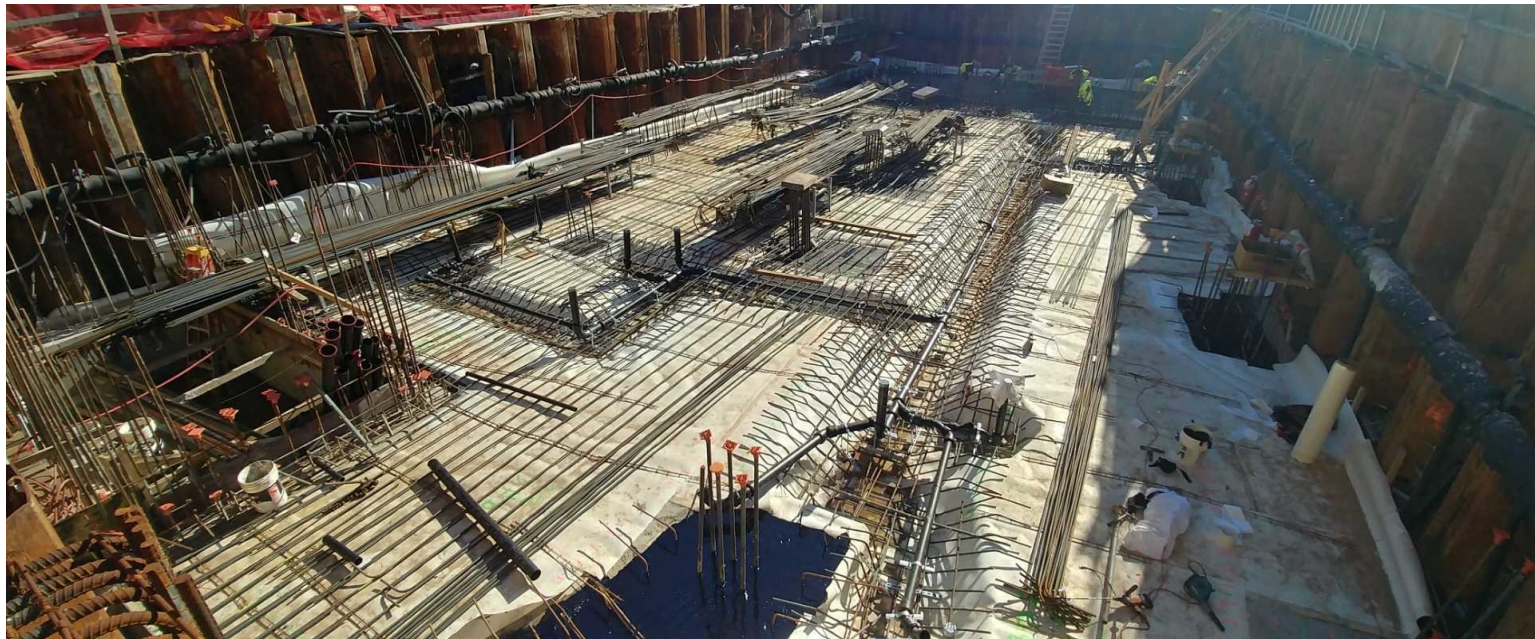




PRETAK SUBMITTAL PACKET

PRETAK

HDPE PRE-APPLIED WATERPROOFING



Fully adhered pre-applied, HDPE waterproofing membrane creates superior bond to poured in place concrete.

-Blindside
-Underslab
-Tunnels
-Shotcrete
-Methane



PreTak rolls with pre-adhered seldge

PreTak Sheet Waterproofing System

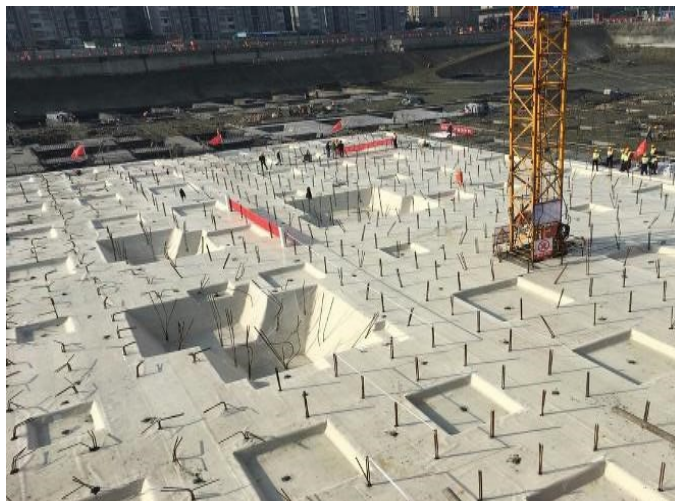
EPRO's PreTak membranes are the latest generation of pre-applied waterproofing membranes. PreTak membranes consist of dual-layered composite sheet comprised of a thick HDPE film - 46 mil (PreTak) with strong pressure sensitive adhesive and release liner. EPRO PreTak membranes form an integral bond to poured-in-place concrete, preventing both the ingress and lateral migration of water while providing a robust barrier to vapor, water, gas, and contaminated soils. Concrete is cast directly against the adhesive side of the PreTak membrane to form a continuous and integral watertight seal to the structure.

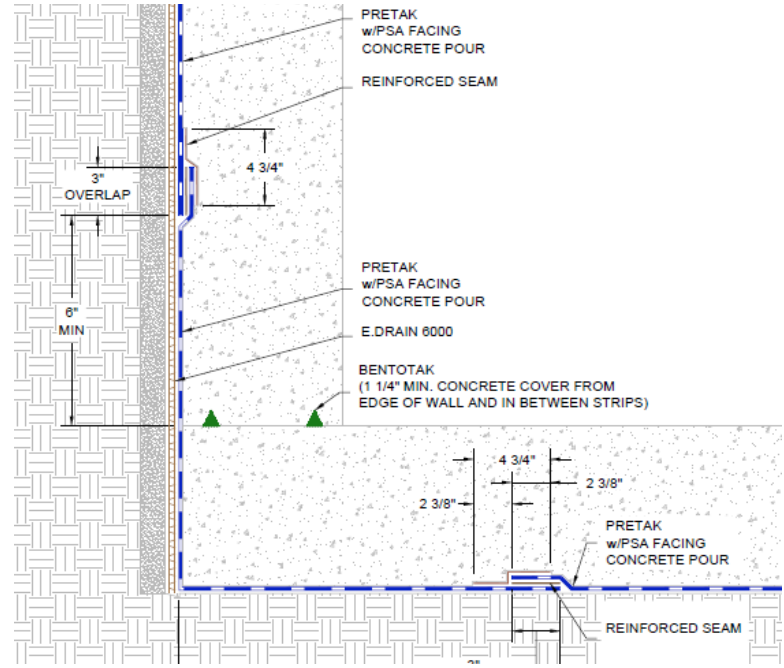
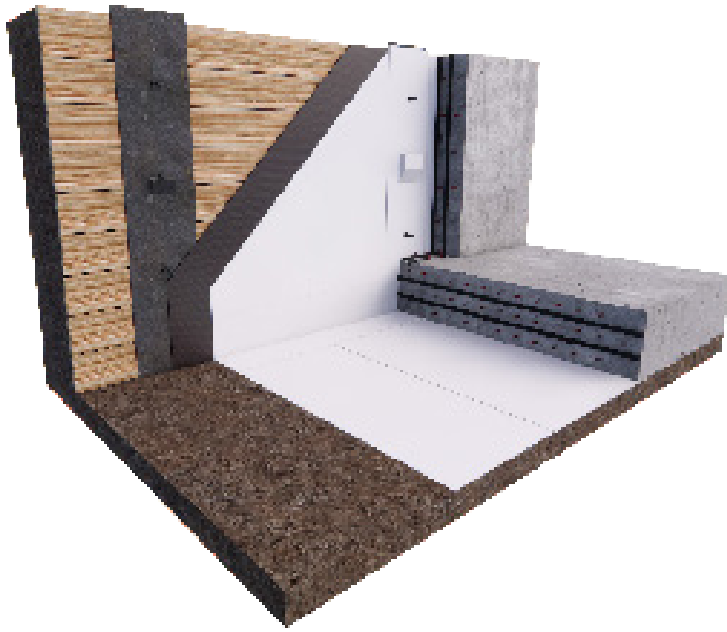
Superior value meets superior performance

- Fully adhered bond to concrete eliminates lateral water migration behind the membrane.
- High density polyethylene (HDPE) has excellent durability characteristics, chemical resistance, ultra-low permeability, puncture and tear resistance.
- Effective in most contaminated soil conditions preventing water and contaminate vapor intrusion.
- Heat weld capable seams ensure the most robust and secure gas and watertight seams.
- Proven dependability with an effective track record of over 25 years of successful performance on projects around the world.
- Double width rolls available (7' 10") - fewer seams, faster application.
- Superior value with better performance than competing HDPE membranes.



EPRO Services Inc. Kansas City, MO 64129
www.eproinc.com tel 800.882.1896





System: PreTak

Application: Pre-applied under slab and blindside waterproofing and gas protection

System Thickness: 46 mils

SYSTEM AT A GLANCE

Product	Description	Application	Dimensions
PreTak	HDPE sheet membrane with pressure sensitive adhesive and dual adhesive HydroLap™ seldedge.	Primary membrane	Standard: 3'-11" x 98'-5" - 387 SQF (1.2 m x 30 m - 36 SQM) Wide: 7'-10" x 65'-6" - 516 SQF (2.4 m x 20 m - 48 SQM)
PreTape	Single sided adhesive tape with pressure sensitive adhesive backing.	Detailing, seaming	4.7" x 164' (.12 m x 50 m)
PreTape D	Double sided adhesive tape	Detailing, seaming	3.15" x 164' (.08 m x 50 m)
PM Sealant	Silyl-terminated polyether (STPE) detailing sealant	Detailing	20 oz. sausage
e.stop gu	Hydrophilic urethane waterstop sealant	Waterstop	10.5 oz. cartridge
BentoTak	Hydrophilic self-adhesive waterstop strip	Waterstop	65' 7" (20 m)
e.cover tb	Pre-formed tie-back cover	Tieback cover	6", 8" and 10" depth
e.drain 6000	Drainage composite with filter fabric backing	Drainage, protection	Standard: 6' x 50' - 300 SQF (1.8 m x 15.25 m - 27.4 SQM) Wide: 8' x 50' - 400 SQF (2.4 m x 15.25 m - 37.1 SQM)

DESCRIPTION

The PreTak system is comprised of the PreTak membrane utilized as a pre-applied sheet membrane for blindside vertical wall waterproofing and pre-applied under slab waterproofing and methane gas protection. The PreTak system is suitable for a variety of critical building envelope applications, challenging water table site conditions, and contaminated soils. The PreTak system is comprised of the PreTak membrane, a high density polyethylene (HDPE) sheet that once installed provides a tough and durable chemical resistant waterproofing, methane, and contaminated soils barrier membrane. Combined with a high performance pressure sensitive adhesive (PSA), PreTak fully adheres to freshly placed concrete or shotcrete, eliminating the potential for lateral water migration, water, or gas ingress.

BENEFITS

- Easily applied, HydroLap™ seams adhere in wet conditions and exhibit exceptional bond strength after application.
- Chemical resistant HDPE mitigates the ingress of VOC vapors including trichloroethylene & tetrachloroethylene (TCE/PCE) common on impacted building sites.
- Not affected by rain or ponding water and does not require compaction or hydration for proper function.
- HDPE membrane is highly puncture resistant, durable to rebar placement, shotcrete and typical job site trafficking.
- Pressure sensitive adhesive prevents lateral water migration by forming a continuous adhesive bond to concrete.
- Wide width rolls (7' 10") reduces the number of seams in the installed system and improves productivity.

LIMITATIONS

- Not intended for double sided form walls.
- Do not leave exposed for longer than 60 days, shorter duration for sustained temperatures above 90°F (32°C).
- Formwork should not be stripped prior to 7 days to prevent displacement of the membrane or spalling.

SPECIFICATIONS, DRAWINGS, AND TECHNICAL ASSISTANCE

The most current specifications and drawings can be found on www.eproinc.com. For project specific details contact EPRO directly, or the local EPRO representative.

Site conditions, performance goals, and budget determine which system is more appropriate for a given project. For more information regarding product performance, testing, plan review, or general technical assistance, please contact EPRO.

WARRANTY

EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this system to be free from defects. EPRO makes no other warranties with respect to this system, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

TYPICAL PHYSICAL PROPERTIES

Physical Property	Test Method	Value
Material		HDPE
Color.....		White
Thickness.....	ASTM D 3767	46 mil (1.2 mm)
Tensile Strength, Film.....	ASTM D 412	4742 psi (32.7 MPa) Force
Puncture Resistance.....	ASTM E 154	276 lbs (1227 N)
Elongation	ASTM D 412	722%
Low Temperature Flexibility	ASTM D 1970	Unaffected at -20°F (-29°C)
Water Vapor Transmission	ASTM E 96, method B.....	0.087 perms (4.97 ng/(Pa x s x m ²))
Hydrostatic Pressure Resistance	ASTM D 5385.....	231 ft (100 psi 71 m)
Resistance to Lateral Water Migration.....	ASTM D 5385.....	Pass at 231 ft (71 m) of HH pressure
Resistance to Hydrostatic Head	ASTM D 751	715 ft (310 psi 218 m)
Peel Adhesion to Concrete	ASTM D 903	23 lbs/in. (4028 N/m)
PreTak: Bonded Seam Strength	ASTM D 882	80 lbf
PreTak: Lap Peel Adhesion.....	ASTM D 1876	17.3 lbs/in. (3030 N/m)
PreTak HW: Bonded Seam Strength	ASTM D 6392.....	Pass (Break in Sheet)
PreTak HW: Dead Load Seam Strength	ASTM D 751	Pass
Radon Diffusion Rate	ISO/TS 11665-13(a).....	1.7 x 10 ⁻¹² m ² /sec
Benzene Diffusion Rate		2.8 x 10 ⁻¹⁷ m ² /sec (tested >380 days)
PCE Diffusion Rate		4.7 x 10 ⁻¹⁵ m ² /sec (tested >180 days)
Methane Permeability (≤ 40.0 mL (STP)/m ² ·day·atm)*	ASTM D 1434	Pass @ 25 mL (STP)/m ² ·day·atm
Environmental Stress Cracking (>500hrs)*	ASTM D 1693.....	Pass
Heat Resistance*	ASTM D 4068.....	Pass (Break in Sheet)
Microorganism Resistance (Soil Burial)*	ASTM D 4068.....	Pass (Break in Sheet)
Oil Resistance*	ASTM D 543.....	Pass (Break in Sheet)

IAPMO UES Evaluation Report #944
 LABC | Approved for Methane
 LABC | Approved for Shotcrete
 LABC | Approved for Waterproofing





PreTak



Product Description

Basic Use: PreTak is utilized as a pre-applied sheet membrane for blindside vertical wall waterproofing and pre-applied under slab waterproofing and methane gas protection. PreTak is suitable for a variety of critical building envelope applications, challenging water table site conditions, and contaminated soils. PreTak is comprised of a high density polyethylene (HDPE) sheet that once installed provides a tough and durable chemical resistant waterproofing, methane, and contaminated soils barrier membrane. Combined with a high performance pressure sensitive adhesive (PSA), PreTak fully adheres to freshly placed concrete and shotcrete, preventing lateral water migration, water intrusion, and soil gas ingress.

Installation is efficient and reliable with PreTak HydroLap™ dual adhesive seams that create an impermeable adhesive-to-adhesive bond at sheet overlaps, even in wet conditions. PreTak delivers superior application performance in real-world, wet job site conditions, improving productivity.

PreTak meets the required standards for waterproofing, shotcrete and gas/methane barrier applications of the Los Angeles Building Code (IAPMO ER #944).

Composition: PreTak (46 mil/1.2mm thick) is a fully adhered waterproofing sheet membrane comprised of a multi-functional resin HDPE evenly coated with a pressure sensitive adhesive gel (PSA). HydroLap™ ultra-hydrophobic acrylic seam adhesive is applied along the top and bottom edges of the roll and marked with a seam line designating even sheet overlap.

Heat Welding - PreTak HW: For heat welding applications, PreTak HW is produced with exposed HDPE seam edges along the outer 3-inches (75 mm) of both sides of the roll. PreTak HW's HDPE resin allows for an even and consistent heat weld using standard heat welding equipment and techniques.

Benefits

- Easily applied, HydroLap™ seams adhere in wet conditions and exhibit exceptional bond strength after application.
- Chemical resistant HDPE mitigates the ingress of VOC vapors including trichloroethylene & tetrachloroethylene (TCE/PCE), common gases on impacted building sites.
- Not affected by rain or ponding water over the membrane.
- Does not require compaction or hydration, and will not wash out if exposed to below grade water movement.
- HDPE membrane is highly puncture resistant, durable to rebar placement, shotcrete, and typical job site traffic.
- Pressure sensitive adhesive (PSA) prevents lateral water migration by forming a continuous bond to concrete.
- Wide width rolls (7'-10") reduces the number of seams in the installed system and improves productivity.

Limitations

- Not intended for double sided form walls.
- Seam tapes can only be applied to dry surfaces.
- Do not leave exposed for longer than 60 days, shorter duration for sustained temperatures above 90°F (32°C).
- Formwork should stay in place for a minimum of 7 days before removal to prevent displacement of the membrane.

Technical Data

Properties: See physical properties table.

Coverages, not including seam overlaps:

- PreTak (HW) — Standard Roll: 386 square feet (36 m²)
- PreTak (HW) — Wide Roll: 516 square feet (48 m²)

Storage and Handling: Store raised off the floor away from sun and moisture, between 40-90°F (5-32°C), maximum 5 rolls high.

Specification Writer: Contact EPRO before writing specifications on this product. PreTak HDPE Pre-Applied Waterproofing System should be reviewed in order to meet project specific site conditions.

Installation

Preparation: Refer to manufacturer's specifications for substrate requirements. Rolls should be inspected for physical damage prior to application.

Application: Refer to manufacturer's specifications for application guidelines. Side laps, end laps, and cut ends have several seaming options depending on the application.

Installation: Roll PreTak out with the PSA facing the concrete pour. Line up the sheet overlaps to the factory-marked seam line and overlap cut ends and end laps a minimum of 3-inches (75 mm) for taped seams. Remove release liners while applying direct pressure to the seam overlap and roll to adhere.



PreTak

Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators (www.eproinc.com).

Warranty

Limited Warranty: EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

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Resistance to Lateral Water Migration	ASTM D 5385	Pass at 231 ft (71 m) of HH pressure
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Radon Diffusion Rate	ISO/TS 11665-13(a)	1.7 x 10 ⁻¹² m ² /sec
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PCE Diffusion Rate		4.7 x 10 ⁻¹⁵ m ² /sec (tested >180 days)
Methane Permeability (≤ 40.0 mL (STP)/m ² ·day·atm)*	ASTM D 1434	Pass @ 25 mL (STP)/m ² ·day·atm
Environmental Stress Cracking (>500hrs)*	ASTM D 1693	Pass
Heat Resistance*	ASTM D 4068	Pass (Break in Sheet)
Microorganism Resistance (Soil Burial)*	ASTM D 4068	Pass (Break in Sheet)
Oil Resistance*	ASTM D 543	Pass (Break in Sheet)

*Tested to City of Los Angeles Department of Building and Safety Methane Testing Criteria per IAPMO EC047

IAPMO UES Evaluation Report #944

LABC | Approved for Methane

LABC | Approved for Shotcrete

LABC | Approved for Waterproofing



Dimensions:

- PreTak — Standard: 3'-11" x 98'-5" (1.2 m x 30 m) | Wide: 7'-10" x 65'-6" (2.4 m x 20 m)
- PreTak HW — Standard: 3'-11" x 98'-5" (1.2 m x 30 m) | Wide: 7'-10" x 65'-6" (2.4 m x 20 m)

Weight:

- PreTak — Standard: 112 lbs (51 kg) | Wide: 150 lbs (68 kg)
- PreTak HW — Standard: 112 lbs (51 kg) | Wide: 150 lbs (68 kg)

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Equipment

- Seaming: 4" heavy seam roller, seam probe, utility knife
- Detailing: 2" heavy seam roller with a V-roller, utility knife
- Cold Weather Application: Hot air heat gun
- Heat Welding: 2" heavy seam roller with penny roller, 4" heavy seam roller, seam probe, knife, hot air heat gun, extrusion welder, automatic wedge welder, walk-behind welding machine, etc.

Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or www.eproinc.com.

This product was formally known as Pre-tak by Kingfield Construction Products.



PreTape

Product Description

Basic Use: PreTape is a seaming, detailing, and repair tape that is used for positive applications. Concrete is cast directly against the tape and the aggressive adhesive layers work together to form a continuous and integral seal to the structure eliminating lateral water migration.

PreTape is an HDPE reinforced tape with an aggressive adhesive that bonds strongly to HDPE, PSA, metal, PVC, and other substrates. The top side of the tape is coated with PreTak's weather resistant pressure sensitive adhesive (PSA) and is designed to bond directly to concrete.

PreTape can be used to reinforce manufacture adhesive seam overlaps, end laps, penetrations, details, damage to the membrane, adhere to soldier pile flanges, and more.

Composition: PreTape is a 15 mil (0.4 mm) triple layer tape comprised of a PSA coated HDPE reinforcement membrane with a tenacious adhesive protected with a release liner.

Benefits

- Dual sided adhesive tape: PSA for concrete adhesion, HDPE adhesive for seam and penetration detailing.
- PreTape forms a continuous adhesive bond to poured-in-place concrete to prevent lateral water migration.
- Strong HDPE adhesive prevents seam popping due to environmental exposure.
- PreTape is easy to apply and creates fully-adhered, watertight adhesive seams.
- PreTape is flexible and easily applied for detailing and seaming.

Limitations

- Surfaces must be clean and dry.
- Do not leave exposed for longer than 60 days.

