit then the above detail with the inclusion of HYDROBAR TUBES will be used.



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Panel Joints are waterproofed by the CETCO Approved Applicator, by placing a cement sheet or plyboard at the rear of the Panel Joint, backfilling can take place at this point. Installation of Backing Rods or Caulking can be carried out at the internal face of the Panel, either by the Applicator or Others and then the Applicator will fill the void with granular bentonite WATERSTOPPAGE.



TECHNICAL DATA

WATERPROOFING CONCRETE PRE-CAST PANELS



ULTRASEAL SP INSTALLED Panels are shown with Plyboard placed at Panel Joint and overlap on to footing with HYDROBAR TUBES beneath membrane.



VOLTEX DS installed Panels ready for back-filling operation.

Quality Assurance Program

If it's worth building, it's worth protecting.



Projects completed using the outlined method may be eligible for the HYDROSHIELD Quality Assurance Program and subsequent Warranty.

IMPORTANT NOTICE; TO COMPLY WITH ISSUANCE OF HYDROSHIELD QUALITY ASSURANCE PROGRAM, CONTACT YOUR LOCAL CETCO REPRESENTATIVE FOR VERIFICATION OF SPECIFICATION AND INSTALLATION REQUIREMENTS.