Technical Data

Coverages: One roll covers 164 linear feet (50 linear meters), not including overlaps or waste.

Storage and Handling: Store raised off the floor away from sun and moisture, between 40-90°F (5-32°C).

Specification Writer: Contact EPRO before writing specifications on this product. PreTak HDPE Pre-Applied Waterproofing System should be reviewed in order to meet project specific site conditions.

Installation

Preparation: Please refer to manufacturer's specifications for substrate requirements. Rolls should be inspected for cosmetic damage prior to application.

Application: Please refer to manufacturer's specifications.

Substrate Preparation: Wipe substrates to receive PreTape clean to remove any dirt, dust, or moisture. Clean the surface of penetrations or protrusions with a wire brush to remove dirt, dust, rust, and loose particles.

Installation: Unroll the tape and adhere centered along the top of the lap seam, to the exposed PSA surface to the PreTak detail patch, or penetration. The release liner protected PSA top surface of the tape should face toward the concrete pour. The use of heavy rollers is required to maximize adhesion. Remove the release liner during application and ensure the plastic release liner is removed from all areas of the applied PreTape prior to the concrete pour.

Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators (www.eproinc.com).

Roll Size: 15 mil (0.4 mm), 4.7" x 164' (120 mm x 50 m), 3.75 lbs (1.7 kg)
Box Size: 8 rolls, 30 lbs (13.6 kg)

Warranty

Limited Warranty: EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

Equipment

Seaming: 4" heavy seam roller.

Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or www.eproinc.com.

This product was formally known as Pre-tak Tape by Kingfield Construction Products.



PreTape D

Product Description

Basic Use: PreTape D is a seaming, detailing, and repair tape that is used for sandwich seam applications. PreTak seams and detailing patches are adhered to both sides of the tape to form a continuous and integral seal to the structure eliminating lateral water migration.

PreTape D is a double-sided thick adhesive tape formulated with an aggressive adhesive that bonds strongly to HDPE, PSA, metal, penetrations, protrusions, and detailing and repairing PreTak membranes and is protected with a release liner.

PreTape D can be used to seal seam overlaps, end laps, penetrations, details, damage to the membrane, adhere to soldier pile flanges, and more.

Composition: PreTape D is 15-mil (0.4 mm) tape comprised of a single layer of aggressive adhesive protected with a release liner.

Benefits

- Dual sided adhesive tape for high strength sandwich seams and penetration detailing.
- Forms a continuous adhesive bond to prevent lateral water migration.
- Chemical resistant - effective in most types of soils, including hydrocarbon-laden soils.
- Strong HDPE adhesive prevents seam popping due to environmental exposure.
- Easy to apply, fully-adhered, watertight adhesive seams .
- Provides a barrier to water, moisture, gas, and vapor.
- Flexible and easily applied for detailing and seaming.

Limitations

- Surfaces must be clean and dry.
- Do not leave exposed for longer than 60 days.

Technical Data

Coverages: One roll covers 164 linear feet (50 linear meters), not including overlaps or waste.

Storage and Handling: Store raised off the floor away from sun and moisture, between 40-90°F (5-32°C).

Specification Writer: Contact EPRO before writing specifications on this product. PreTak HDPE Pre-Applied Waterproofing System should be reviewed in order to meet project specific site conditions.

Installation

Preparation: Please refer to manufacturer's specifications for substrate requirements. Rolls should be inspected for cosmetic damage prior to application.

Application: Please refer to manufacturer's specifications.

Substrate Preparation: Wipe substrates to receive PreTape D clean to remove any dirt, dust, or moisture. Clean the surface of penetrations or protrusions with a wire brush to remove dirt, dust, rust, and loose particles.

Installation: Unroll the tape and adhere to the exposed PSA surface of the PreTak membrane or exposed surface of the penetration. The release liner protected top surface of the tape should face toward the lap seam or detail patch. Line the top sheet or patch over the tape and adhere to the tape by removing the release liner and use a heavy roller to maximize adhesion. Ensure the plastic release liner is removed from all areas of the applied PreTape D prior to the concrete pour.

Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators (www.eproinc.com).

Roll Size: 15 mil (0.4 mm), 3.15" x 164' (80 mm x 50 m), 6 lbs (2.7 kg)
Box Size: 12 rolls, 72 lbs (32.4 kg)

Warranty

Limited Warranty: EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

Equipment

Seaming: 4" heavy seam roller.

Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or www.eproinc.com.

This product was formally known as Pre-tak Tape DS by Kingfield Construction Products.



BentoTak



Product Description

Basic Use: BentoTak is a delayed-swell bentonite self-adhesive waterstop strip designed to stop water infiltration through cast-in-place concrete construction joints and penetrations. BentoTak can withstand ponding water for up to 7-days, can be applied to a wet substrate, and is suitable for application in salt water and fresh water conditions. BentoTak's unique water-activated adhesive coating allows for fast and easy application, even to irregular substrates, without the need for separate adhesive or mechanical fastening. Unlike expanding rubber hydrophilic waterstops that create a rigid gasket water barrier, BentoTak swells within the concrete joint to fill cracks and voids. This swelling action does not subject the concrete joint to excessive expansion pressures which can lead to cracks in and around the joint. BentoTak can be reactivated nearly indefinitely during wet/dry cycling and only activates around areas of water intrusion.

Composition: BentoTak waterstop strip is comprised of a delayed swell polymer-modified sodium bentonite malleable clay encased in a polyvinyl acetate (PVA) water-activated adhesive film. BentoTak is specially conditioned to swell in salt water, brackish and fresh water conditions.

Benefits

- Active swelling waterstop is fully encased in concrete to seal off water ingress.
- Ponding water resistant for up to 7 days.
- Self-adhesive for fast and easy installation.
- Requires only 1.25-inch (32 mm) concrete coverage.
- Conforms to rough and irregular concrete surfaces.
- Seals around pipe penetrations.
- Effective in both fresh and saltwater.
- High resistance to hydrostatic pressure.
- Resistant to most groundwater contaminants and highly vapor impermeable.

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Limitations

- Designed for concrete construction joints and penetrations, not as an expansion joint sealant.
- It is designed for structural concrete with a minimum of 2,600 psi compressive strength.
- BentoTak must be encased completely in concrete.

Technical Data

Properties: See physical properties table.

Coverage: Strip: 39 linear inches (1 meter)
Box: 20 strips, 65'-6" linear feet.

Storage and Handling: Store raised off the floor away from sun and moisture, between 40-90°F (5-32°C), maximum 10 boxes high.

Shelf Life: 2 years.

Specification Writer: Contact EPRO before writing specifications on this product. EPRO System selection should be reviewed in order to meet project specific site conditions.

Installation

Preparation: Please refer to manufacturer's specifications for substrate requirements. Strips should be inspected for water damage prior to application.

Application: Please refer to manufacturer's specifications. Ensure the concrete surface is clean and free of loose material and debris.

Common areas of application:

- Non-moving concrete construction joints
- Precast segment joints – concrete pipes, box culverts, manholes
- Pipe penetrations
- Steel piles/beams

Concrete nails may be required for long and smooth vertical or overhead surfaces, approximately 2-3 nails per strip.

BentoTak can be installed using two methods:

"Dip It & Stick It"

1. Dip the BentoTak strip in a bucket of tap water for less than 5 seconds and place directly onto the concrete joint as close to the center as possible (minimum 1.25" [32mm] concrete cover from outside end of joint).
2. Press BentoTak into the joint in the form a triangle, ensuring that all waterstop butt ends are molded together to form a continuous waterstop strip.

"Wet It & Press It"

1. Wet the concrete with water and place the BentoTak as close to the center of the joint as possible (minimum 1.25" [32mm] concrete cover from outside end of joint).
2. Press BentoTak into the joint in the form a triangle, ensuring that all waterstop ends are molded together to form a continuous waterstop strip.

1 of 3



BentoTak

Warranty

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Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators (www.eproinc.com).

Strip Size: 0.5" x 1" x 39" (12 mm x 25 mm x 1 m), 0.95 lbs (0.43 kg)
Box Size: 20 strips, 65'-6" linear feet, 19 lbs (8.6 kg)

Equipment

Water.

Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or www.eproinc.com.

This product was formally known as Bentotak DS by Kingfield Construction Products.

Physical Property

Test Method

Value

Material		Polymer-modified Bentonite clay
Color		Gray
Thickness		0.5-inch x 1-inch
Specific Gravity @ 77°F	ASTM D 71	1.403
Installation Temperatures	ASTM D 4068	32°F – 176°F (0°C – 80°C)
Penetration (0 strokes)	ASTM D 217	99
Penetration (60 strokes)	ASTM D 217	84
Flash Point (Min.)	ASTM D93 Pensky-Martens	>482°F (>250°C)
Pour Point (Max.)	ASTM D 97	Solid @ ambient temp. >77°F (>25°C)
Swelling Rate	One side soaked in water for 24 hours	130%
Adhesion to Concrete Substrate	Vertical Pull Test (after 24 hour cure)	9 psi (632.7 gf/cm ²)
Adhesion to Iron Plate Substrate	Vertical Pull Test (after 24 hour cure)	4.2 psi (296.7 gf/cm ²)
Hydrostatic Pressure Resistance		318 foot head (137.75 psi – 0.95 MPa)

Dimensions: Strip: 0.5" x 1" x 39" (12 mm x 25 mm x 1 m), 0.95 lbs (0.43 kg), Box: 20 Strips, 65'-6" linear feet

Weight: Strip: 0.95 lbs (0.43 kg), Box: 19 lbs (8.6 kg)



BentoTak

Typical Chemical Resistance Properties

The following chart is a general guide to BentoTak's chemical exposure resistance. Where chemical concentrations are listed, the designated rating applies to all concentrations up to and including the concentration indicated. Although we believe this information to be reliable, EPRO Services, Inc. has no control over any particular application, installation, or exposure of BentoTak and suitable chemical compatibility tests should be carried out by the user.

Chemical Resistance Ratings:

A - Little to no effect

B - Minor to moderate effect

C - Severe effect

Test Chemical	Resistance	Test Chemical	Resistance	Test Chemical	Resistance	Test Chemical	Resistance
Acetic Acid	A	Castor Oil	A	Hydraulic Fluid.....	A	Potassium Cyanide	A
Acetic Anhydride	A	Chlorine Gas.....	C	Hydrazine	A	Potassium Dichromate	A
Acetone.....	A	Chloroacetic Acid.....	A	Hydrobromic Acid.....	A	Potassium Hydroxide.....	A
Alkyl Chloride.....	A	Chloroform	A	Hydrochloric Acid	A	Potassium Nitrate.....	A
Aluminum Chloride.....	A	Chlorosulfonic Acid.....	C	Hydrocyanic Acid.....	A	Potassium Perchlorate.....	A
Aluminum Fluoride.....	A	Chrome Alum.....	A	Hydrofluoric Acid	A	Potassium Permanganate	A
Aluminum Sulfate.....	A	Chromic Acid.....	A	Hydrofluosilicic Acid.....	A	Potassium Sulfate	A
Ammonium Carbonate.....	A	Chromium Trioxide.....	A	Hydrogen Peroxide	A	Pyridine	A
Ammonium Chloride.....	A	Citric Acid	A	Hydrogen Sulfide	A	Saltwater	A
Ammonium Fluoride.....	A	Copper Chloride.....	A	Hydroquinone.....	A	Silicone Grease.....	A
Ammonium Hydroxide.....	A	Copper Sulphate.....	A	Iso Octane.....	A	Silver Nitrate	A
Ammonium Nitrate.....	A	Corn Oil	A	W-4 Jet Fuel.....	A	Skydrol Hydraulic Fluid	A
Ammonium Phosphate.....	A	Cyclohexane	C	Kerosene	B	Soap Solutions.....	B
Ammonium Sulphate.....	A	Cyclohexanol	A	Lactic Acid.....	A	Sodium Acetate	A
Ammonium Sulphide	A	Dibromo(chloro)methane	A	Lead Acetate	A	Sodium Bicarbonate.....	A
Amyl Acetate.....	B	Dichloroethylene	A	Linseed Oil	A	Sodium Bisulphite	A
Amyl Alcohol	A	Diesel Fuel.....	A	Magnesium Carbonate	A	Sodium Borate.....	A
Amyl Chloride.....	B	Diethyl Ether	B	Magnesium Chloride.....	A	Sodium Carbonate	A
Aniline.....	A	Diethyl Keytone.....	B	Magnesium Hydroxide	A	Sodium Chloride	A
Antimony Chloride.....	A	Dimethylamine.....	C	Magnesium Nitrate.....	A	Sodium Ferrocyanide	A
Aqua Regia	B	Diethyl Phthalate.....	A	Malic Acid	A	Sodium Fluoride	A
Asphalt.....	A	Disodium Phosphate	A	Methyl tertiary-butyl ether (MTBE)	A	Sodium Hydroxide	A
Barium Carbonate	A	Epichlorohydrin.....	A	Methane (disolved)	A	Sodium Hypochlorite	A
Barium Sulphate.....	A	Ethyl Acetate	B	Methyl Ethyl Keytone (MEK).....	C	Sodium Sulphate	A
Benzene	A	Ethyl Alcohol.....	A	Mineral Oil	A	Soybean Oil	A
Benzoic Acid	A	Ethyl Bromide.....	A	Mineral Spirits.....	A	Stannous Chloride	A
Borax Solutions.....	A	Ethylidene Dichloride	A	Napthalene.....	A	Stearic Acid.....	A
Boric Acid	A	Ethylene Dichloride.....	A	Nitric Acid.....	A	Styrene	C
Bromodichloromethane	A	Ethylene Glycol.....	A	Nitro Benzene	C	Sulphuric Acid.....	C
Bromine Anhydrous	B	Ethylene Oxide	A	Oleic Acid.....	B	Tannic Acid.....	A
Butyl Acetate.....	B	Ferric Chloride.....	A	Oleum.....	C	Tataric Acid.....	A
Butyl Alcohol	A	Ferric Nitrate	A	Oxalic Acid.....	A	Tetrahydrofuran	B
Butyl Phenol	A	Ferrous Chloride.....	A	Palmatic Acid.....	A	Toluene.....	A
Butyric Acid	A	Ferrous Sulfate.....	A	Perchloroethylene	C	Trichloroethene.....	A
Calcium Bisulphate.....	A	Fluosilicic Acid	A	Phenol	A	Tribromomethane.....	A
Calcium Carbonate	A	Formaldehyde	A	Phenylpropane	A	Turpentine.....	B
Calcium Chloride	A	Formic Acid	A	Phosphoric Acid	A	Urea.....	A
Calcium Hydroxide.....	A	Furfural	B	Phosphorous Pentoxide	A	Vegetable Oil	A
Calcium Hypochlorite.....	A	Gallic Acid.....	A	Photographic Solutions.....	A	Water.....	A
Calcium Nitrate	A	Gasoline (<25% BX).....	B	Phthalate Plasticizer	A	Xylene.....	C
Calcium Sulphate.....	A	Gasoline (>25% BTX).....	B	Pickling Solutions	A	Zinc Chloride	A
Carbon Disulfide.....	B	Glucose.....	A	Potassium Bicarbonate.....	A	Zinc Sulphate	A
Carbon Tetrachloride	C	Glycerine	A	Potassium Carbonate.....	A		
Carbonic Acid.....	A	Hexane.....	B	Potassium Chromate	A		



e.roll



Product Description

Basic Use: e.roll is a key component to EPRO's redundant field installed composite design concept and is a roller applied version of e.spray. It is designed to be used for system detailing, repairs, and in areas where the required clearance for e.spray cannot be achieved. e.roll is most commonly used in conjunction with e.poly to reinforce system penetrations, terminations, seams, cracks, and membrane transitions. e.roll is used on decks, over-excavated walls, blindside vertical walls, and underslab E.Series assemblies. e.roll can be applied to a wide range of materials/substrates, high density polyethylene (HDPE), polyolefin sheets, geotextile fabric, wood, metal, foam insulation, and concrete based surfaces (green concrete, shotcrete and concrete masonry units (CMU)).

Composition: e.roll is a medium viscosity water-based, polymer-modified anionic asphalt emulsion, which exhibits exceptional bonding, elongation and waterproofing characteristics.

Benefits

- e.roll is a single component material, no additional blending is required
- Provides the ability to easily detail and repair assemblies without the use of a spray pump
- Non-toxic, non-hazardous, non-flammable, and VOC free
- Forms both a mechanical and ionic bond directly to concrete
- Application to damp substrates is acceptable

Limitations

- Surfaces shall be free of dirt and debris
- Material should be stored above 40°F and not allowed to freeze

- Not a traffic bearing surface, additional protection required
- Must not be applied to ponded water
- Cold temperatures will prolong cure time

Technical Data

Shelf life: 1 year. The ability to apply the product beyond its estimated shelf life is dependent on storage conditions and homogeneity of the product. Storing material in an enclosed temperature controlled environment that maintains a minimum ambient temperature of 65° Fahrenheit will likely extend the shelf life beyond 1 year.

Properties: See physical properties table

Specification Writer: Contact EPRO before writing specifications on this product. E.Series system assemblies should be reviewed in order to meet project specific site conditions.

Installation

Surface Preparation: All surfaces shall be prepared in accordance to manufacturer's specifications. In general, this means all surfaces shall be uniform, free of loose materials, and surface contaminants. Contaminant and loose debris shall be removed prior to application by suitable methods. A test should always be done prior to application using the same cleaning preparation and application procedures to be used on the project.

Application: Please refer to manufacturer's specifications. e.roll shall be spray applied to the specified nominal mil thickness. e.roll may be applied by roller or brush.

Cleaning: Clean all tools, hoses, spray guns, and tips with kerosene and/or equivalent.

Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators (www.eproinc.com).

e.roll is available in 5 gallon or 1 gallon containers.

Warranty

Limited Warranty: EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.



e.roll

Equipment

No special equipment is necessary.

Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or www.eproinc.com.

This product was formally known as Ecoline-R.

Typical Physical Properties

Physical Property	Test Method	Value
Color		Brown to Black
Solvent Content.....		No Solvents
Shelf Life.....		1 year
Tensile Strength	ASTM 412	32 psi
Elongation	ASTM 412	3860%
Resistance to Decay.....	ASTM E 154 SECTION 13	9% Perm Loss
Accelerated Aging	ASTM G 23	No Effect
Moisture Vapor Transmission.....	ASTM E 96	0.071 g/sq. ft./hr.
Hydrostatic Water Pressure.....	ASTM D 751.....	28 psi
Perm Rating.....	ASTM E 96 (US Perms).....	0.17
Methane Transmission Rate	ASTM D 14334	0
Adhesion to Concrete & Masonry	ASTM C 836.....	7 lbf/inch
Hardness	ASTM C 836.....	85
Crack Bridging.....	ASTM C 836.....	No Cracking
Low Temp. Flexibility.....	ASTM C 836-00.....	No Cracking at -20°C

Packaging: 5 gallon bucket



XT5 RG

Product Description

Basic Use: XT5 RG is a roller-grade liquid applied 2-part urethane coating that cures quickly to form a tough elastomeric coating that adheres to most substrates, forming a robust barrier for waterproofing, corrosion protection, and containment of water in non-uv exposed conditions. It remains flexible and resilient in demanding environments, is not affected by freeze/thaw cycles, and provides exceptional service in a broad range of applications.

XT5 RG is a post-applied monolithic membrane used on concrete foundation walls, split slabs, tunnels, plaza decks, parking garages, water retention tanks, and related applications where waterproof coating is critical.

XT5 RG is compatible with and can act as a bridge between common construction materials such as concrete, steel and other metals, asphalt pavement, glass, wood, and most coatings.

Composition: XT5 RG is a two-part black liquid urethane coating.

Benefits

- Forms a tough, elastomeric, seamless water impermeable coating.
- Cold fluid applied coating conforms and seals to complex substrates including penetrations and multiple angle changes.
- Self-flashing and self-terminating.
- Chemical cure ensures consistent cure throughout the coating.
- VOC compliant.

Limitations

- Not suitable for UV exposure longer than 180 days.
- Substrate temperatures must be 50°F (10°C) and rising, with a minimum of 5°F (3°C) above the dew point for application.
- Substrate must be absolutely dry and free from form release oils, powdered laitance, and waxes.
- XT5 RG materials need to be above 60°F (15°C) before mixing.
- Cannot apply membrane if risk of wet weather within 6 hours of application.

Technical Data

Properties: See physical properties table.

Coverage: One pail covers 100 square feet (9 square meters) @ 60 mils (1.5 mm), not including overlaps or waste.

Pot Life (@65°F | 18°C) - 35 minutes (temperature dependent)

Storage and Handling: Store raised off the floor, away from moisture and sun. Store XT5 RG between 20-110°F (-7-43°C), XT5 Activator between 70-95°F (21-35°C).

Shelf Life: XT5 RG: 2 years, XT5 Activator: 18 months

Specification Writer: Contact EPRO before writing specifications on this product. EPRO System selection should be reviewed in order to meet project specific site conditions.

Installation

Preparation: Please refer to manufacturer's specifications for substrate requirements. XT5 RG components should be inspected for damage prior to application.

Application: Please refer to manufacturer's specifications and installation guide associated with the specific substrate.

Substrate Preparation: An absolutely dry, smooth substrate surface that is free of dust and debris is required. Provide a Concrete Surface Profile (CSP) of 4 - 6. Concrete should be dry, frost free, and cured a minimum of twenty-eight (28) days prior to application of XT Primer and XT5 RG coating. Surface must be free of voids, spalled areas, sharp projections, loose aggregate, and form release agents.

Surface defects such as cracks, single bug holes of 1/2" (12 mm) or greater, or cavities, should be filled and finished flush with a non-shrink hydraulic grout or concrete.

Horizontal Surfaces: Prior to starting work, check that all horizontal surfaces to be waterproofed slope towards drainage or refer to balcony details for zero-slope applications.

Installation: Mark out 100 square foot (9m²) application squares. Apply XT Primer and let cure. Mix XT5 RG as per instructions and apply to substrate to project thickness. Continue application, ensuring that all wet edges are overlapped before they cure.

Mixing: DO NOT THIN. DO NOT HAND MIX. Begin mixing each pail of XT5 RG using a power mixer (e.g., 1/2" drill and an eight-inch mud mixer). Do not draw air into the mix. The premix and activator are packaged and supplied in the proper mix ratio. Failure to mix XT5 RG as provided will result in off-ratio or uncured coating. While mixing, slowly add one full jug of XT5 Activator to one full pail of XT5 RG. Mix thoroughly for 3 FULL MINUTES. Mixing jigs and timers are available to help eliminate mixing errors and increase productivity on the job.

Recoating: XT5 RG may be recoated within 1 hour of initial application and must be recoated before fully cured, usually within 4 hours.

Repair/Post-Curing: If applied XT5 RG material cures, it must be heavily abraded; free of dust, debris, and liquids; and coated with XT Bonding Agent prior to XT5 RG application.

In most applications, coated surfaces may be placed into service within 24 hours for non-aggressive service, or 72 hours for heavy traffic and severe services.

Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators (www.eproinc.com).



XT5 RG

XT5 RG is available in 5-gallon ready to mix kits. Each kit consists of a container of premix and a smaller container of activator. The kits are supplied in the proper mix ratios with sufficient room in the premix container to facilitate adequate mixing.

Warranty

Limited Warranty: EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

Typical Physical Properties

Physical Property	Test Method	Value
Coating Color		Black
Solids by Volume		91% mixed
VOC Content		97 g/L (0.8 lb/gal)
Service Temperature		-20-180°F (-28-82°C)
Crack Bridging (10 cycles @ -15°F -26°C)		>1/8" (>3.175 mm)
Crack Bridging (after heat aging)		>1/4" (>6.35 mm)
Recovery from 100% Extension (after 5 minutes).....		>90%
Recovery from 100% Extension (after 24 hours).....		>95%
Abrasion Resistance	ASTM D 4060	<5 mg loss
- Wt. Loss, Taber Abraser CS-17 Wheel 1000 gr./1000 rev.		
Adhesion to Concrete	Elcometer	>350 psi
Deflection Temperature	ASTM D 648	Below -20°F (-28°C)
Elastomeric Waterproofing	ASTM C 836, ASTM C 957	Exceeds all criteria
Extension to Break	ASTM D 412	200%
Flammability	ASTM D 2859, UL 790	Pass/combustible substrate, Class A1
Hardness, Shore A (@77°F 25°C)	ASTM D 2240	70
Permeability to Water Vapor	ASTM E 96, Method E	0.03 perms
Softening Point, Ring & Ball	ASTM D 36	>275°F (>72°C)
Tear Strength (Die C)	ASTM D 624	140 lbs/in
Tensile Strength	ASTM D 412	700 psi

Volume: XT5 RG: 4.2 gallon (15.9 liter), XT5 Activator: 0.5 gallon (1.9 liter)

Weight: XT5 RG: 37 lbs (16.8 kg), XT5 Activator: 4.4 lbs (2 kg)

v2.1022

Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or www.eproinc.com.

Warnings and Safety Information

Flammable. Use only in well ventilated areas. Do not store or use near open flame, sparks or hot surfaces. Keep containers tightly closed. Avoid contact with moisture or water. Keep out of reach of children.

Adequate health and safety precautions should be observed during storage, handling, application and curing. Refer to EPRO Safety Data Sheets for further details regarding the safe use of this product.

Equipment

Mixing: 0.5" (12 mm) power mixer with low RPM (<900 RPM), 1/2" (12 mm) eight inch mud mixing paddle, mixing jig.

Application: Suitable for application with a roller, brush, or trowel.



e.poly



Product Description

Basic Use: e.poly is a polyester fabric that is designed to reinforce membrane terminations, transitions, penetrations, seams, and general repair areas. Used in every E.Series assembly, e.poly is installed between two layers of e.roll or e.spray.

Composition: e.poly is a 100% polyester textile material composed of staple fibers hydraulically entangled.

Benefits

- Excellent conformability and elongation
- Exceptional tear resistance and high tensile strength
- Open weave allows complete saturation and integration

Limitations

- Not suitable for expansion joints or areas where movement is desired

Technical Data

Properties: See physical properties table

Coverages: 6", 12" and 40" rolls cover 150, 300, and 1,080 square feet, respectively

Specification Writer: Contact EPRO before writing specifications on this product. E.Series system assemblies should be reviewed in order to meet project specific site conditions.

Installation

Preparation: Please refer to manufacturer's specifications for substrate requirements. Application of e.poly should be done when weather conditions meet the requirement of e.roll or e.spray.

Installation: Please refer to manufacturer's specifications. Install specified thickness of e.roll or e.spray and immediately embed e.poly into the initial layer of e.roll or e.spray. Once firmly pressed into the uncured membrane, fully saturate with additional layer of e.roll or e.spray to the specified thickness.

Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators (www.eproinc.com).

Roll: 6" x 300', 12" x 300', and 40" x 324' rolls are available

Warranty

Limited Warranty: EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

Equipment

No special equipment is needed.

Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or www.eproinc.com.

This product was formally known as Polyester.



e.poly

Typical Physical Properties

Physical Property	Test Method	Value
Weight.....		3 oz.
Bursting Strength	ASTM D3786.....	177 lbs.
Tensile Strength	ASTM D1682.....	57.1 psi
Tear Strength.....	ASTM D1117.....	16.1 lbs
Elongation	ASTM D1682.....	62.0%
Conformability		Excellent
Ease of saturation		Excellent

Dimensions: 6" x 300', 12" x 300', and 40" x 324' rolls are available





e.stop gu

Product Description

Basic Use: e.stop gu is a self-adhering gunnable expanding waterstop paste designed to stop water infiltration through cast-in-place concrete at construction joints and penetrations. It expands upon contact with water to form a positive seal against the concrete. The key to e.stop gu's effectiveness is that it is highly expansive, which seals and fills voids in cracks and concrete, and is easy to apply using caulking equipment.

e.stop gu can be applied over rough and smooth concrete, steel piles, dowels and Nelson Studs, and on iron or PVC pipes.

For shotcrete applications, e.stop gu requires a double layer application with a minimum 1-inch separation.

Composition: e.stop gu is a gray hydrophilic expanding urethane waterstop sealant.

Benefits

- Active swelling waterstop is fully encased in concrete to seal off water ingress.
- Self-adhering over concrete, iron, steel, and PVC.
- Fast and easy installation.
- Conforms to irregular surfaces.
- Seals around pipe penetrations.
- Ideal when pouring against existing concrete.
- High resistance to hydrostatic pressure.

Limitations

- Not an expansion joint sealant.
- It is designed for structural concrete with a minimum of 2,600 psi compressive strength.
- Requires a minimum of 3-inch (75 mm) of concrete coverage depending on the size of the bead used.
- Must be fully cured before concrete pour.
- Not resistant to pre-hydration.

Technical Data

Properties: See physical properties table.

Coverages: Coverage is dependent on the size of application bead. Applied material skins over after two hours and moisture cures in ten hours.

Minimum bead size and estimated linear coverage:

- 1/2" x 1/2": 6'-6" (2 m)
- 3/8" x 3/4": 5'-11" (1.8 m)

Storage and Handling: Store raised off the floor, away from moisture and sun, between 55-80°F (13-27°C).

Shelf Life: 12 months.

Specification Writer: Contact EPRO before writing specifications on this product. EPRO System selection should be reviewed in order to meet project specific site conditions.

Installation

Preparation: Please refer to manufacturer's specifications for substrate requirements. Tubes should be inspected for cosmetic damage prior to application.

Application: Please refer to manufacturer's specifications. Substrate Preparation: Wipe substrates to receive e.stop gu clean to remove any dirt, dust, or moisture. Clean the surface of penetrations or protrusions with a wire brush to remove dirt, dust, rust, and loose particles. Surface must be free of frost or ice. No priming is necessary.

Installation: e.stop gu is used as a waterstop for penetrations, piles, dowels, and all concrete construction joints.

Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators (www.eproinc.com).

Tube Size: 10.8 oz (320 ml), 0.68 lbs (0.31 kg)

Case Size: 24 tubes, 16.2 lbs (7.35 kg)

Warranty

Limited Warranty: EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

Equipment

Caulking gun (10.8 oz. tube capacity).

Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or www.eproinc.com.

This product was formally known as SepaSeal SH-100 by Kingfield Construction Products.

Physical Properties	
Hydrostatic Head Resistance	
1/2 x 1/2	100 feet (43 psi / 30.5 m)
3/8 x 3/4	150 feet (65 psi / 46 m)



PM Sealant

Product Description

Basic Use: PM Sealant is a Silyl Terminated Polyether (STPE) non-isocyanate, non-solvent detailing sealant that combines the strength of polyurethanes with the weathering resistance of silicones. PM Sealant can withstand the most stringent requirements for high performance bonding and elasticity under severe aging and UV weathering conditions without cracking or yellowing when subjected to extended UV-light exposure.

PM Sealant is used for penetration detailing, as a seam edge and patching detailing sealant, along the transition construction joint between two pours, and for sealing applied termination bar.

Compliances: Conforms to ASTM C920, Type S, Grade NS, Class 25, and AAMA 802.3 Type II Back Bedding Compound. USDA accepted.

Composition: PM Sealant is a gray, single-component, 100% solids, moisture-cured, elastomeric STPE sealant.

Benefits

- Replaces Silicone and Urethane sealants.
- Does not require a primer.
- Cures rapidly, even at low temperatures, and retains its properties to -75°F (-59°C).
- Non-reactive, PM Sealant will not oxidize or corrode metals.
- PM Sealant does not contain VOC's.
- Provides a continuous smooth surface.

Limitations

- Surfaces must be clean and dry for application.
- Surfaces must be free from frost or ice.

Technical Data

Properties: See physical properties table.

Coverages: Coverage is dependent on the size of application bead.

Storage and Handling: Store raised off the floor, away from moisture and sun, between 55-80°F (13-27°C).

Shelf Life: Sausage = 12 months.

Specification Writer: Contact EPRO before writing specifications on this product. EPRO System selection should be reviewed in order to meet project specific site conditions.

Installation

Preparation: Please refer to manufacturer's specifications for substrate requirements. Buckets and Sausages should be inspected for cosmetic damage prior to application.

Application: Please refer to manufacturer's specifications.

Substrate Preparation: Use with adequate ventilation. Wipe substrates to receive PM Sealant clean to remove any dirt, dust, or moisture. Clean the surface of penetrations or protrusions with a wire brush to remove dirt, dust, rust, and loose particles. Surface must be free of frost or ice. No priming is necessary.

Installation: Determine minimum bead size and tool into surface.

- **Application:** Penetrations, seam edges, tiebacks, corners, and patch detailing.
 - Bead: 3/8" x 3/8" (10 mm x 10 mm).
 - Lineal Coverage: 25 feet (7.6 meters).
- **Application:** Horizontal to vertical transition joints and vertical inside corners.
 - Bead: 3/5" x 3/5" (15 mm x 15 mm).
 - Lineal Coverage: 10 feet (3 meters).

NOTE: Sealant shall be tooled into the joint to form a 1" (25 mm) cant with 0.75" (19 mm) of sealant along both faces of the substrate.

Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators (www.eproinc.com).

Sausage Size: 20 oz (591 ml), 2.5 lbs (1.13 kg)

Case Size: 20 sausages, 50 lbs (22.7 kg)

Warranty

Limited Warranty: EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

Equipment

Caulking gun (20 oz. sausage capacity), knife, box cutter.

Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or www.eproinc.com.

This product was formally known as Primetak Detail Sealant by Kingfield Construction Products.



PM Sealant

Typical Physical Properties

Physical Property	Test Method	Value
Material		STPE
Color		Gray
Corrosive Properties		Non-corrosive
High Temperature Resistance		Up to 300°F for short periods
Low Temperature Flexibility		Properties retained to -75°F (-59°C)
Skin Time		< 30 minutes @ 77°F & 50% RH
Tack Free Time	ASTM C 679	< 60 minutes @ 77°F & 50% RH
Sag	ASTM D 2202	Non-sagging
Staining	ASTM C 510	Non-staining
Tensile Strength	ASTM D 412	225 PSI
Lap Shear (shear rate = 1"/min)	(internal eq. ASTM D 1002)	275 PSI
Elongation	ASTM D 412	275%
Hardness	ASTM C 661	45-50
Ultraviolet Radiation (UV) Rating	ASTM G 26	2000+ hours UV-A, no change in appearance or physical properties
Dimensions: Sausage: 20 oz (591 ml)		
Weight: Sausage: 2.5 lbs (1.13 kg)		



e.drain 6000



Product Description

Basic Use: e.drain 6000 is applied in negative side applications to blindside shoring walls, in positive side applications to over excavated walls, and over plaza decks. e.drain 6000 prefabricated drainage composite is designed to protect the E.Series system assembly, while effectively eliminating the buildup and ponding of water against the membrane assembly.

Composition: e.drain 6000 features a lightweight three-dimensional, high-compressive strength polypropylene core and bonded non-woven geotextile fabric. The bonded filter fabric allows water to pass freely into the molded drain while preventing soil particles from entering and clogging the core structure.

Benefits

- Provides extremely high compressive strength to meet a wide variety of project conditions
- Polypropylene provides greater chemical resistance than traditional polystyrene
- Maintains flexibility in freezing temperatures

Limitations

- Long-term UV exposure is not recommended

Technical Data

Properties: See physical properties table

Coverages: 6' x 50' roll covers 300 square feet; 8' x 50' roll covers 400 square feet, not including overlaps or waste

Specification Writer: Contact EPRO before writing specifications on this product. E.Series system assemblies should be reviewed in order to meet project specific site conditions.

Installation

Preparation: Please refer to manufacturer's specifications for substrate requirements. Rolls should be inspected for cosmetic damage prior to application. Substrate must be inspected prior to application to make certain it is in accordance with manufacturer's requirements.

Application: Please refer to manufacturer's specifications. Drainage panels may run horizontally or vertically. In blindside shoring applications, secure e.drain to shoring using 2-inch flat washer fasteners every 24 inches on center on seams and terminations and a minimum of every 48 inches on center in the field.

Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators (www.eproinc.com).

Roll: 6' x 50', 8' X 50'

Weight: 6' rolls = 64 lbs, 8' rolls = 81 lbs

Warranty

Limited Warranty: EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

Equipment

Secure with shot pins using power-actuated fastener or by hand.

Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or www.eproinc.com.

This product was formally known as Ecodrain-S6000.



e.drain 6000

Typical Physical Properties

Physical Property	Test Method	Value
Dimpled Core		
Core Material		Polypropylene
Color		Black
Dimple Height.....	ASTM D1777	0.4" (10.16 mm)
Compressive Strength	ASTM D1621	16,500 psf (790 kN/m ²)
Flow rate.....	ASTM D4716.....	21 gal/min/ft
Filter Fabric		
Grab Tensile.....	ASTM D4632	100 lbs
CBR Puncture Resistance.....	ASTM D6241	250 lbs
Apparent Operating Size	ASTM D4751	70 US Sieve (.0212mm)
Water Flow Rate	ASTM D4491	140 gpm/ft ² (5704 l/min/m ²)
UV Resistance	ASTM D4355	70% (500 hrs)

Dimensions: 6' x 50', 8' X 50'

Weight: 6' rolls = 64 lbs, 8' rolls = 81 lbs



7/1/20

SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH)

1. PRODUCT IDENTIFICATION

Trade Name(s): BentoTak

Product Description: Bentonite Polymer-modified bitumen

Synonyms: N/A

CAS No: Bentonite **CAS No.**1302-78-9

Supplier:

EPRO Services, Inc.

PO Box 347

Derby, KS 67037

800-882-1896 (8:00am – 5:00pm CST)

2. HAZARD(S) IDENTIFICATION

Harmful if swallowed. Possible risks of irreversible effects. Harmful if inhaled. Irritation of eyes and skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Main components:

Bentonite CAS No. 1302-78-9	WT% 40-70%
Polymer-modified bitumen	WT% 10-30%
Mineral oil	WT% 20-40%

4. FIRST-AID MEASURES

GENERAL ADVICE: Wash off immediately with soap and plenty water. In the case of respired dust and/or fumes, use self- contained breathing apparatus and dust impervious protective suit. Use personal protective equipment.

INHALATION: Move victim to fresh air. If breathing is difficult give oxygen. If irritation persists, consult a physician.

SKIN CONTACT: Remove contaminated clothes and shoes, rinse skin with plenty of water or shower. Use soap to help assure removal. If irritation persists, consult a physician.

EYE CONTACT: Remove any contact lenses at once. Flush eyes well with flooding amounts of running water for at least 15 minutes. Assure adequate flushing by separating the eyelids with sterile fingers. If irritation persists, consult a physician.

INGESTION: Rinse mouth, give plenty of water to dilute the substance. Never give anything by mouth to

an unconscious person. Consult a physician.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical powder, foam, water

FIRE AND EXPLOSION HAZARDS: Toxic, irritating dust or smoke may be emitted.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Firemen should wear normal protective equipment (full bunker gear) and positive-pressure self-contained apparatus.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Remove ignition sources and ventilate area. In case of insufficient ventilation, wear suitable equipment. Avoid raising dust and avoid contact with skin and eyes.

ENVIRONMENTAL PRECAUTIONS: Prevent spills from entering sewers, watercourses or low areas.

METHODS FOR CLEAN UP: Do not touch spilled material without suitable protection.

After material is completely picked up, wash the spill site with soap and water and ventilate the area. Put all wastes in a plastic bag for disposal and seal it tightly. Remove, clean, or dispose of contaminated clothing.

7. HANDLING AND STORAGE

HANDLING: Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Handle material with suitable protection.

STORAGE: Store away from sunlight in well-ventilated dry place at room temperature. Keep container tightly closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES: Use exhaust ventilation to keep airborne concentrations below exposure limits. Use only with adequate ventilation.

VENTILATION: Local Exhaust: Necessary, Mechanical (General); Recommended
CONTROL PARAMETER:

OSHA Final Limits: None established ACGIH TLV(s); Mineral oil mist 5mg/m³

ALLOWABLE CONCENTRATION: Mineral oil mist 3mg/m³

PERSONAL PROTECTION:

Respiratory protection: NIOSH/MSHA approved respirator

Hand protection: Chemical resistant gloves

Eye protection: Safety glass (goggles)

Skin protection: Protective clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Gray-black paste

Odor: Odor of oil

pH: 7.7

SPECIFIC GRAVITY: 1.4±0.1

BOILING POINT: Not available

MELTING POINT: Not available

FLASH POINT: Not available

FLAMMABILITY (solid, gas): Not available

DECOMPOSITION TEMPERATURE: Not available

EXPLOSIVE LIMITS: Not available

VAPOR PRESSURE: Not available

SOLUBILITY IN: **WATER:** Insoluble **ALCOHOL:** Not available

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Sunlight, heat

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, nitrogen oxides, sulfur oxides and hydrogen chloride may be formed.

HAZARDOUS POLYMERIZATION: Will not occur

SOLUBILITY IN: **WATER:** Insoluble **ALCOHOL:** Not available

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATE: Not available

IRRITATION DATA (PRIMARY SKIN IRRITABILITY): Not available

MUTATION DATA: Negativity (Ames Test)

REPRODUCTIVE EFFECTS DATA: Not available

TUMORIGENIC DATA: Not available

12. ECOLOGICAL INFORMATION (non-mandatory)

BIODEGRADABILITY: Not available

BIOACCUMULATION POTENTIAL: Not available

AQUATIC TOXITITY: Not available

OTHER DATA: Not available

13. DISPOSAL CONSIDERATIONS (non-mandatory)

Consult an industry waste dealer about the disposal of industrial construction products. Any disposal must follow country, local, state, and federal laws and regulations (contact country, local or state environmental agency specific rules.)

14. TRANSPORT INFORMATION (non-mandatory)

No data

15. REGULATORY INFORMATION (non-mandatory)

No specific data.

16. OTHER INFORMATION

This information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designated only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.



7/1/20

SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH)

1. PRODUCT IDENTIFICATION

Trade Name(s): e.drain (formerly ECODRAIN-E), e.drain 6000 (formerly ECODRAIN-S6000), e.drain 6200 (formerly ECODRAIN-S6200), e.drain 9000 (formerly ECODRAIN-S9000), e.drain 990 (formerly ECORAIN-S990), e.drain ds (ECODRAIN-DS)

Product Description: Dimpled HDPE Sheet

Chemical Name: Polyethylene Compounds

Chemical Family: Polyolefin

CAS No: N/A

Supplier:

EPRO Services, Inc.

PO Box 347

Derby, KS 67037

800-882-1896 (8:00am – 5:00pm CST)

2. HAZARD(S) IDENTIFICATION

Based on pertinent data available, these products are considered “articles” and are not hazardous under OSHA Hazard Communication Standard (29 CFR 1910.1200). GHS Label Elements not required.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product does not meet the definition given in 29 CFR 1910.1200 for hazardous material and composition is not required.

<u>NO</u>	<u>Components</u>	<u>CAS No.</u>	<u>OSHA PEL</u>
1	Polyethylene	9002-88-4	Not established
2	Polypropylene	9003-07-0	Not established
3	Proprietary	Mixtures	Not established

4. FIRST-AID MEASURES

Inhalation: Not likely in current form

Ingestion: Not likely in current form

Eye Contact: As with any foreign object, flush with water. If pain or irritation persists, consult physician.

Skin Contact: Wash with soap and water. In case of irritation, consult physician.

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Dry chemical, carbon dioxide or foam.

Special Fire Fighting Procedures: Wear NIOSH approved, positive pressure, self-contained breathing apparatus (SCBA) and full protective clothing. Extinguish fires with foam or dry chemical. Do not use water jet.

Unusual Fire and Explosion Hazards: Avoid accumulation and dispersion of dust to reduce explosion potential.

Fire may produce irritating gases and dense smoke.

6. ACCIDENTAL RELEASE MEASURES

Spill is not applicable. Sold in solid form.

7. HANDLING AND STORAGE

Handling: Wear safety glasses during cutting and fabricating processes. Electrostatic charge may build up during handling. Grounding of equipment is recommended.

Handling: No special handling unless large rolls are used. Use lifting devices, as necessary.

Storage: Store in a dry place and away from direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Emergency Overview: Practically nontoxic

Primary Route(s) of Exposure: Inhalation, Eye, Skin Contact

Potential Health Effects and Symptoms of Over-Exposure

Negligible hazard at room temperature under normal use.

Eye Contact: Solid flake or dust may cause transient irritation as a result of mechanical abrasion.

Skin Contact: Essentially no irritation to skin. Mechanical injury only. Hot solid may cause thermal burns.

Inhalation: Exposure to dust at high concentration may cause irritation to respiratory tract.

Ingestion: May cause choking if swallowed.

Medical Conditions Aggravated by Overexposure: Not expected. Film is generally accepted as being biologically inert. No specific antidotal treatment, symptomatic support required.

Carcinogenicity: NTP: No IARC: No OSHA: No

Eye Protection: As required by site-specific conditions. Not normally required.

Skin Protection: Gloves required when handling hot material. Not normally required.

Respiratory Protection: None required in normal use of product. NIOSH approved dust mask recommended if dust conditions exist.

Engineering Control: Ventilation Requirements — General

General ventilation should be sufficient. However, if operating conditions create high airborne concentrations of this material, special ventilation may be needed. If handling results in dust generation, special ventilation may be needed to ensure that dust exposure does not exceed the OSHA PEL for nuisance dust.

Required Work/Hygiene Procedure: Minimize contact with skin. Do not eat, drink, or smoke in work area. Wash hands thoroughly after handling, especially before eating drinking, smoking, chewing, or using restroom facility. Dusted clothing and shoes should be thoroughly cleaned before use.

Exposure guidelines

<u>No.</u>	<u>Components</u>	<u>OSHA-PEL</u>	<u>ACGIH-TLV</u>
1	Polyethylene	None	None
2	Polypropylene	None	None

9. PHYSICAL AND CHEMICAL PROPERTIES

Flash Point: Greater than 400°
Autoignition: Not applicable
Flammable Limits in Air (LEL, %): Not applicable
(UEL, %): Not applicable
Physical Form: Solid
Color: Black
Odor: Insignificant
Boiling Point: Not applicable
Melting Point: ~ 320°F
Freezing Point: Not applicable
Solubility in Water: None
Specific Gravity: Less than 1 (water = 1)
Vapor Density: Not applicable (air = 1)
Evaporation Rate: None (Butyl acetate = 1)
Vapor Pressure: Not applicable
% Volatile: None
pH: Not applicable

10. STABILITY AND REACTIVITY

Stability: Stable
Conditions to Avoid: Strong oxidizers
Hazardous Decomposition: Carbon dioxide, carbon monoxide
Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

Inhalation: Not likely under normal use
Injection: Not likely under normal use
Ingestion: Not likely under normal use
Skin Contact: Prolonged contact may cause irritation to some individuals

Eye Effects: Not toxic, may irritate eyes
Skin Effects: Not toxic, may irritate skin
Target Organs: None
Chronic: No known health effects from long term use or contact
Carcinogenicity: The IARC evaluation is the "Carbon black (airborne, unbound particles of respirable size) is possibly carcinogenic to humans (Group 2B)"
Mutagenicity & Reproductive Effects: Not believed to be mutagenic or a reproductive hazard
The information provided below can be subject to misinterpretation. Therefore, it is essential the following information be interpreted by individuals trained in its evaluation.

Chemical

Polyethylene and Polypropylene: No toxicology data available.
Polyethylene and polypropylene are not considered hazardous materials under the OSHA Hazard Communication Standard

12. ECOLOGICAL INFORMATION

Environmental Data: Not expected to be hazardous to the environment in present form.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with Federal, State, and local environmental control regulations.

14. TRANSPORT INFORMATION

DOT Shipping Name: Not listed
DOT Label: Not regulated
DOT Hazard Class: Not applicable
UN/NA Number: Not applicable
Hazard Label(s): Not applicable
Hazard Placard(s): Not applicable
Packing Group: Not applicable
Bulk Packaging: Not applicable
RQ: Not applicable
Emergency Response Guide (ERG) No.: Not applicable

15. REGULATORY INFORMATION

FEDERAL REGULATORY INFORMATION – Polyethylene, Polypropylene
OSHA Status: None
EPA Clean Air Act Status: None
EPA Clean Water Act Status: None
TSCA Status: All ingredients are listed on TSCA Inventory (40 CFR710)
CERCLA RQ: None
USA TSCA: This product is considered an article and is exempt from TSCA requirements.
Canada Domestic Substances List (DSL): This product is not specified on the DSL or NDSL.

SARA Title III Polyethylene, Polypropylene		
<u>Section 302*</u>	<u>Section 313**</u>	<u>Section 311/312***</u>
None	None	None

*Reportable quantity of extremely hazardous substance, Sec. 302

*Threshold planning quantity, extremely hazardous substance, Sec. 302

**Toxic chemical. Sec. 313

**Category as required by Sec 313 (40CFR372.65C). Must be used on Toxic Release Inventory form.

***Hazard category for SARA Sec311/312 reporting H1=acute health hazard, H2=chronic health hazard, P3=fire hazard, P4 sudden release of pressure hazard, P5=reactive hazard

California Proposition 65: Carbon Black (airborne, unbound particles of respirable size), CAS# 1333-86-4 is listed as a possible carcinogen.

Canada Regulations (WHMIS): Not listed

RCRA Status: If disposed of in its purchased form, this would not be a RCRA hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste (40CFR261.20-24).

OTHER REGULATORY INFORMATION

The following chemicals are specifically listed by individual states; other product-specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements, you should contact the appropriate agency in your state.

<u>State</u>	<u>Chemical</u>	<u>Regulation</u>
None	Polyethylene	None
None	Polypropylene	None

International

None

16. OTHER INFORMATION

NFPA

Fire—1

Health—0

Reactivity—0

Specific Hazard—None

HMIS

Health - 0

Flammability - 1

Reactivity - 0

Personal Protection Index - E

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SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH)

1. PRODUCT IDENTIFICATION

Trade Name(s): e.stop gu
Product Description: Hydrophilic elastic waterstop
Synonyms: N/A
CAS No: N/A

Supplier:
EPRO Services, Inc.
PO Box 347
Derby, KS 67037
800-882-1896 (8:00am – 5:00pm CST)

2. HAZARD(S) IDENTIFICATION

GHS classification

Flammable liquid: Not classified

Acute toxicity-oral: Not classifiable

Acute toxicity-dermal: Not classifiable

Acute toxicity-inhalation: Not classifiable

Skin irritation: Category 3

Eye damage/irritation: Not classifiable

Sensitization-respiratory: Category 1

Sensitization-respiratory skin: Category 1

Germ cell mutagenicity: Not classifiable

Carcinogenicity: Category 2

Toxic to reproduction: Category 1

Specific target organ systemic toxicology (single exposure): Category 1 (liver, kidney, central nerve)

Specific target organ systemic toxicology (repetitive exposure): Category 1 (nerve)

Aspiration hazard: Not classifiable

Hazardous to the aquatic environment-acute: Category 3

Hazardous to the aquatic environment-chronicity: Not classifiable

GSA Label element



Signal Word: Danger

Hazard and Toxicity Information

Causes mild skin irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

Suspected of causing cancer.

May damage fertility or the unborn child.

May cause damage to organs.

May cause damage to organs through prolonged or repeated exposure.

Harmful to aquatic life.

Prevention

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces.

Avoid drinking or breathing.

Do not get in eyes, on skin, or on clothing.

Wear protective gloves/protective clothing/eye protection/face protections.

Wash hands and face thoroughly after handling.

Avoid release to the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Classification of the substance or mixture: Mixture

Chemical/common name: No name

Components, ingredients, and CAS number:

Components	Content (%)	MITI no.	CAS no.	Remarks (PRTR)
Inorganic powder	33%			
Titanium dioxide	5%	(1)-558	13463-67-7	
Silica gel	2%	(1)-548	14808-60-7	
Ethylbenzene	2.1%	(3)-28	100-41-4	(Class 1) 53
Xylene	2.5%	(3)-3	1330-20-7	(Class 1) 80
Phthalate series plasticier	15%			
Polyurethane polymer	40%			

4. FIRST-AID MEASURES

If inhalation: Move to a place with fresh air. If you feel unwell, call a doctor/physician.

If on skin: Take off contaminated clothes, shoes, etc. and flush affected area of skin with large amount of water or lukewarm water and soap. If you feel unwell, call a doctor/physician.

If in eyes: Rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If irritation persists, get medical advice/attention.

If swallowed: Rinse mouth. Do not induce vomiting. Get medical advice/attention.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing agents: Dry powder, carbon dioxide, air foam fire extinguisher, water spray.

Unsuitable extinguishing agents: A stream of water.

Specific firefighting: Keep away from near ignition source. Extinguish from windward with protective equipment.

Protective equipment: Use respiratory protective device.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use only non-sparking tools. Keep unprotected persons away.

Protective equipment and emergency procedures: Wear protective equipment.

Environmental precautions: Avoid release to the environment.

Methods and materials for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

7. HANDLING AND STORAGE

Handling:

Fire strict prohibition.

Use explosion-proof electrical/ventilating/lighting/equipment.

Wear protective gloves/protective clothing/eye protection/face protection. Use personal protective equipment as required.

Keep away from heat/sparks/open flames/hot surfaces.

Avoid contact with strongly oxidizing agent.

Wash hands thoroughly after handling.

Storage: Keep receptacle tightly sealed. Store in cool, dry conditions in well-sealed receptacles.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters: 50ppm (Xylene)

Allowable parameters

Japan society for occupational health: (2005) 50ppm (Xylene)

ACGIH: (2005) TLB-TWA 100ppm (Xylene)

Equipment measures: When steam or fume and mist occur, set up a local exhaust ventilation. Set up facilities for washing eyes and physical cleaning near handling locality.

Protective equipment

Respiratory protection: Gas mask (for organic gas), an airline respirator.

Hand protection: Protective gloves.

Eye protection: Tightly fitting safety goggles.

Skin/body protection: Impervious clothing.

Sanitary requirement: Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Paste

pH: Not applicable

Boiling point: No data available

Evaporation rate: No data available

Vapor density: No data available

Solubility: Insoluble in water

Flammability (solid, gas): No data available

Odor: Xylene odor

Melting/freezing point: No data available

Flash point: 52°C

Vapor pressure: No data available

Specific gravity: 1.29 (20°C)

Auto-ignition temperature: No data available

10. STABILITY AND REACTIVITY

Stability and reactivity: Product is stable at normal temperature and ordinary pressure.

Possibility of hazardous reactions: This component is dangerous in response to a strongly oxidizing agent. This component can run not in response to active hydrogen workplace.

Conditions to avoid: Heating.

Incompatible materials: Oxidizing agent.

11. TOXICOLOGICAL INFORMATION

Acute toxicity-oral: Not classifiable

Acute toxicity-dermal: Not classifiable

Acute toxicity-inhalation: Not classifiable

Skin corrosion/irritation: Category 3

Eye damage/irritation: Not classifiable

Sensitization-respiratory: Category 1

Sensitization-respiratory skin: Category 1

Germ cell mutagenicity: Not classifiable

Carcinogenicity: Category 2

Toxic to reproduction: Category 1

Specific target organ systemic toxicology (single exposure): Category 1 (liver, kidney, central nerve)

Specific target organ systemic toxicology (repetitive exposure): Category 1 (nerve)

Aspiration hazard: Not classifiable

12. ECOLOGICAL INFORMATION (non-mandatory)

No information available.

13. DISPOSAL CONSIDERATIONS (non-mandatory)

Dispose of contents/container in accordance with local regulation for industrial waste disposal. Consign a qualified industrial waste disposer.

14. TRANSPORT INFORMATION (non-mandatory)

Prevent cargo from falling, damaging, or collapsing.

ERG number: 171

UN number: Not applicable

15. REGULATORY INFORMATION (non-mandatory)

In Japan

Industrial Safety and Health Act: Article 57-2 (Notifiable substances)

Xylene

Ethylbenzene

Titanium dioxide

Silica gel

4,4'-MDI

Poisonous and Deleterious Substances Control Act: Not applicable

Fire Service Act: Not applicable

Air Pollution Control Act: Not applicable

Pollutant Release and Transfer Register: Class 1 Designated Chemical Substances – Xylene, Ethylbenzene

16. OTHER INFORMATION

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SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH)

1. PRODUCT IDENTIFICATION

Trade Name(s): PM Sealant
Product Description: Adhesives. Sealant.
Synonyms: N/A
CAS No: N/A

Supplier:
EPRO Services, Inc.
PO Box 347
Derby, KS 67037
800-882-1896 (8:00am – 5:00pm CST)

2. HAZARD(S) IDENTIFICATION

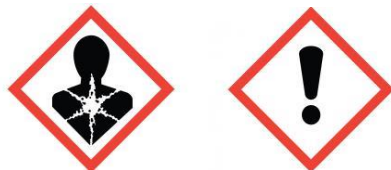
OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (49CFR1910.1200).

Classification of the substance or mixture

Acute toxicity-Oral-Category 4
Serious Eye Damage/Eye Irritation-Category 2A
Carcinogenicity-Category 1A
Reproductive Toxicity-Category 1B
Specific target organ toxicity (single exposure)-Category 1 (central nervous system)
Specific target organ toxicity (repeated exposure)-Category 1 (respiratory system)
Specific target organ toxicity (repeated exposure)-Category 2 (bladder)

GHS label elements

Hazard pictogram



Signal word: Danger

Hazard statements

Harmful if swallowed. Causes serious eye irritation. May cause cancer. May damage fertility or the unborn child. Cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear eye and face protection. Do not breathe dust/fumes/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink, or smoke when using this product.

Response: If exposed, call a POISON CENTER or physician if you feel unwell. If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention. IF SWALLOWED, immediately call a POISON CENTER or physician. Rinse mouth. Get medical attention if you feel unwell.

Storage: Store locked up.

Disposal: Dispose of contents and container in accordance with all local, regional, national, and international regulations.

Statement of Unknown Acute Toxicity: Oral 71.91% of the mixture consists of ingredients of unknown acute toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient name	%	CAS Number
Calcium Carbonate	30-60	1317-65-3
Carbonic acid, calcium salt (1:1)	15-40	471-34-1
Titanium Dioxide	1-5	13463-67-7
Organosilane	1-5	2768-02-7
Dibutyltin oxide	0.1-1	818-08-6
Diisonoyl phthalate	15-40	28553-12-0
Carbon Black	0.05 - <0.1	1333-86-4

4. FIRST-AID MEASURES**Description of necessary first aid measures**

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses if easy to do so. Continue rinsing. If irritation persists, get medical attention.

Inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Call poison center or physician if you feel unwell.

Skin contact: Wash with plenty of soap and water. If skin irritation or rash occurs, get medical attention. Remove contaminated clothing and wash before reuse.

Ingestion: If swallowed, immediately call a poison center or physician. DO NOT induce vomiting.

Most important symptoms/effects, acute and delayed**Acute**

Harmful if swallowed. Causes serious eye irritation.

Delayed

May cause cancer. May damage fertility or the unborn child. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure. May cause damage to organs through prolonged or repeated exposure.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Use dry chemical, CO₂, water, or foam.

Unsuitable extinguishing media: Do not use high pressure water streams.

Specific hazards arising from the chemical: Upon decomposition, product emits carbon dioxide, carbon monoxide, and/or low molecular weight hydrocarbons.

Hazardous thermal decomposition products: Decomposition products may include carbon dioxide, carbon monoxide, and/or low molecular weight hydrocarbons.

Special protective actions for firefighters: Heating may cause an explosion. Containers may rupture or explode. Move containers from fire area if it can be done without risk. Avoid inhalation of vapors or combustion products. Dike for later disposal. Stay upwind and keep out of low areas.

Special protective equipment for firefighters: Firefighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures

Wear personal protective clothing and equipment. See Section 8.

Methods and materials for containment and cleaning up

Keep unnecessary people away. Isolate hazard area and deny entry. In case of spillage, stop the flow of material and block any potential routes to water systems. Only personnel trained for the hazards of this material should perform clean up and disposal.

Environmental Precautions

Do not flush into sanitary sewer systems, drains, or surface water. Avoid release to the environment.

7. HANDLING AND STORAGE

Precautions for safe handling

Protective measures: Do not handle until all safety precautions have been read and understood. Keep away from all ignition sources. Avoid contact with eyes or skin. Do not eat, drink, or smoke when using this product. Always wear recommended personal protective equipment (section 8). Take precautionary measures against static discharge. Avoid release to the environment. Empty containers retain product residue and can be hazardous. Do not reuse container.

Conditions for safe storage, including any incompatibilities: Store locked up and in accordance with local regulations. Store in original container in a cool dry well-ventilated area away from incompatible materials. Empty containers may contain product residue. Avoid contact with temperatures above 120°C.

Incompatible Materials: Strong oxidizer. Strong acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Component Exposure Limits

Calcium carbonate 1317-65-3	NIOSH: 10 mg/m ³ TWA total dust; 5 mg/m ³ TWA respirable dust OSHA (US): 15 mg/m ³ TWA total dust; 5 mg/m ³ TWA respirable fraction Mexico: 10 mg/m ³ TWA VLE-PPT 20 mg/m ³ STEL (PPT-T)
Carbonic acid, calcium salt (1:1) 471-34-1	NIOSH: 10 mg/m ³ TWA total dust; 5 mg/m ³ TWA respirable dust
Titanium dioxide 13463-67-7	ACGIH: 10 mg/m ³ TWA NIOSH: 2.4 mg/m ³ TWA (CIB 63) fine; 0.3 mg/m ³ TWA (CIB 63) ultrafine, including engineered nanoscale 5000 mg/m ³ IDLH OSHA (US): 15 mg/m ³ TWA total dust Mexico: 10 mg/m ³ TWA VLE-PPT as Ti 20 mg/m ³ STEEL (PPT-CT) as Ti
Carbon Black 1333-86-4	ACGIH: 3 mg/m ³ TWA inhalable particulate matter NIOSH : 3.5 mg/m ³ TWA ; 0.1 mg/m ³ TWA (Carbon black in presence of Polycyclic aromatic hydrocarbons) as PAH 1750 mg/m ³ IDLH OSHA (US): 3.5 mg/m ³ TWA Mexico: 3.5 mg/m ³ TWA VLE-PPT 7 mg/m ³ STEL (PPT-CT)

ACGIH – Threshold Limit Values – Biological Exposure Indices (BEI): There are no biological limit values for any of this product's components.

Appropriate engineering controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor, or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures: Wash hands, forearms, and face thoroughly after handling chemical products, before eating, smoking, and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Wear splash resistance safety goggles with a face shield.

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection: Wear appropriate chemical resistant clothing.

Respiratory protection: Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid paste

Odor: Mild

pH: Not available

Boiling point: Not available

Flash point: 93.3°C (>200°F)

Flammability (solid, gas): Not available

Color: black, white, gray

Odor threshold: Not available

Melting point: Not available

Freezing point range: Not available

Evaporation rate: Not available

Auto-ignition temperature: Not available

Lower explosive (flammable) limit: Not available
Decomposition temperature: Not available
Vapor density: Not available
Water solubility: Slightly soluble
Viscosity: Not available
Solubility (Other): Not available
Molecular Weight: Not available

Upper explosive (flammable) limit: Not available
Vapor pressure: Not available
Specific gravity: 1.3 – 1.7
Partition coefficient n-octanol/water: Not available
Kinematic Viscosity: Not available
Density: Not available

10. STABILITY AND REACTIVITY

Reactivity: No reactivity hazard is expected.

Chemical stability: Product is stable at normal temperatures and pressure.

Possibility of hazardous reactions: Under normal conditions of storage and use hazardous will not polymerize.

Conditions to avoid: Avoid heat, flames, sparks, and other ignition sources. Avoid contact with incompatible materials and temperatures above 120°C (248°F).

Incompatible materials: Strong oxidizers and strong acids.

Hazardous decomposition products: Upon decomposition, this product emits carbon monoxide, carbon dioxide, and/or molecular weight hydrocarbons.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effect

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Carbonic acid, calcium salt (1:1)	Oral LD50	Rat	6450 mg/kg	4 hours
Titanium dioxide	Oral LD50	Rat	> 10000 mg/kg	
Organosilane	Oral LD50	Rat	7340 ml/kg	
Dibutyltin oxide	Oral LD50	Rat	44.9 mg/kg	
Diisononyl phthalate	Oral LD50	Rat	> 9750 mg/kg	
	Inhalation LC50	Rat	> 4.4 mg/l	
Carbon black	Oral LD50	Rat	> 15400 mg/kg	
Product toxicity- acute toxicity estimated	Oral LD50		1261.24 mg/kg	

Immediate effects: Harmful if swallowed. Causes serious eye irritation. May cause skin irritation. May be harmful if inhaled.

Acute Toxicity Estimate: Oral: 1261.241 mg/kg

Delayed effects: May cause cancer. May damage fertility or the unborn child. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.

Irritation/Corrosion: Causes serious eye irritation.

Respiratory Sensitization: No information on significant adverse effects.

Dermal Sensitization: No information on significant adverse effects.

Component Carcinogenicity

Product/ingredient name	ACGIH	IARC	OSHA	NIOSH
Titanium Dioxide	A 4	Group 2 B	Yes	Potential Occupational Carcinogen
Carbon black	A 3	Group 2 B	Yes	Potential Occupational Carcinogen

Results of a DuPont epidemiology study showed that employees who had been exposed to titanium dioxide pigments were at no greater risks of developing lung cancer than were employees who had not been exposed to titanium dioxide pigments. No pulmonary fibrosis was found in any of the employees and no associations were observed between titanium dioxide pigment exposure and chronic respiratory disease or lung

abnormalities. Based on the results of this study, DuPont has concluded that titanium dioxide pigment will not cause lung cancer or chronic respiratory disease in humans at concentrations experienced in the workplace.

Germ Cell Mutagenicity: No information on significant adverse effects.

Tumorigenic Data: No information on significant adverse effects.

Reproductive toxicity: May damage fertility or the unborn child.

Specific target organ toxicity (single exposure): Central nervous system.

Specific target organ toxicity (repeated exposure): Respiratory system, bladder.

Aspiration hazard: No information on significant adverse effects.

Medical Conditions Aggravated by Exposure: No data available.

12. ECOLOGICAL INFORMATION (non-mandatory)

Toxicity: May cause long lasting harmful effects to aquatic life.

Product/ingredient name	Result	Species	Exposure
Diisononyl phthalate	LC50 100 mg/l (semi static)	Brachydanio rerio	96 hours
	LC50 > 0.14 mg/l (flow thru)	Lepomis macrochirus	96 hours
	LC50 > 0.17 mg/l (static)	Lepomis macrochirus	96 hours
	LC50 > 0.19 mg/l (flow thru)	Pimephales promelas	96 hours
	LC50 > 0.14 mg/l (static)	Pimephales promelas	96 hours
	EC50 > 500 mg/l (IUCLID)	Desmodesmus subspicatus	72 hours
	EC50 > 1.8 mg/l static)	Pseudokirchneriella	96 hours
	EC50 > 500 mg/l (IUCLID)	Daphnia magna	48 hours
	EC50 > 0.06 mg/l (static)	Daphnia magna	48 hours

13. DISPOSAL CONSIDERATIONS (non-mandatory)

Disposal methods: Dispose of in accordance with all applicable local, state, regional, and federal regulations.

Component Waste Numbers: The US EPA has not published waste numbers for this product components.

14. TRANSPORT INFORMATION (non-mandatory)

DOT: Not regulated as a dangerous good.

IATA: Not regulated as a dangerous good.

ICAO: Not regulated as a dangerous good.

IMDG: Not regulated as a dangerous good.

International Bulk Chemical Code: This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Titanium dioxide (13463-67-7): IBC Code – Category Z (slurry)

15. REGULATORY INFORMATION (non-mandatory)

US Federal regulations: None of this product's components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA 311/312: Carcinogenicity. Acute Toxicity. Reproductive Toxicity. Serious Eye damage/Eye irritation. Specific Target Organ Toxicity.

State regulations

California: The following components are listed: Carbon Black

Massachusetts: The following components are listed: Calcium carbonate, Titanium dioxide & Carbon Black

Minnesota: The following components are listed: Calcium carbonate, Titanium dioxide & Carbon Black

New Jersey: The following components are listed: Calcium carbonate, Titanium dioxide & Carbon Black

Pennsylvania: The following components are listed: Calcium carbonate, Titanium dioxide & Carbon Black

California Prop. 65

WARNING: This product can expose you to chemicals including Titanium dioxide, Diisononyl phthalate, and carbon black, which are known to the State of California to cause cancer.

Titanium dioxide: carcinogen, 9/2/2011 (airborne, unbound particles of respirable size)

Diisononyl phthalate: carcinogen, 12/20/2013

Carbon black: carcinogen, 2/21/2003 (airborne, unbound particles of respirable size)

Canada Regulations

Canadian WHMIS Ingredient Disclosure List (IDL): Components of this material have been checked against the list. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIX criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL.

Dibutyltin oxide (818-08-6): 1%

Carbon black (1333-86-4): 1%

Component Analysis – Inventory

	Calcium carbonate	Carbonic acid,calcium salt ((1:1)	Titanium dioxide	Organosilane	Dibutyltin oxide	Diisononyl phthalate	Carbon black
	1317-65-3	471-34-1	13463-67-7	2768-02-7	818-08-6	28553-12-0	1333-86-4
US	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CA	NSL	DSL	DSL	DSL	DSL	DSL	DSL
EU	EIN	EIN	EIN	EIN	EIN	EIN	EIN
AU	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PH	Yes	Yes	Yes	Yes	Yes	Yes	Yes
JP-ENCS	Yes	Yes	Yes	Yes	Yes	Yes	Yes
JP-ISHL	Yes	Yes	Yes	Yes	Yes	Yes	Yes
KR KECI Annex 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes
KR KECI Annex 2	No	No	No	No	No	No	No
KR-REACH CCA	No	No	No	No	No	No	No
CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NZ	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MX	Yes	Yes	Yes	Yes	No	Yes	Yes
TW	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VN (draft)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

16. OTHER INFORMATION

This information provided on this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designated only as a guide for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

9/21/22

SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH)

1. PRODUCT IDENTIFICATION

Trade Name(s): XT5 RG
Product Description: Coating
Synonyms: N/A
CAS No: N/A

Supplier:
EPRO Services, Inc.
PO Box 347
Derby, KS 67037
800-882-1896 (8:00am – 5:00pm CST)

2. HAZARD(S) IDENTIFICATION

Physical hazards

Flammable liquids: Category 3

Health hazards

Skin Corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 2A

Germ cell mutagenicity: Category 1B

Specific target organ toxicity, repeated exposure: Category 2

Aspiration hazard: Category 1

Environmental hazards: Not classified.

OSHA defined hazards: Not classified.

Label elements



Signal word: Danger

Hazard statement: Flammable liquid and vapor. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause genetic defects. May cause damage to organs through prolonged or repeated exposure.

Precautionary statement

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Do not breathe mist/vapors. Wear protective gloves/protective clothing/eye protection/face protection.

Response: If swallowed: Immediately call a poison center/doctor. Do not induce vomiting. If on skin or hair: Take off immediately all contaminated clothing. Rinse skin with water/shower. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. In case of fire, use appropriate media to extinguish.

Storage: Store in a well-ventilated place. Keep cool.

Disposal: Not available.

Hazards not otherwise classified (HNOC): None known.

Supplemental information: 84.21% of the mixture consists of components of unknown acute oral toxicity. 99.01% of the mixture consists of components of unknown acute dermal toxicity. 75.3% of the mixture consists of components of unknown acute inhalation toxicity. 90.04% of the mixture consists of components of unknown acute hazards to the aquatic environment. 90.04% of the mixture consists of components of unknown long-term hazards to the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

<u>Chemical Name</u>	<u>CAS No.</u>	<u>%</u>
Distillates (petroleum), Hydrotreated Light	64742-47-8	5 - < 10
Oleylamine	112-90-3	1 - < 3

4. FIRST-AID MEASURES

Inhalation: Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact: Remove contaminated clothing immediately. Rinse skin with water/shower. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion: Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed: Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed: Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information: Take off all contaminated clothing immediately. If exposed or concerned, get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the materials involved and take precautions to protect themselves. Show this SDS to the doctor in attendance. Wash contaminated clothing before reuse.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water fog. Foam. Carbon dioxide (CO₂). Dry chemical powder.

Unsuitable extinguishing media: Do not use water jet as an extinguisher as this will spread the fire.

Specific hazards arising from the chemical: Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Firefighting equipment/instructions: In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods: Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards: Flammable liquid and vapor.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged container or spilled material unless wearing appropriate protective clothing. Ventilate closed space before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection see section 8 of the SDS.

Methods and materials for containment and cleaning up: Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. Large spills: Stop the flow of material if this is without risk. Dike the spilled material where possible. Use a non-combustible material like vermiculite, dry sand, or earth to soak up product and place into containers for later disposal. Following product recovery, flush area with water. Small spills: Absorb with earth, sand, or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for reuse. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions: Avoid discharge into drains, water courses, or onto the ground.

7. HANDLING AND STORAGE

Precautions for safe handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store, or open near an open flame, sources of heat or source of ignition. Protect material from direct sunlight. When using do not smoke. Take precautionary measure against static discharges. Do not breathe mist/vapors. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities: Store locked up. Keep away from heat, sparks, and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of SDS).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<u>Components</u>	<u>Type</u>	<u>Value</u>
Distillates (petroleum), Hydrotreated Light (CAS 64742-47-8)	PEL	400 mg/m ³ 100 ppm

US NIOSH: Pocket Guide to Chemical Hazards

Components

Distillates (petroleum), Hydrotreated Light
(CAS 64742-47-8)

Type

TWA

Value

100 mg/m³

Biological limit values: No biological exposure limits noted for the ingredients.

Appropriate engineering controls: Good general ventilation should be used (see CIM IG-9 for additional details). Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

Eye/face protection: Wear safety glasses with side shields (or goggles).

Skin protection – hand: Wear appropriate chemical resistant gloves.

Skin protection – other: Wear appropriate chemical resistant clothing.

Respiratory protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards: Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations: Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid

Odor: Mild. Hydrocarbon-like

pH: Not available

Initial boiling point & range: 347°F (175°C) est

Evaporation rate: Not available

Flammability limit-lower %: 0.7% est

Explosive limit-lower %: 0.7% est

Vapor pressure: 3 mm Hg est

Relative density: Not available

Partition coefficient (n-octanol/water): Not available

Decomposition temperature: Not available

Density: 0.90 g/cm³

Flammability class: Combustible II est

VOC: 0.8 – 0.98 g/l

Color: Black

Odor threshold: Not available

Melting/freezing point: Not available

Flash point: 101°F (38.3°C)

Flammability (solid, gas): Not available

Flammability limit-upper %: 5% est

Explosive limit-upper %: 5% est

Vapor density: 4.9

Solubility (water): Not available

Auto-ignition temperature: 410°F (> 210°C) est

Viscosity: 3500 - 6500 cP

Explosive properties: Not explosive

Oxidizing properties: Not oxidizing

10. STABILITY AND REACTIVITY

Reactivity: The product is stable and non-reactive under normal condition of use, storage, and transport.

Chemical stability: Material is stable under normal conditions.

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid: Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. Avoid temperature exceeding the flash point. Contact with incompatible materials.

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation: Prolonged inhalation may be harmful.

Skin contact: Causes skin irritation.

Eye contact: Causes serious eye irritation.

Ingestion: Droplets of product aspirated into lungs through ingestion or vomiting may cause a serious chemical pneumonia.

Symptoms related to the physical, chemical, and toxicological characteristics: Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity: May be fatal if swallowed and enters airways.

<u>Product</u>	<u>Species</u>	<u>Test Results</u>
XT5 RG		
<u>Acute Inhalation</u>		
LC50	Rat	612 mg/l, 4 hrs

Skin corrosion/irritation: Causes skin irritation.

Serious eye damage/eye irritation: Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization: Not a respiratory sensitizer.

Skin sensitization: Not expected to cause skin sensitization.

Germ cell mutagenicity: May cause genetic defects.

Carcinogenicity: Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity: Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052): Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens: Not listed.

Reproductive toxicity: This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity – single exposure: Not classified.

Specific target organ toxicity – repeated exposure: May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard: May be fatal if swallowed and enters airways.

Chronic effects: Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure.

12. ECOLOGICAL INFORMATION (non-mandatory)

Ecotoxicity: The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<u>Product</u>	<u>Species</u>	<u>Test Results</u>
XT5 RG		
<u>Aquatic</u>		
Crustacea EC50	Daphnia	37.6506 mg/l, 48 hrs
Fish LC50	Fish	29.1165 mg/l, 96 hrs
<u>Acute</u>		
Crustacea EC50	Daphnia	27.1084 mg/l, 48 hrs est.
Fish LC50	Fish	22.0884 mg/l, 4 days est.

<u>Components</u>	<u>Species</u>	<u>Test Results</u>
Distillates (petroleum), Hydrotreated Light (CAS 64742-47-8)		
<u>Aquatic</u>		
Crustacea EC50	Water flea (Daphnia pulex)	>= 2.7 – <= 5.1 mg/l, 48 hrs
<u>Acute</u>		
Crustacea EC50	Water flea (Daphnia pulex)	>= 2.7 – <= 5.1 mg/l, 48 hrs
Fish LC50	Bluegill (Lepomis macrochirus)	2.2 mg/l, 4 days

Persistence and degradability: No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential: No data available.

Mobility in soil: No data available.

Other adverse effects: No other adverse environmental effect (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. DISPOSAL CONSIDERATIONS (non-mandatory)

Disposal instructions: Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations: Dispose in accordance with all applicable regulations.

Hazardous waste code: D001: Waste flammable material with a flash point <140°F. Waste code should be assigned in discussion between user, producer, and waste disposal company.

Waste from residues / unused products: Dispose of in accordance with local regulations. Empty containers or liner may retain some product residues. This material and its container must be disposed of in a safe manner (see Disposal instructions).

Contaminated packaging: Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty container should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION (non-mandatory)

DOT: Not regulated as dangerous goods. This material can be reclassified as non-hazardous for DOT Transportation per 49 CFR 173.150 (f). This material can also be shipped as UN1139 Coating Solutions, Class 3, PGIII.

IATA

UN number: UN1139

UN proper shipping name: Coating solution (include surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum, or barrel lining).

Transport hazard classes

Class: 3

Subsidiary risk: -

Packing group: III

Environmental hazards: No

ERG Code: 3L

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft: Allowed with restrictions.

Cargo aircraft only: Allowed with restrictions.

IMDG

US number: UN1139

UN proper shipping name: Coating Solution (includes surface treatments or coatings used for industrial Purposes such as vehicle under-coating, drum, or barrel lining). (

Transport hazard classes

Class: 3

Subsidiary risk: -

Packing group: III

Environmental hazards

Marine pollutant: No

EmS: F-E, S-E

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPO 73/78 and the IBC Code: Not established.

IATA; IMDG



15. REGULATORY INFORMATION (non-mandatory)

US federal regulations: This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.

CERLA Hazardous Substance List (40 CFR 302.4): Not listed.

SARA 304 Emergency release notification: Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053): Not listed.

Superfund Amendment and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance: Not listed.

SARA 311/312 Hazardous chemical: Yes

Classified hazard categories: Flammable (gases, aerosols, liquids, or solids). Skin corrosion or irritation.

Serious eye damage or eye irritation. Germ cell mutagenicity. Specific target organ toxicity (single or repeated exposures). Aspiration hazard.

SARA 313 (TRI reporting): Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List: Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130): Not regulated.

Safe Drinking Water Act (SDWA): Not regulated.

US state regulations

US California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a): Distillates (petroleum), Hydrotreated Light (CAS 64742-47-8).

California Proposition 65: California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country or region	Inventory Name	On Inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
US & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*"Yes" indicates that all components of this product comply with the inventory requirements by the governing countries. "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country.

16. OTHER INFORMATION

HMIS ratings

Health: 3

Flammability: 3

Physical hazard: 0

NFPA ratings

Health: 2

Flammability: 3

Instability: 0

This information provided on this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication, however, no guarantee is made to its accuracy. The information given is designated only as a guide for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process. This material is intended for industrial use only. No warranty, expressed or implied, is made.



7/1/20

SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH)

1. PRODUCT IDENTIFICATION

Trade Name(s): PreTak
Product Description: HDPE self-adhesive waterproofing membrane
Synonyms: N/A
CAS No: N/A

Supplier:
EPRO Services, Inc.
PO Box 347
Derby, KS 67037
800-882-1896 (8:00am – 5:00pm CST)

2. HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

The product is not classified according to the Globally Harmonized System (GHS).

Additional information:

SDS's are not required for finished articles. nevertheless, the following information is provided to assist with safe use.

Combustion hazard: No explosion hazards and difficult to burn.

Health hazards: Wear protective gloves and protective clothing during production and construction.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Content (%)
High-density polyethylene	9002-88-4	50-70%
Self-adhesive	6683-19-8	0.1-1%
Anti-stick coating	64742-16-1	5-20%
Petroleum resin	104389-32-4	5-20%
Isolation membrane	8012-95-1	5-15%

4. FIRST-AID MEASURES

Description of first aid measures

General information: Get medical advice/attention if you feel unwell

After inhalation: Move victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a physician immediately.

After skin contact: Immediately wash contaminated skin with soap or mild detergent and water. If chemical soaks clothing, immediately remove clothing and wash skin.

After eye contact: Rinse cautiously with water for several minutes. If symptoms persist, consult a physician.

After swallowing: Drink enough water and induce vomiting. Call a physician or Poison Control Center immediately.

Information for doctor: Most important symptoms and effects, both acute and delayed. No further relevant information available.

Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5. FIRE-FIGHTING MEASURES

Special hazards arising from the substance or mixture: No further relevant information available.

Fire extinguishing media: Water, foam, dry chemical powder, carbon dioxide.

Fire extinguishing procedure: Wear self-contained breathing apparatus and full protective gear. Fire-extinguishing work is done from windward and suitable method according to the surrounding situation is used.

Harmful combustion: Combustion of liquid may produce carbon monoxide, carbon dioxide and other hazardous gases.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up: Pick up mechanically.

Reference to other sections: See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7. HANDLING AND STORAGE

Precautions for safe handling

Wash thoroughly after handling.

Avoid eye and skin contact with residue from adhesive.

Prevent extrusion, tipping, or horizontal pressure. Keep packages intact.

No smoking, eating, or drinking water.

Storage

Information about storage in one common storage facility: Do not store above 113°F (45°C).

Further information about storage conditions: Keep receptacle tightly sealed in dry, cool, and well-ventilated place. Keep away from heat, sparks, open flames, hot surfaces, and direct sunlight.

Specific end use(s): No further relevant information available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems: No further data. See Item 7.

Control parameters

Components with limit values that require monitoring at the workplace: The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment

General protective and hygienic measures: Avoid contact with the eyes and skin. The usual precautionary measure for handling chemicals should be followed.

Breathing equipment: Control exposure to ingredient with workplace control parameters if mentioned above. If no ingredients are listed, respiratory protection is generally not required. If exposure limits are listed and may be exceeded, use approved respiratory protective equipment and filter type appropriate for the listed ingredients. (NIOSH, CEN, etc.)

Protection of hands: Gloves should be worn to prevent skin contact and should be the impermeable and resistant to the product.

Material of gloves: Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product.

Eye protection: Safety glasses with side shield protection.

Body protection: Use personal protective equipment as required. Take off contaminated clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Solid

Odor: Odorless

pH value: Not applicable

Boiling point/Boiling range: Undetermined

Flammability (solid, gaseous): Not determined

Auto igniting: Product is not self-igniting

Explosion limits: Not determined

Vapor pressure: Not applicable

Density: 1.33KG-1.50KG/M2

Evaporation rate: Not applicable

Partition coefficient (n-octanol/water): Undetermined

Dynamic: Not applicable

Molecular weight: Not applicable

Color: White or light yellow

Odor threshold: Not determined

Softening Point: 90°C - 110°C

Flash point: Not applicable

Decomposition temperature: Not determined

Danger of explosion: Not an explosion hazard

VOC Content (max): Not determined

Density at 20°C (68°F): 1 g/cm³ (8.345 lbs/gal)

Vapor density: Not applicable

Solubility in water: Does not dissolve

Viscosity: No information

Kinematic: Not applicable

Specific gravity: 0.97

10. STABILITY AND REACTIVITY

Reactivity: Stable under normal conditions

Thermal decomposition: No decomposition if used according to specifications.

Possibility of hazardous reactions: Dust.

Conditions to avoid: Fire, high temperatures.

Incompatible materials: Strong oxidants, alkali, and edible chemicals.

Hazardous decomposition products: CO, CO₂

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Primary irritant effect:

Skin: No irritating effect expected

Eye: No irritating effect expected

Inhalation: No irritating effect expected

Additional toxicological information:

Carcinogenic categories

IARC (International Agency for Research on Cancer) Human Carcinogenicity:

Group 1 – Positive, Group 2A – Probable, Group 2B – Possible, Group 3 – Not Classifiable: None of the ingredients are listed.

NTP (National Toxicology Program)

K-Known to be carcinogenic, R-May reasonably be anticipated to be carcinogenic: None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration): None of the ingredients are listed.

12. ECOLOGICAL INFORMATION (non-mandatory)

Ecotoxicological toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available

Non-biodegradable: When exposed to sunlight the surface will photodegrade

Behavior in environmental systems

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Additional ecological information: No harmful solvents and additives in ingredient. No harmful substances release in the production, construction and using, and harmless to water, surroundings, and humans.

13. DISPOSAL CONSIDERATIONS (non-mandatory)

Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing product for disposal. Dispose of waste in accordance with all applicable regulations.

Recommendation: Recommended incineration disposal.

Uncleaned packaging recommendation: Dispose of content/container in accordance with local/regional/national/international regulations.

14. TRANSPORT INFORMATION (non-mandatory)

Transport Information UN-Number (DOT, IMDG, IATA): Not applicable

UN Proper shipping name (DOT, IMDG, IATA): Not applicable

Transport hazard classes (DOT, IMDG, IATA): Not applicable

Class: Not applicable

Packing group (DOT, IMDG, IATA): Not applicable

Environmental hazards

Marine pollutant: No

Special precautions for user: Not applicable

Transport/Additional information: Not classified as a dangerous good for transport by road, rail, or air

DOT

Remarks: Not regulated

UN "Model Regulation": Not applicable

15. REGULATORY INFORMATION (non-mandatory)

SARA (Superfund Amendments and Reauthorization Act) Section 302/304 (extremely hazardous substances):

None of the ingredients are listed.

Section 313 Reportable ingredients (Chemicals present below reporting threshold are exempt): None of the ingredients are listed.

Sara Section 312/Tier I & II Hazard Categories: None

North America Chemical Inventory Status

TSCA (Toxic Substances Control Act – United States): All ingredients are listed or exempt from listing unless otherwise noted below.

CEPA (Canadian DSL): All ingredients are listed or exempt from listing unless otherwise noted below.

California Proposition 65 Chemicals known to cause cancer: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.

Chemicals known to cause development toxicity: None of the ingredients are listed.

Carcinogenicity Categories

EPA (Environmental Protection Agency): None of the ingredients are listed.

TLV-ACGIH (The American Conference of Governmental Industrial Hygienists) Human Carcinogen – A1

Confirmed, A2 Suspected, A3 Unknown Relevance, A4 Not Classifiable: None of the ingredients are listed.

NIOSH-Cancer (National Institute for Occupational Safety and Health): None of the ingredients are listed.

Volatile Organic Compounds (VOC) reported per the Emission Standards: If no g/L value is provided this product is not subject to standard.

16. OTHER INFORMATION

This information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designated only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.



7/1/20

SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH)

1. PRODUCT IDENTIFICATION

Trade Name(s): PreTape, PreTape D

Product Description: Pressure sensitive-backed adhesive waterproofing HDPE tape

Synonyms: N/A

CAS No: N/A

Supplier:

EPRO Services, Inc.

PO Box 347

Derby, KS 67037

800-882-1896 (8:00am – 5:00pm CST)

2. HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

The product is not classified according to the Globally Harmonized System (GHS).

Additional information:

SDS's are not required for finished articles. nevertheless, the following information is provided to assist with safe use.

Combustion hazard: No explosion hazards and difficult to burn.

Health hazards: Wear protective gloves and protective clothing during production and construction.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Content (%)
High-density polyethylene	9002-88-4	50-70%
Self-adhesive	6683-19-8	0.1-1%
Anti-stick coating	64742-16-1	5-20%
Petroleum resin	104389-32-4	5-20%
Isolation membrane	8012-95-1	5-15%

4. FIRST-AID MEASURES

Description of first aid measures

General information: Get medical advice/attention if you feel unwell

After inhalation: Move victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a physician immediately.

After skin contact: Immediately wash contaminated skin with soap or mild detergent and water. If chemical soaks clothing, immediately remove clothing and wash skin.

After eye contact: Rinse cautiously with water for several minutes. If symptoms persist, consult a physician.

After swallowing: Drink enough water and induce vomiting. Call a physician or Poison Control Center immediately.

Information for doctor: Most important symptoms and effects, both acute and delayed. No further relevant information available.

Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5. FIRE-FIGHTING MEASURES

Special hazards arising from the substance or mixture: No further relevant information available.

Fire extinguishing media: Water, foam, dry chemical powder, carbon dioxide.

Fire extinguishing procedure: Wear self-contained breathing apparatus and full protective gear. Fire-extinguishing work is done from windward and suitable method according to the surrounding situation is used.

Harmful combustion: Combustion of liquid may produce carbon monoxide, carbon dioxide and other hazardous gases.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up: Pick up mechanically.

Reference to other sections: See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7. HANDLING AND STORAGE

Precautions for safe handling

Wash thoroughly after handling.

Avoid eye and skin contact with residue from adhesive.

Prevent extrusion, tipping, or horizontal pressure. Keep packages intact.

No smoking, eating, or drinking water.

Storage

Information about storage in one common storage facility: Do not store above 113°F (45°C).

Further information about storage conditions: Keep receptacle tightly sealed in dry, cool, and well-ventilated place. Keep away from heat, sparks, open flames, hot surfaces, and direct sunlight.

Specific end use(s): No further relevant information available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems: No further data. See Item 7.

Control parameters

Components with limit values that require monitoring at the workplace: The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment

General protective and hygienic measures: Avoid contact with the eyes and skin. The usual precautionary measure for handling chemicals should be followed.

Breathing equipment: Control exposure to ingredient with workplace control parameters if mentioned above. If no ingredients are listed, respiratory protection is generally not required. If exposure limits are listed and may be exceeded, use approved respiratory protective equipment and filter type appropriate for the listed ingredients. (NIOSH, CEN, etc.)

Protection of hands: Gloves should be worn to prevent skin contact and should be the impermeable and resistant to the product.

Material of gloves: Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product.

Eye protection: Safety glasses with side shield protection.

Body protection: Use personal protective equipment as required. Take off contaminated clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Solid

Odor: Odorless

pH value: Not applicable

Boiling point/Boiling range: Undetermined

Flammability (solid, gaseous): Not determined

Auto igniting: Product is not self-igniting

Explosion limits: Not determined

Vapor pressure: Not applicable

Density: 1.33KG-1.50KG/M2

Evaporation rate: Not applicable

Partition coefficient (n-octanol/water): Undetermined

Dynamic: Not applicable

Molecular weight: Not applicable

Color: White or light yellow

Odor threshold: Not determined

Softening Point: 90°C - 110°C

Flash point: Not applicable

Decomposition temperature: Not determined

Danger of explosion: Not an explosion hazard

VOC Content (max): Not determined

Density at 20°C (68°F): 1 g/cm³ (8.345 lbs/gal)

Vapor density: Not applicable

Solubility in water: Does not dissolve

Viscosity: No information

Kinematic: Not applicable

Specific gravity: 0.97

10. STABILITY AND REACTIVITY

Reactivity: Stable under normal conditions

Thermal decomposition: No decomposition if used according to specifications.

Possibility of hazardous reactions: Dust.

Conditions to avoid: Fire, high temperatures.

Incompatible materials: Strong oxidants, alkali, and edible chemicals.

Hazardous decomposition products: CO, CO₂

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Primary irritant effect:

Skin: No irritating effect expected

Eye: No irritating effect expected

Inhalation: No irritating effect expected

Additional toxicological information:

Carcinogenic categories

IARC (International Agency for Research on Cancer) Human Carcinogenicity:

Group 1 – Positive, Group 2A – Probable, Group 2B – Possible, Group 3 – Not Classifiable: None of the ingredients are listed.

NTP (National Toxicology Program)

K-Known to be carcinogenic, R-May reasonably be anticipated to be carcinogenic: None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration): None of the ingredients are listed.

12. ECOLOGICAL INFORMATION (non-mandatory)

Ecotoxicological toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available

Non-biodegradable: When exposed to sunlight the surface will photodegrade

Behavior in environmental systems

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Additional ecological information: No harmful solvents and additives in ingredient. No harmful substances release in the production, construction and using, and harmless to water, surroundings, and humans.

13. DISPOSAL CONSIDERATIONS (non-mandatory)

Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing product for disposal. Dispose of waste in accordance with all applicable regulations.

Recommendation: Recommended incineration disposal.

Uncleaned packaging recommendation: Dispose of content/container in accordance with local/regional/national/international regulations.

14. TRANSPORT INFORMATION (non-mandatory)

Transport Information UN-Number (DOT, IMDG, IATA): Not applicable

UN Proper shipping name (DOT, IMDG, IATA): Not applicable

Transport hazard classes (DOT, IMDG, IATA): Not applicable

Class: Not applicable

Packing group (DOT, IMDG, IATA): Not applicable

Environmental hazards

Marine pollutant: No

Special precautions for user: Not applicable

Transport/Additional information: Not classified as a dangerous good for transport by road, rail, or air

DOT

Remarks: Not regulated

UN "Model Regulation": Not applicable

15. REGULATORY INFORMATION (non-mandatory)

SARA (Superfund Amendments and Reauthorization Act) Section 302/304 (extremely hazardous substances):

None of the ingredients are listed.

Section 313 Reportable ingredients (Chemicals present below reporting threshold are exempt): None of the ingredients are listed.

Sara Section 312/Tier I & II Hazard Categories: None

North America Chemical Inventory Status

TSCA (Toxic Substances Control Act – United States): All ingredients are listed or exempt from listing unless otherwise noted below.

CEPA (Canadian DSL): All ingredients are listed or exempt from listing unless otherwise noted below.

California Proposition 65 Chemicals known to cause cancer: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.

Chemicals known to cause development toxicity: None of the ingredients are listed.

Carcinogenicity Categories

EPA (Environmental Protection Agency): None of the ingredients are listed.

TLV-ACGIH (The American Conference of Governmental Industrial Hygienists) Human Carcinogen – A1

Confirmed, A2 Suspected, A3 Unknown Relevance, A4 Not Classifiable: None of the ingredients are listed.

NIOSH-Cancer (National Institute for Occupational Safety and Health): None of the ingredients are listed.

Volatile Organic Compounds (VOC) reported per the Emission Standards: If no g/L value is provided this product is not subject to standard.

16. OTHER INFORMATION

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7/1/20

SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH)

1. PRODUCT IDENTIFICATION

Trade Name(s): e.poly (formerly Polyester)

Product Description: polyester fabric

Synonyms: N/A

CAS No: N/A

Supplier:

EPRO Services, Inc.

PO Box 347

Derby, KS 67037

800-882-1896 (8:00am – 5:00pm CST)

2. HAZARD(S) IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Not classified
Acute toxicity - Dermal	Not classified
Acute toxicity - Inhalation (Gases)	Not classified
Acute toxicity - Inhalation (Vapors)	Not classified
Acute toxicity - Inhalation (Dusts/Mists)	Not classified
Skin corrosion/irritation	Not classified
Serious eye damage/eye irritation	Not classified
Respiratory sensitization	Not classified
Skin sensitization	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified
Aspiration toxicity	Not classified

Label elements

Hazard Statements: None

Physical state: Solid

Precautionary Statements–Prevention: Not applicable

Precautionary Statements–Disposal: Not applicable

Other Information: 100% of mixture consists of ingredient(s) of unknown toxicity

Appearance: Reinforced fabric/sheet

Order: Slight/None

Precautionary Statements–Storage: Not applicable

Hazards not otherwise classified (HNOC): N/A

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Chemical Name	Cas No	Weight-%	Trade Secret
Polyester Fabric	NA - Mixture	60 - 100	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST-AID MEASURES

Description of first aid measures

Eye Contact: Rinse thoroughly with plenty of water for at least 15 minutes. Consult a physician.

Skin contact: Wash with soap and water.

Inhalation: Remove to fresh air.

Ingestion: Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms: No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Explosion data

Sensitivity to Mechanical Impact: None.

Sensitivity to Static Discharge: None.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions: Ensure adequate ventilation, especially in confined areas.

Environmental precautions

See section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment: Prevent further leakage or spillage if safe to do so.

Methods for cleaning up: Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions: Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible materials: None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines: This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering Controls Showers, Eyewash stations, Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection: Wear safety glasses with side shields (or goggles).

Skin and body protection: Wear protective gloves and protective clothing.

Respiratory protection: If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations: Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state: Solid

Appearance: Reinforced fabric/sheet

Odor: Slight/None

Color: White

Odor threshold: No information available

Property	Values	Remarks • Method
pH	Not applicable	
Melting point / freezing point	No information available	
Boiling point / boiling range	> 100 °C	
Flash point	> 100 °C	
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Relative density	>1	
Water solubility	No information available	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Auto-ignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	
<u>Other Information</u>		
Softening point	No information available	
Molecular weight	No information available	
VOC Content (%)	No information available	
Density	No information available	
Bulk density	No information available	

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Extremes of temperature and direct sunlight.

Incompatible materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information: No data available

Inhalation: None known.

Eye contact: None known.

Skin contact: None known.

Ingestion: No data available.

Information on toxicological effects

Symptoms: No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization: No information available.

Germ cell mutagenicity: No information available.

Carcinogenicity: No information available.

Reproductive toxicity: No information available.

STOT - single exposure: No information available.

STOT - repeated exposure: No information available.

Aspiration hazard: No information available.

Numerical measures of toxicity - Product Information

ATEmix (oral)	99,999.00
ATEmix (dermal)	99,999.00
ATEmix (inhalation-gas)	99,999.00
ATEmix (inhalation-dust/mist)	99,999.00
ATEmix (inhalation-vapor)	99,999.00

12. ECOLOGICAL INFORMATION (non-mandatory)

Ecotoxicity

None known.

100% of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Persistence and degradability

No information available.

Bioaccumulation

Bioaccumulative potential.

Other Adverse effects

No information available.

Ozone

Not applicable.

13. DISPOSAL CONSIDERATIONS (non-mandatory)

Waste treatment methods

Disposal of wastes: Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging: Do not reuse container.

14. TRANSPORT INFORMATION (non-mandatory)

DOT: Not regulated

TDG: Not regulated

IATA: Not regulated

IMDG: Not regulated

15. REGULATORY INFORMATION (non-mandatory)

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Does not comply
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances **ENCS** - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Sara 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations**U.S. EPA Label Information**

EPA Pesticide Registration Number: Not applicable.

16. OTHER INFORMATION

This information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designated only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.



8/24/20

SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH)

1. PRODUCT IDENTIFICATION

Trade Name(s): e.roll (formerly ECOLINE-R)
Product Description: Polymer Modified Asphalt Emulsion
CAS No: N/A

Manufacturer / Supplier:
EPRO Services, Inc.
PO Box 347
Derby, KS 67037
800-882-1896 (8:00am – 5:00pm CST)

2. HAZARD(S) IDENTIFICATION

GHS-US Classification of the Substance or Mixture

Carc.2: H351
STOT RE 2: H373
Aquatic Chronic 3: H412
Full text of H-phrases: see Section 16

GHS-US Label Elements

Signal Word: Warning

Hazard Statements

H351: Suspected of causing cancer
H373: May cause damage to organs (thymus, liver, bone marrow) through prolonged or repeated exposure
H412: Harmful to aquatic life with long lasting effects

Precautionary Statements

P201: Obtain special instructions before use
P202: Do not handle until all safety precautions have been read and understood
P260: Do not breathe vapors, mist, and spray
P273: Avoid release to the environment
P280: Wear eye protection, protective clothing, and protective gloves
P308+P313: If exposed or concerned, get medical advice/attention
P314: Get medical advice/attention if you feel unwell
P405: Store locked up
P501: Dispose of contents/container in accordance with local, regional, national and international regulations

Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. If stored under heat for extended periods or significantly agitated, this material might evolve or release hydrogen sulfide, a flammable gas, which can raise and widen this material's actual flammability limits and significantly lower its auto-ignition

temperature. Hydrogen sulfide is a toxic gas that can be fatal. It also has a rotten egg smell that causes odor fatigue very quickly and should not be used as an indicator for the presence of gas. Flammable vapors can accumulate in head space of closed system

Unknown Acute Toxicity (GHS-US)

Up to 30% of the mixture consists of ingredient(s) of unknown acute toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product Identifier	%	Classification (GHS-US)
Asphalt	(CAS No) 8052-42-4	50 - 70	Not classified
Water	(CAS No) 7732-18-5	30 - 40	Not classified
Acrysol		>1.3	Not classified
Ethanol	(CAS No) 34375-28-5	>.03	Not classified
Proprietary Polymer	Proprietary*	> 30	Not classified
Proprietary Hydrocarbon	Proprietary*	0 - 5	Flam. Liq. 3, H226 Acute Tox. 3 (Inhalation:vapor), H331 Skin Irrit. 2, H315 Carc. 2, H351 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 3, H402 Aquatic Chronic 2, H411

*The specific chemical identity and/or exact percentage of composition have been withheld as a trade secret within the meaning of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Full text of H-phrases: See Section 16

4. FIRST-AID MEASURES

Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice.

First-aid Measures after Inhalation: When symptoms occur go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures after Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Wash contaminated clothing before reuse. Obtain medical attention if irritation develops or persists.

First-aid Measures after Eye Contact: Rinse cautiously with water for at least 5 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if redness, pain, or irritation occurs.

First-aid Measures after Ingestion: Rinse mouth. Do NOT induce vomiting. Seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: There are potential chronic health effects to consider.

Symptoms/Injuries after Inhalation: May cause respiratory irritation.

Symptoms/Injuries after Skin Contact: May cause skin irritation.

Symptoms/Injuries after Eye Contact: May cause eye irritation.

Symptoms/Injuries after Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: May cause damage to organs (Thymus, Liver, Bone Marrow) through prolonged or repeated exposure. Suspected of causing cancer

Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂).

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but will burn at high temperatures.

Explosion Hazard: Product is not explosive. Contains Sulfur. May release small amounts of hydrogen sulfide.

Hydrogen sulfide is a highly flammable, explosive gas under certain conditions, is a toxic gas, and may be fatal. Gas can accumulate in the headspace of closed containers. Use caution when opening sealed containers. Heating the product or containers can cause thermal decomposition of the product and release hydrogen sulfide.

Reactivity: Hazardous reactions will not occur under normal conditions.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Do not allow run-off from firefighting to enter drains or water sources. Do not breathe fumes or vapors from fire. Use water spray or fog for cooling exposed containers.

Protection During firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Other Information: Refer to Section 9 for flammability properties.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Use special care to avoid static electric charges. Keep away from heat, sparks, open flames, hot surfaces. – No smoking.

For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Environmental Precautions

Prevent entry to sewers and public waters.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Absorb and/or contain spill with inert material, then place in suitable container. Contact competent authorities after a spill.

Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see item 13.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Handle empty containers with care because residual vapors may be flammable.

Precautions for Safe Handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take precautionary measures against static discharge. Use only non-sparking tools. Keep away from heat, sparks, open flames, hot surfaces. – No smoking. Avoid breathing vapors, mist, spray.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical, lighting, ventilating equipment.

Storage Conditions: Store in a dry, cool, and well-ventilated place. Keep container closed when not in use.

Incompatible Products: Strong acids. Strong bases. Strong oxidizers.

Incompatible Materials: Heat sources.

Storage Temperature: > 0 °C (32 °F)

Storage Area: Store locked up.

Specific End Use(s): Asphalt Emulsion

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

For substances listed in Section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV, NIOSH (REL), or OSHA (PEL).

Asphalt (8052-42-4)		
USA ACGIH	ACGIH TWA (mg/m ³)	0.5 mg/m ³ (fume, inhalable fraction)
USA ACGIH	ACGIH chemical category	Not classifiable as a human carcinogen fume, coat tar-free
USA NIOSH	NIOSH REL (ceiling) (mg/m ³)	5 mg/m ³ (fume)

Proprietary Hydrocarbon		
USA ACGIH	ACGIH TWA (mg/m ³)	100 mg/m ³ (inhalable fraction and vapor)
USA ACGIH	ACGIH chemical category	Skin – potential significant contribution to overall exposure by the cutaneous route, Confirmed Animal Carcinogen with Unknown Relevance to Humans

Exposure Controls

Appropriate Engineering Controls: Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Take precautionary measures against static discharges. Ensure all national/local regulations are observed. Gas detectors should be used when flammable gases/vapors may be released.

Personal Protective Equipment: Protective goggles, gloves, protective clothing. Insufficient ventilation: wear respiratory protection.

Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Thermal Hazard Protection: If material is hot, wear thermally resistant protective gloves.

Environmental Exposure Controls: Do not allow the product to be released into the environment.

Consumer Exposure Controls: Do not eat, drink, or smoke during use.

Other Information: When using, do not eat, drink, or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Odor: No data available

pH: No data available

Melting Point: Not applicable

Boiling Point: 100°C (212.00°F)

Auto-ignition Temperature: No data available

Flammability (solid, gas): No data available

Relative Vapor Density at 20°C: >1.0 (air=1)

Specific Gravity: 1.0+ / -0.2 at 60°F (15.6°C)

Viscosity: No data available

Appearance: Brown to Black

Order Threshold: No data available

Evaporation Rate: Slower (butyl acetate-1)

Freezing Point: No data available

Flash Point: No data available

Decomposition Temperature: No data available

Vapor Pressure: Not determined

Relative Density: No data available

Solubility: Water: miscible

Partition Coefficient: N-Octanol/Water: No data available

Other Information

VOC Content: 0

Volatiles (includes water): 30 - 50%

10. STABILITY AND REACTIVITY

Reactivity: Hazardous reactions will not occur under normal conditions.

Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks. Do not freeze.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers.

Hazardous Decomposition Products: May release flammable gases. Thermal decomposition generates: Carbon oxides

(CO, CO₂). Nitrogen oxides. Hydrogen sulfide. Sulfur dioxide. Irritating or toxic vapors.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: Not classified

Asphalt (8052-42-4)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg

Proprietary Hydrocarbon	
LD50 Dermal Rabbit	4720 µl/kg
LD50 Inhalation Rat	4.6 mg/l/4h

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Suspected of causing cancer.

Asphalt (8052-42-4)	
IARC Group	2B
National Toxicology Program (NTP) Status	Twelfth Report-Items under consideration
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list

Proprietary Polymer	
IARC group	3

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard: Not classified

Symptoms/Injuries after Inhalation: May cause respiratory irritation.

Symptoms/Injuries after Skin Contact: May cause skin irritation.

Symptoms/Injuries after Eye Contact: May cause eye irritation.

Symptoms/Injuries after Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: May cause damage to organs (Thymus, Liver, Bone Marrow) through prolonged or repeated exposure. Suspected of causing cancer.

12. ECOLOGICAL INFORMATION

Ecology – General: This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

Ecology – Water: Harmful to aquatic life with long-lasting effects.

Proprietary Hydrocarbon	
LC50 Fish 1	35 mg/l (Exposure time: 96 h – Species: Pimephales promelas (flow-through))

Persistence and Degradability: Not established.

Bioaccumulative Potential: Not established

Asphalt (8052-42-4)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	> 6

Mobility in Soil: No additional information available.

Other Adverse Effects: Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Sewage Disposal Recommendations: Do not empty into drains. Do not dispose of waste into sewer.

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Additional Information: Handle empty containers with care because residual vapors are flammable.

14. TRANSPORT INFORMATION

DOT: Not regulated for transport

IMDG: Not regulated for transport

IATA: Not regulated for transport

15. REGULATORY INFORMATION (non-mandatory)

US Federal Regulations

SARA Section 311/312 Hazard Classes: Delayed (chronic) health hazard

TSCA (Toxic Substances Control Act) Inventory – Asphalt (8052-42-4): Listed

TSCA (Toxic Substances Control Act) Inventory – Water (7732-18-5): Listed

TSCA (Toxic Substances Control Act) Inventory – Proprietary Hydrocarbon: Listed

TSCA (Toxic Substances Control Act) Inventory – Proprietary Polymer: Listed

US State Regulations

Asphalt (8052-42-4)

Massachusetts: Right to Know List

New Jersey: Right to Know Hazardous Substance List

Pennsylvania: RTK (Right to Know) List

16. OTHER INFORMATION

GHS Full Text Phrases

Acute Tox. 3 (Inhalation:vapor)	Acute toxicity (inhalation:vapor) Category 3
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 2	Carcinogenicity Category 2
Flam. Liq. 3	Flammable liquids Category 3
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H226	Flammable liquid and vapor
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H331	Toxic if inhaled
H351	Suspected of causing cancer
H373	May cause damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

NFPA Health Hazard: 1 – exposure could cause irritation but only minor residual injury even if not treatment is given.

NFPA Fire Hazard: 1 – must be preheated before ignition can occur

NFPA Reactivity: 0 – normally stable, even under fire exposure conditions, and are not reactive with water

This information provided on this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designated only as a guide for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.



Applications: Pre-Applied Blindside and Underslab Sheet Membrane Waterproofing - Hydrostatic and Non-hydrostatic Conditions
Spec Version: EproPreTak.BU.v5.08.22gs
Date issued: August, 2022
Note: This specification may be superseded at any time. Check eproinc.com for the most up to date version of this specification.

SECTION 07 13 24 PRE-APPLIED SHEET WATERPROOFING

PreTak Guide Specification Underslab & Blindside

PreTak is a fully adhered, pre-applied HDPE with pressure sensitive adhesive sheet waterproofing membrane intended for underslab and blindside waterproofing applications. Concrete adheres to the specially formulated pressure sensitive adhesive forming an integral bond to prevent lateral water migration. This guide specification has been prepared according to the principles established in the Manual of Practice published by the Construction Specification Institute.

Separate PreTak guide specifications are also available for the following applications:

**Tunnel Lining Waterproofing
Waterproofing & Contaminate Vapor Intrusion Barrier**

Sections highlighted in **red** throughout this guide specification are specifier notes intended to provide information about certain optional text or additional information relevant to that section. For additional questions, your local EPRO technical representative can be contacted through: EPRO Services, Inc., Wichita KS; 1.800.882.1896; www.eproinc.com.

PRETAK PRE-APPLIED SHEET MEMBRANE WATERPROOFING SPECIFICATION

SECTION 07 13 24 – PRE-APPLIED SHEET WATERPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including general and supplementary conditions, and Division 1 specification section, apply to this section.

1.2 SECTION INCLUDES

- A. The Work of this Section includes, but is not limited to, **PreTak** pre-applied sheet membrane waterproofing that forms an integral bond to concrete for the following construction applications:
 - 1. Underslab: The waterproofing system applied on prepared subbase prior to placement of concrete slabs.
 - 2. Blindside: The waterproofing system applied against a soil retention system prior to placement of concrete walls.
- B. Related Sections:
 - 1. Section 02 24 00: Environmental Assessment
 - 2. Section 02 32 00: Geotechnical Investigation
 - 3. Section 03 10 00: Concrete Forming
 - 4. Section 03 15 00: Concrete Accessories
 - 5. Section 03 15 13: Waterstops
 - 6. Section 03 20 00: Concrete Reinforcing
 - 7. Section 03 30 00: Cast-in-Place Concrete
 - 8. Section 03 40 00: Precast Concrete
 - 9. Section 07 90 00: Joint Protection
 - 10. Section 31 30 00: Earthwork Methods
 - 11. Section 31 41 00: Shoring
 - 12. Section 31 60 00: Special Foundations and Load Bearing Elements
 - 13. Section 31 71 23: Tunneling by Cut and Cover
 - 14. Section 33 41 00: Subdrainage

1.3 REFERENCE STANDARDS

- A. The following standards and publications are applicable to the extent referenced in the text.
- B. American Standard Testing Methods (ASTM):
- D 412 Standard Test Methods for Rubber Properties in Tension
 - D 751 Standard Test Method for Coated Fabrics
 - D 6392 Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods
 - D 4068 Standard Specification for Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-Containment Membrane
 - D 1434 Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting
 - D 543 Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents
 - D 1693 Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics
 - D 903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
 - E 96 Standard Test Methods for Water Vapor Transmission of Materials
 - E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover
 - D 5385 Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes
 - D 71 Standard Test Method for Relative Density of Solid Pitch and Asphalt (Displacement Method)
 - D 93 Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester
 - D 1777 Standard Test Method for Thickness of Textile Materials
 - D 6364 Standard Test Method for Determining Short-Term Compression Behavior of Geosynthetics
 - D 4716 Standard Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
 - D 4632 Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
 - D 6241 Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe
 - D 4751 Standard Test Methods for Determining Apparent Opening Size of a Geotextile
 - D 4491 Standard Test Methods for Water Permeability of Geotextiles by Permittivity
 - D 4355 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
 - D 1621 Standard Test Method for Compressive Properties of Rigid Cellular Plastics

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide a fully adhered waterproofing system that prevents the passage of water under hydrostatic or non-hydrostatic conditions and complies with the physical requirements as demonstrated by testing performed by an independent testing agency.

1.5 SUBMITTALS

- A. Product Data: For each type of waterproofing specified submit manufacturer's printed technical data, tested physical and performance properties, instructions for evaluating, preparing, and treating substrates, and installation instructions.
- B. Shop Drawings: Project specific drawings showing locations and extent of waterproofing, details for substrate joints and cracks, sheet flashing, penetrations, transitions, and termination conditions.
- C. Samples: Submit two standard size samples of the following:
 - 1. Individual components of the specified waterproofing system.
- D. Applicator Certification: Submit written confirmation at the time of bid that applicator is currently approved by the membrane manufacturer.
- E. Manufacturer's Warranty Requirements: Submit complete documentation of manufacturer's warranty requirements and sample warranty.

1.6 QUALITY ASSURANCE

- A. Applicator Qualifications: Waterproofing applicator shall be an EPRO Authorized Applicator who is trained and approved for **PreTak** application in accordance with EPRO standards and policies.

Specifier Note: For projects requiring the manufacturer's special no-dollar-limit labor and material E.Assurance warranty, add the following items B. and C. language to section 1.6 (reference Section 1.9 Warranty):

- B. Special Applicator Qualifications: The waterproofing applicator must be E.Assurance Certified at the time of bid.
- C. Third Party Inspection: Owner shall make all arrangements and payments for an approved third-party inspection firm participating in the waterproofing manufacturer's Certified Inspection Program to monitor waterproofing material installation compliance with the project contract documents and manufacturer's published literature and site specific details. Inspection reports shall be submitted directly to the waterproofing system manufacturer and made available to other parties per the owners' direction.

- D. Pre-Construction Meeting: A meeting shall be held prior to application of the waterproofing system to assure proper substrate preparation, confirm installation conditions and any additional project specific requirements. Attendees of the meeting shall include, but are not limited to the following:
 - 1. EPRO representative
 - 2. EPRO certified applicator
 - 3. Third party inspector [as required]

4. General contractor
 5. Owner's representative
 6. Concrete/Shotcrete contractor
 7. Rebar contractor
 8. Project design team
 9. All appropriate related trades
- E. Field Sample: Apply waterproofing system field sample to 100 ft² (9.3 m²) of each assembly to demonstrate proper application techniques and standard of workmanship.
1. Notify waterproofing system manufacturer representative, architect, certified inspector, and other appropriate parties one week in advance of the dates and times when field sample will be prepared.
 2. If architect and certified inspector determine that field sample does not meet requirements; reapply composite membrane system until field sample is approved.
 3. Retain and maintain approved field sample during construction in an undisturbed condition as a standard for judging the completed composite membrane system. An undamaged field sample may become part of the completed work.
- F. Materials: Waterproofing system and auxiliary materials shall be single sourced from the waterproofing manufacturer.

1.7 MATERIAL DELIVERY, STORAGE AND DISPOSAL

- A. Delivery: Deliver materials to site labeled with manufacturer's name, product brand name, material type, and date of manufacture. Upon the arrival of materials to the jobsite, inspect materials to confirm material has not been damaged during transit.
- B. Storage: Proper storage of onsite materials is the responsibility of the certified applicator. Consult product data sheets to confirm storage requirements. Storage area shall be clean, dry, and protected from the elements. Protect stored materials from direct sunlight.
- C. Disposal: Remove and replace any material that cannot be properly applied in accordance with local regulations and specification section 01 74 19.

1.8 PROJECT CONDITIONS

- A. Substrate Review: Substrates shall be reviewed by the certified applicator and accepted by the certified inspector prior to application. Application without signoff from certified inspector will likely result in voidance of warranty.
- B. Penetrations: All plumbing, electrical, mechanical, and structural items to be passing through the waterproofing system shall be properly spaced, positively secured in their proper positions, and appropriately protected prior to system application and throughout the construction phase. Braided grounding rods are not allowed to pass through the membrane in waterproofing applications.
- C. Reinforcement Steel: Waterproofing system shall be installed before placement of reinforcing steel. Any anchor bolts, or other methods, of securing reinforcement steel must be in place prior to the application of the waterproofing system. Piano wire, shotcrete wire rods, or similar methodologies, are prohibited from penetrating the system post installation.

- D. Weather Limitations: Perform work only when existing and forecast weather conditions are within manufacturer's recommendations.
1. EPRO applicators reserve the right not to install product when application conditions might be within manufacturer's acceptance, but ambient conditions may limit a successful application.

1.9 WARRANTY

- A. General Warranty: The special warranty specified in this section shall not deprive the owner of other rights the owner may have under other provisions of the contract documents, and shall be in addition to, and run concurrent with, other warranties made by the contractor under requirements of the contract documents.
- B. Special Warranty: Submit a written warranty signed by waterproofing manufacturer agreeing to replace system materials that do not conform with manufacturer's published specifications or are deemed to be defective. Warranty does not include failure of waterproofing due to failure of soil substrate prepared and treated according to requirements or formation of new joints and cracks in the specially applied concrete that exceed 1/8 inch (3.175 mm) in width.
1. Warranty Period: 5 years after date of substantial completion. **[Longer warranty periods are available upon request.]**
 2. Coverage: Manufacturer will guarantee that the material provided is free of defect for the warranty period.

Specifier Note: Additional upgraded warranty options, E.Series L&M and E.Assurance NDL, are available by contacting the manufacturer. These warranties may have additional requirements and approval must be granted in accordance with the manufacturer's warranty requirements.

Insert the following language in 1.9 B for additional Special Warranty options:

3. Labor and Material (E.Series L&M): Manufacturer will provide non-prorated coverage for the warranty term, agreeing to repair or replace material that does not meet requirements or remain watertight.

OR

4. No-Dollar-Limit Labor and Material Warranty (E.Assurance NDL): Manufacturer will provide a non-prorated, no-dollar-limit coverage for the warranty term, agreeing to repair or replace material that does not meet requirements or remain watertight.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: EPRO Services, Inc. (EPRO), P.O. Box 347; Derby, KS 67037; Tel: (800) 882-1896; Email: info@eproinc.com; Web: www.euproinc.com

2.2 MATERIALS

- A. Pre-applied fully adhered sheet waterproofing membrane: **PreTak** is a 0.046 in. (1.2 mm) thick HDPE membrane with pressure sensitive adhesive. Provide membrane with the following physical properties:

PROPERTIES	TEST METHOD	VALUE
Color		White
TCE Diffusion Rate		$2.8 \times 10^{-14} \text{ m}^2/\text{sec}$
Resistance to Hydrostatic Head ¹	ASTM D 751	715 ft (218 m)
Elongation	ASTM D 412	722%
Tensile Strength, Film	ASTM D 412	4742 PSI (32.7 MPa)
Puncture Resistance	ASTM E 154	276 lbs (1227 N)
Resistance to Lateral Water Migration ²	ASTM D 5385	Pass at 231 ft (71 m) of hydrostatic head pressure
Peel Adhesion to Concrete ³	ASTM D 903	23 lbs/in. (4028 N/m)
Permeance to Water Vapor Transmission	ASTM E 96, method B	0.087 perms (4.97 ng/(Pa x s x m ²))
Bonded Seam Strength (Heat Weld)	ASTM D 6392	Pass (Break in Sheet)
Bonded Seam Strength (Factory Adhesive)	ASTM D 882	80 lbf
Bonded Seam Strength (Factory Adhesive)	ASDM D 1876	17.3 lbs./in. (3030 N/m)
Dead Load Seam Strength (Heat Weld) ⁴	ASTM D 751	Pass
Microorganism Resistance (Soil Burial) ⁴	ASTM D 4068	Pass
Methane Permeability ⁴	ASTM D 1434	Pass
Oil Resistance ⁴	ASTM D 543	Pass
Heat Resistance ⁴	ASTM D 4068	Pass
Environmental Stress Cracking ⁴	ASTM D 1693	Pass

Footnotes:

1. The resistance to hydrostatic head test is performed by casting concrete against the membrane with a lap. Before the concrete cures, a 0.125 in. (3 mm) spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to the head indicated.
2. Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the PreTak membrane to hydrostatic head pressure. This test measures the resistance of lateral water migration between the concrete and the PreTak membrane.
3. Concrete is cast against the surface of the PreTak membrane and allowed to cure (7 days minimum).
4. Tested to city of Los Angeles Department of Building and Safety Methane Testing Criteria.

B. Waterstops

1. **e.stop gu** is a gunnable urethane modified hydrophilic detailing sealant for application around penetrations.
2. **BentoTak** is a self-adhesive hydrophilic bentonite waterstop strip for application in non-moving joints and around penetrations with the following physical properties:

PROPERTIES	TEST METHOD	VALUE
Specific Gravity @25C	ASTM D 71	1.403
Flash Point	ASTM D 93 Pensky-Martens	482 F (250 C)
Hydrostatic Pressure Resistance	ASTM D 751 Method A	> 160 ft head, No Flow

C. Adhesive Tapes

1. **PreTape** is a single-sided adhesive tape with pressure sensitive adhesive facer for covering cut edges, roll ends, penetrations, and detailing.
2. **PreTape D** is a double-sided adhesive tape for adhering end laps and reinforcing side lap seams.

D. Prefabricated Drainage:

1. **e.drain:** **e.drain** features a lightweight three-dimensional, highly flexible high density polyethylene (HDPE) core and a polypropylene geotextile filter fabric. The filter fabric is bonded to the dimples of the HDPE core.

PROPERTIES	TEST METHOD	VALUE
DIMPLED CORE		
Core		HDPE
Core Material Thickness		30 Mil
Color		Brown
Dimple Height	ASTM D 1777	.31 inches
Compressive Strength	ASTM D 6364	5,200 lbs./ft ²
Flow rate	ASTM D 4716	5.1 gal/min/ft
FILTER FABRIC		
Grab Tensile	ASTM D 4632	130 lbs
CBR Puncture Resistance	ASTM D 6241	40 lbs
Apparent Operating Size	ASTM D 4751	70 sieve size (.0212 mm)
Water Flow Rate	ASTM D 4491	55 gpm/ ft ²
UV Resistance	ASTM D 4355	70% (500 hrs)
Dimensions: 6' x 65.7', 8' x 65.7'		
Weight: 6' rolls = 60 lbs., 8' rolls = 73 lbs.		

2. **e.drain 6000:** **e.drain 6000** features a lightweight three-dimensional, high-compressive strength polypropylene core and bonded non-woven geotextile fabric. The bonded filter fabric allows water to pass freely into the molded drain while preventing soil particles from entering and clogging the core structure.

PROPERTIES	TEST METHOD	VALUE
DIMPLED CORE		
Core Material		Polypropylene
Color		Black
Dimple Height	ASTM D 1777	0.4" (10.16 mm)
Compressive Strength	ASTM D 6364	16,500 psf (790 kN/m ²)
Flow rate	ASTM D 4716	21 gal/min/ft
FILTER FABRIC		
Grab Tensile	ASTM D 4632	100 lbs
CBR Puncture resistance	ASTM D6241	250 lbs
Apparent Operating Size	ASTM D 4751	70 sieve size (.0212 mm)
Water Flow Rate	ASTM D 4491	140 gpm/ft ² (5704 l/min/m ²)
UV Resistance	ASTM D 4355	70% (500 hrs)
Dimensions: 6' x 5'		
Weight: 63 pounds		

3. **e.drain 12ds:** **e.drain 12ds** features a lightweight three-dimensional, highly flexible polypropylene core and a non-woven geotextile filter fabric. The filter fabric is bonded to the dimples of the polypropylene core to prevent clogging within the drain.

PROPERTIES	TEST METHOD	VALUE
DIMPLED CORE		
Core Material		Polypropylene
Color		Black
Compressive strength	ASTM D 1621	9,500 PSF (455 kN/m ²)
Thickness	ASTM D 1777	1 Inch

Flow rate	ASTM D 4716	30 gpm/ft of width
FILTER FABRIC		
CBR puncture	ASTM D 6241	250 lbs
Grab tensile strength	ASTM D 4632	100 lbs
AOS	ASTM D 4751	70 U.S. sieve
Permittivity	ASTM D 4491	2.0 sec ⁻¹
Flow rate	ASTM D 4491	140 gpm/ft ²
UV resistance	ASTM D 4355	70% (500 hrs)
Dimensions: 165' x 12" x 1"		
Weight: 65 pounds		

2.3 AUXILIARY MATERIALS

- A. General: All auxiliary materials shall be provided by the specified waterproofing manufacturer. Auxiliary materials used in lieu of, or in addition to, the manufacturer's materials must be approved in writing by EPRO prior to installation.
 1. Detailing Material: **PM Sealant**, a single component, STPE, 100% solid moisture-cured, elastomeric sealant and **XT1** urethane modified asphalt coating.
 2. Backer Rod: Closed cell polyethylene foam
 3. Fastener: **e.fastener** or approved alternate.
 4. Shot Pins: Minimum 1-inch (25 mm) galvanized steel pins with ¾ inch (19 mm) aluminum washer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Comply with project documents, manufacturer's product information, including product application and installation guidelines, pre-job punch list, as well as, manufacturer's shipping and storage recommendations.

3.2 SUBSTRATE PREPARATION

- A. The general contractor shall engage the certified waterproofing contractor and certified inspector to ensure surfaces are prepared in accordance with manufacturer's instructions. Unless, explicitly stated in the contract documents, the waterproofing contractor is not responsible for surface preparation.
- B. It is essential to create a sound and solid substrate to eliminate movement during the concrete placement.
- C. Examine all substrates, areas, and conditions under which the composite membrane system will be installed, applicator and inspector must be present. Do not proceed with installation until unsatisfactory conditions have been corrected and surface preparation requirements have been met. If conditions exist that are not addressed in this section notify inspector and contact EPRO for additional clarification.

1. **Blindside substrate preparation:** Wood lagging shoring should extend to the lowest level of the waterproofing installation with any voids or cavities exterior of the lagging timbers filled with compacted soil or cementitious grout. The interior surface of lagging boards should be planar, with no greater than 1-inch (25 mm) variance in a 12-inch (300 mm) plane, and fit tightly together with gaps less than 1-inch (25 mm). Gaps greater than 1-inch (25 mm) should be completely filled with cementitious grout, compacted soil, wood, extruded polystyrene (20 psi min.), or EPRO-approved polyurethane spray foam. Ensuring the void is filled, plywood or other surface treatment may be used over large lagging gaps up to 6-inches (150 mm). Extruded polystyrene protection board (20 psi min.) or **e.drain** may be installed over gaps up to 2-inches (50 mm). Gaps greater than 2-inches (50 mm) should be completely filled with cementitious grout, compacted soil, wood, extruded polystyrene (20 psi min.), or EPRO-approved polyurethane spray foam. All lagging board nails and other mechanical projections shall be removed or flattened. Install a protection material over all soldier piles with raised lagging hanger bolts, form tie rods, or other irregular surfaces; protection material should extend a minimum of 6-inches (150 mm) to both sides of the steel piling. **e.drain** and **e.drain 12ds** base drain system should be connected to an operative water discharge system.
2. **Shotcrete, Secant Pile, Rock Face, or Caisson Shoring Walls:** Interior surface of retention walls should be planar without irregular surface conditions and a light trowel finish. Voids and sharp transitions that leave a void space to the outside of the drainage and waterproofing installation need to be filled to create a uniform and planer surface. Irregular rock and concrete, void pockets greater than 3/4 inch (19 mm), cracks, sharp concave transitions should be completely filled or smoothed with cementitious grout, shotcrete, or other solid material approved by EPRO.
3. **Sheet Piles:** Minimum ½ inch (13 mm) plywood must be butt jointed to form a uniform substrate that spans deviations created by the piles. Voids between the plywood and shoring shall be filled with high strength grout or other suitable material.
4. **Negative Side Internal Bracing:** Internal shoring bracing, such as rakers, should be uniform and circular when interfacing with the shoring wall. Irregular bracing, such as soldier piles, creates problematic detailing and is not an approved material at the wall interface.

3.2.2 UNDERSLAB SUBSTRATE PREPARATION:

1. **Soil Substrates:** Native soil and sand substrates shall be uniformly compacted to meet structural and building code requirements. All surfaces shall be free from protrusions and debris that may compromise the membrane system. Free standing water must be removed prior to application.
2. **Aggregate Substrates:** Aggregate substrates shall be compacted to meet structural and building code requirements and then rolled flat to provide a uniform substrate. 3/4 inch (19 mm) minus aggregate with no more than one fractured face is recommended, but other aggregate substrates may be approved by the manufacturer provided they do not create sharp angular protrusions that may compromise the waterproofing system.
3. **Working Slab:** Mud slab, rat slab, or other concrete working slab shall have a uniform plane with a light broom or light trowel finish.

3.3 BLINDSIDE INSTALLATION

- A. **General:** The waterproofing membrane system shall be installed under strict accordance with the manufacturer's guidelines and project specifications.

- B. Sequencing: The first lift of the waterproofing system shall be installed prior to the placement of any concrete at the perimeter of the excavation and prior to any transition from the underslab system to vertical system. This initial drainage and underslab barrier shall extend a minimum of 4 feet (1.2 m) past the first lift of rebar.

3.3.2 BLINDSIDE INSTALLATION - DRAINBOARD

Note to specifier: Omit this section, A. and B. for projects in constant hydrostatic conditions.

A. Prefabricated strip drain installation:

- 1. Install **e.drain 12ds** horizontally against the shoring wall at specified elevation above the design water table. Allow for positive drainage flow into water discharge system. Attach to shoring using mechanical fasteners with washers.

B. Prefabricated drainage mat installation:

- 1. Drainage Orientation: Install drainage panels either horizontally or vertically with the geotextile fabric facing the soil retention system.
- 2. Horizontal Installation: Install **e.drain** horizontally along the bottom of the excavation and secure using **e.fasteners**. Install the next lift of drainage and overlap the next layer of drainage a minimum of 6 inches (150 mm). A shingling effect should be created by making certain the new drainage layer is placed inside the previously installed drainage layer at the overlap.
- 3. Vertical Installation: Install **e.drain** vertically from the top of the excavation and secure using **e.fasteners**. Install vertically in one direction and overlap the vertical seam a minimum of 6 inches (150 mm). A shingling effect should be created by making certain the new drainage layer is placed inside the previously installed drainage layer at the overlap.
- 4. Back Lagged Condition: Install **e.drain** vertically and overlap onto the soldier pile a minimum of 6 inches (150 mm).
- 5. Fasten Pattern: Using **e.fasteners** secure seam overlaps 12 inches (300 mm) on center. Fasten the field of drain mat using an alternating pattern every 3 feet (1 m). The pattern shall be one fastener every 6 feet (2 m) on center, and two evenly spaced fasteners every 3 feet (1 m).
- 6. Place anchors or tie backs through the drainage mat by slitting vertically and sliding over the anchor as snug as possible.

3.3.3 BLINDSIDE INSTALLATION – PRETAK

A. Strictly comply with installation guidelines in manufacturer's published literature, including but not limited to, the following:

- 1. Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the clear plastic release liner facing towards the concrete pour.
- 2. Remove factory adhesive edge release liner. Fasten through the selvage using a small and low-profile head fastener so that the membrane lays flat and allows firmly rolled overlaps.
- 3. Immediately remove the plastic release liner.

4. When multiple pours occur, extend the membrane a minimum of 2 feet (600 mm) past the pour joint. In order to ensure a proper tie-in, mask off the 2-foot (600 mm) section past the pour joint and protect it from damage.
5. Ensure the underside of the succeeding sheet is clean, dry, and free from contamination before attempting to overlap.
6. Remove factory adhesive edge release liner and roll firmly to ensure a watertight seal.
7. Overlap all roll ends and cut edges by a minimum 3 inches (75 mm) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary.
8. At cut ends of rolls or cut sections of sheet apply **PreTape D** along cut edge of sheet over the pressure sensitive adhesive. Overlap successive sheets onto **PreTape D** a minimum of 3 inches (75 mm). Position **PreTape** over middle of seam and firmly roll in place.
9. Immediately remove plastic release liner from the tape.
10. Tie-Back Heads: For all tie-back heads and soil nails, install waterproofing system with appropriately sized tie-back box covers or pre-formed **e.cover** in accordance with contract documents and approved shop drawings based on manufacturer's detail for specific project conditions.
11. Penetrations: For all pipe, rebar, structural and other penetrations install waterproofing system in accordance with contract documents and approved shop drawings based on manufacturer's detail for specific project conditions.
12. Transition to Underslab Waterproofing: When transitioning the shoring waterproofing system horizontally to an Underslab waterproofing system, the first layer of drainage shall be installed prior to the placement of any concrete at the perimeter of the excavation, and prior to the placement of any other system materials. The first lift of the composite membrane system shall extend a minimum of 4 feet (1.2 m) past the first lift of rebar.

3.4 UNDERSLAB INSTALLATION - PRETAK

- A. Strictly comply with installation guidelines in manufacturer's published literature, including but not limited to, the following:
 1. Roll the membrane out onto the substrate HDPE film side facing up towards the concrete pour. Stagger end laps to prevent a continuous end seam throughout adjacent sheets. Seam seams as depicted in project drawings.
 2. Accurately position succeeding sheets to overlap the previous sheet 3 inches (75 mm) along the marked selvedge. Ensure the underside of the succeeding sheet is clean, dry, and free from contamination before attempting to overlap.
 3. Whenever possible roll out the membrane in the same direction over the substrate. When multiple pours will occur, extend the membrane a minimum of 2 feet (600 mm) past the pour joint. In order to ensure a proper tie-in, mask off the 2-foot (600 mm) section past the pour joint and protect it from damage.
 4. Peel back the plastic release liner from between both of the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller.
 5. At cut ends of rolls or cut sections of sheet apply **PreTape D** along cut edge of sheet over the pressure sensitive adhesive. Overlap successive sheets onto **PreTape D** a minimum of 3 inches (75 mm). Position **PreTape** over middle of seam and firmly roll in place.

6. Completely remove the plastic liner.
7. Penetrations: For all pipe, rebar, structural and other penetrations install waterproofing system in accordance with contract documents and approved shop drawings based on manufacturer's detail for specific project conditions.
8. Transition to Vertical Walls: When transitioning the horizontal underslab system vertically to a blindside shoring wall, the first layer of drainage shall be installed prior to the placement of any concrete at the perimeter of the excavation, and prior to the placement of any other system materials. The first lift of the composite membrane system shall extend a minimum of 4 feet (1.2 m) past the first lift of rebar.

3.5 WATERSTOP INSTALLATION

- A. Strictly comply with installation guidelines in manufacturer's published literature, including but not limited to, the following:
 1. Apply **BentoTak** at all cold joints, construction joints, steel penetrations, and steel beams.
 2. Properly prepare surface to ensure complete contact to substrate, remove all debris that may prevent the adhesive bond. Wire brush steel surfaces to remove rust and remove any contaminants that would prevent **BentoTak** from adhering to surface. Do not install in ponding water if concrete pour is greater than 7 days from installation.
 3. Apply continuous strip of **BentoTak** no less than 1.25 inch (32 mm) from outside concrete face securely butting ends of strip and molding ends together without overlap. Apply two continuous strips of **BentoTak** when used in hydrostatic applications spaced such that **BentoTak** is no less than 1.25 inch (32 mm) from outside concrete and 1 inch from second applied strip of **BentoTak**.
 4. Apply a continuous bead of **e.stop gu** around the circumference of all PVC penetrations, detail areas or to irregular concrete substrates.
 5. Inspect for damage just prior to concrete pour and repair as needed.

3.6 FIELD QUALITY CONTROL

- A. Strictly comply with installation guidelines in manufacturer's published literature, including but not limited to, the following:
 1. Conduct a visual inspection after the **PreTak** waterproofing system has been installed. Note any visual deficiencies and mark for repair.
 2. Inspect all seams for complete and continuous adhesion to the **PreTak** sheet membrane. Note any deficiencies and mark for repair.

3.7 PROTECTION AND CLEANING

- A. Strictly comply with installation guidelines in manufacturer's published literature, including but not limited to, the following:
 1. Protect waterproofing system in accordance with manufacturer's recommendations until placement of concrete.
 2. Do not allow heavy equipment or machinery on top of unprotected waterproofing system.
 3. Inspect for damage just prior to placement of concrete and make repairs in accordance with manufacturer's written guidelines and recommendations.

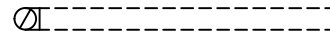
4. Clean all dirt and debris from the surface of the waterproofing system just prior to concrete pour. Do not use any solvent based cleaning agents. Broom, blower or low-pressure power wash cleaning methods are acceptable. Any adhered debris must be inspected and removed at the direction of a manufacturer's representative.
5. Take care in the placement of concrete. Placement height must be less than 4 feet (1.2 m) above waterproofing surface. Do not damage with consolidating equipment.
6. Repair areas as needed following manufacturer's written guidelines.
7. Do not leave waterproofing system exposed for longer than 60 days prior to concrete pour.

3.8 REPAIRS

- A. Strictly comply with manufacturer's written guidelines for repair, including but not limited to, the following:
 1. Inspect damaged area to determine which system components have been damaged.
 2. For punctures in the membrane smaller than 2 inches (50 mm) in diameter, **PreTape** can be applied over the damaged area.
 3. For damages or punctures larger than 2 inches (50 mm) in diameter, apply an appropriately sized patch of **PreTak** membrane that extends 6 inches (150 mm) beyond the damaged area. Adhere patch with **PreTape** and/or **PreTape D**.
 4. Apply the remaining layers as specified.

End of Section

ANCHOR/ACCESSORY



BENTOTAK WATERSTOP



E.DRAIN 6000



E.STOP GU WATERSTOP



PM SEALANT



PRETAK



PRETAPE



PRETAPE D



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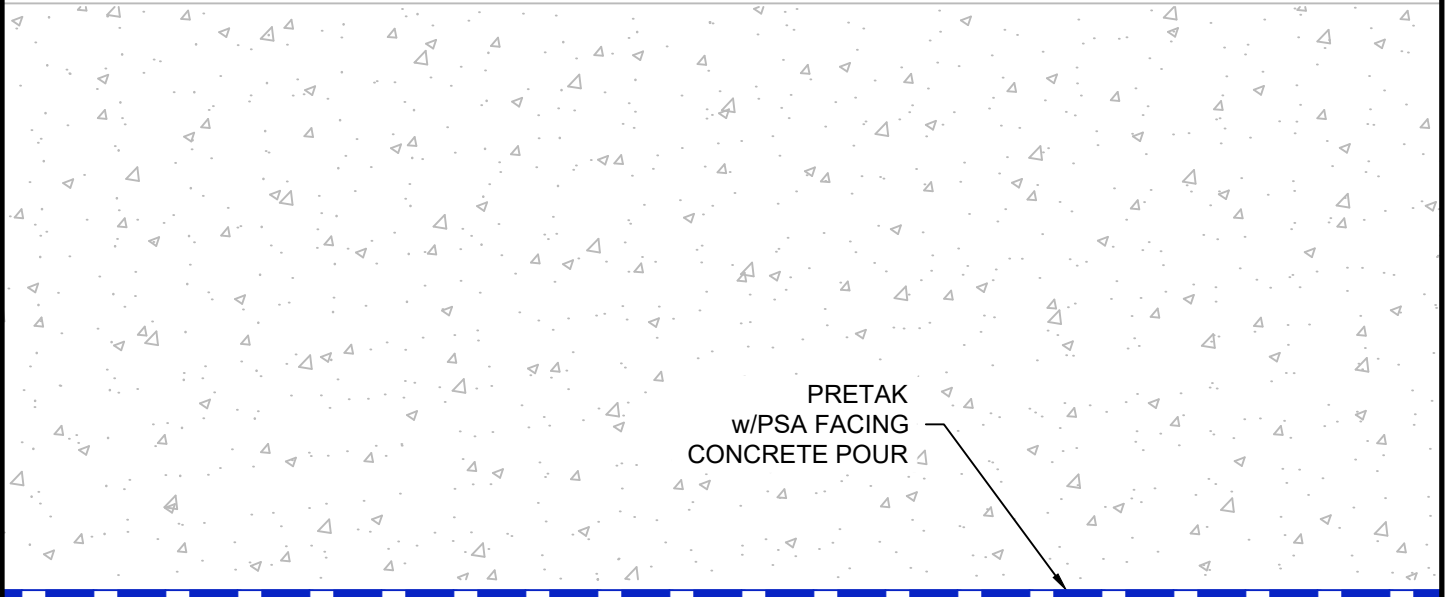
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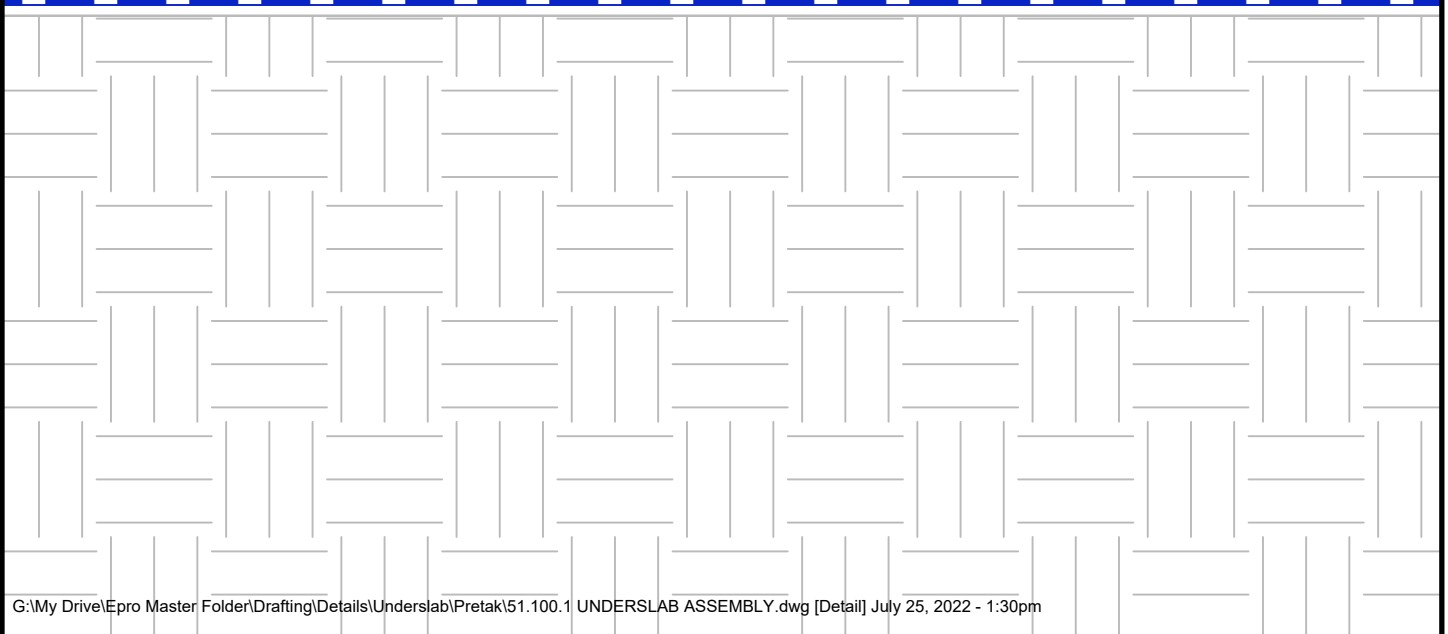
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PRETAK
w/PSA FACING
CONCRETE POUR



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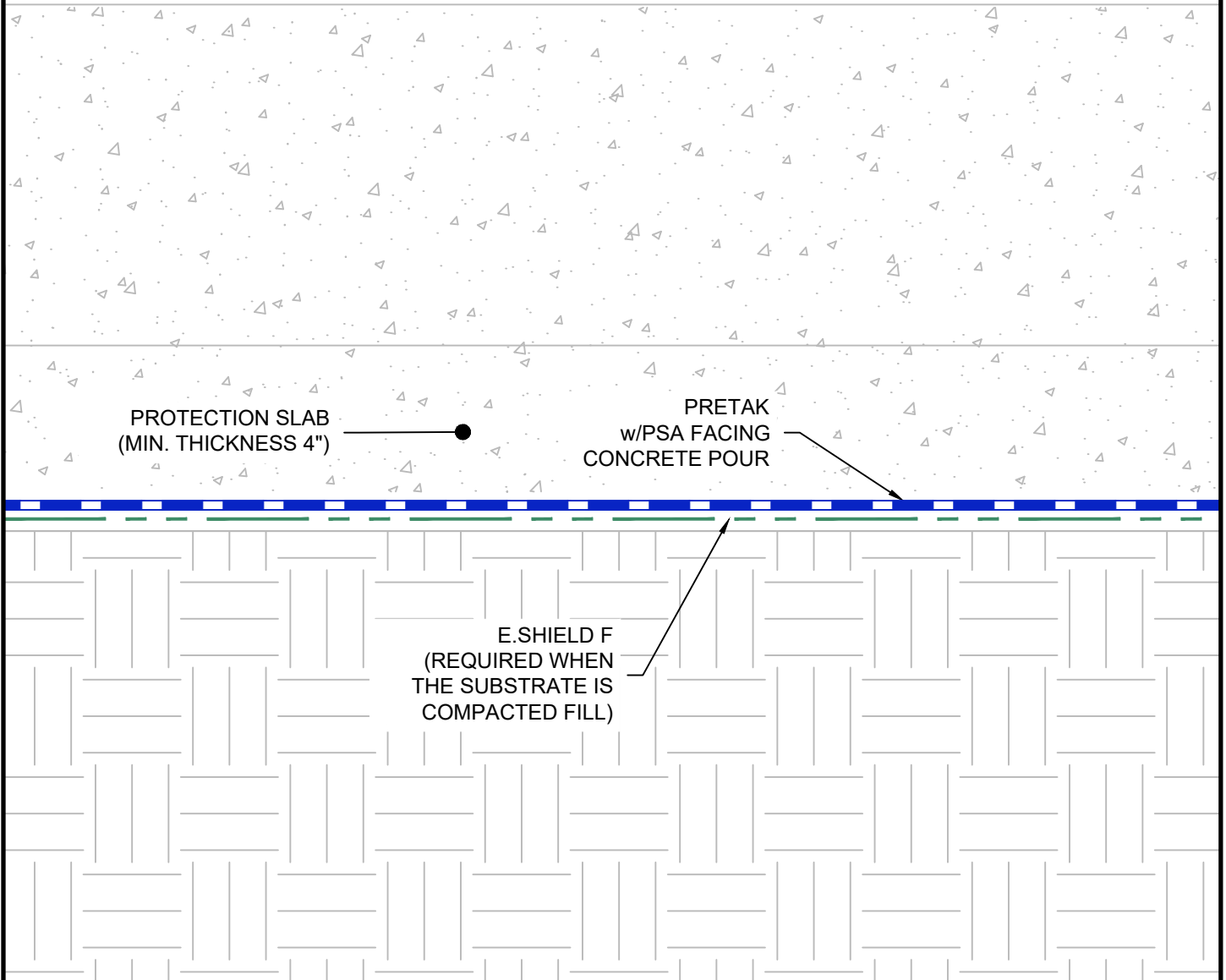
UNDERSLAB ASSEMBLY

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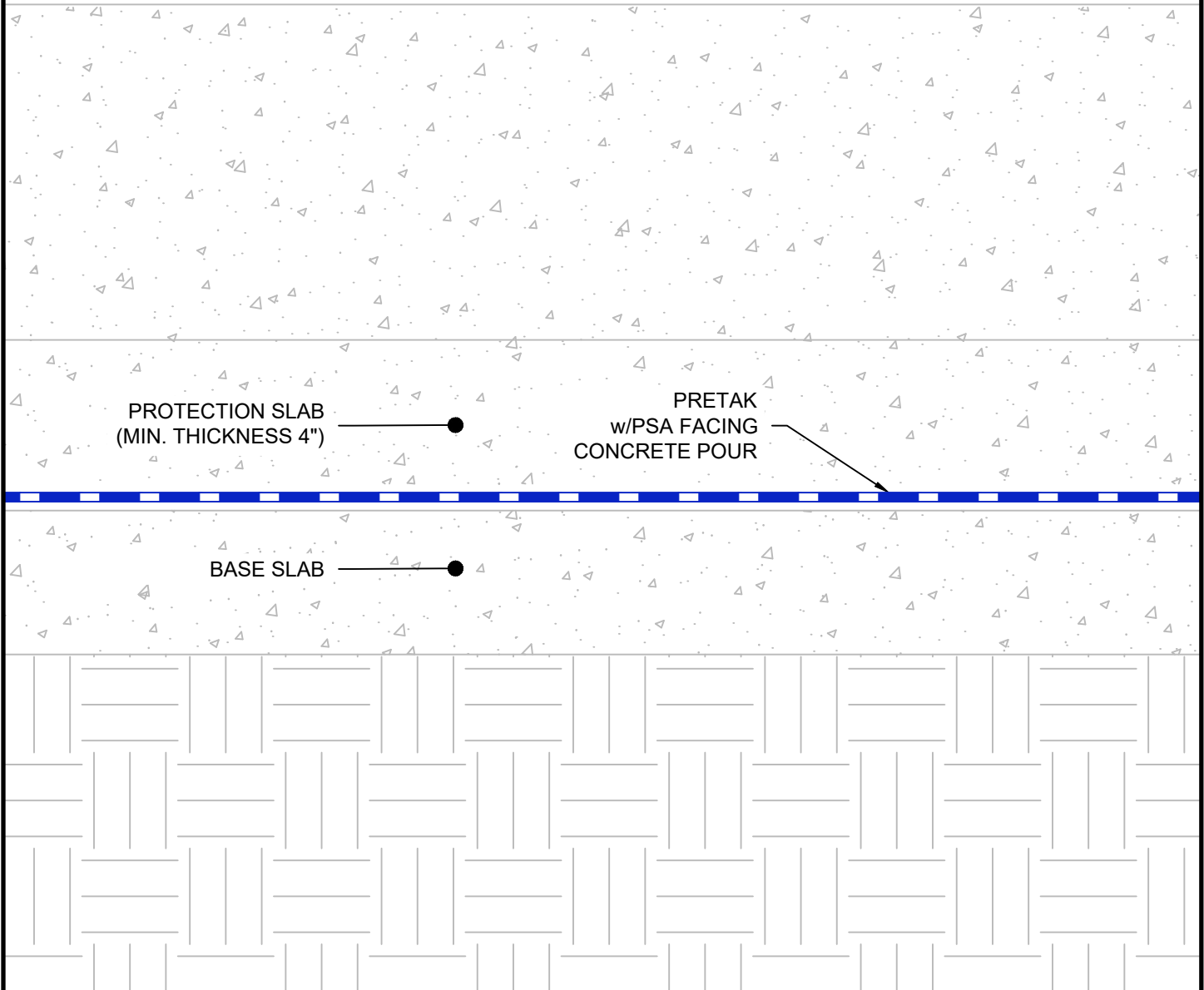
UNDERSLAB ASSEMBLY - WITH PROTECTION SLAB

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UNDERSLAB ASSEMBLY - WITH BASE AND PROTECTION SLAB



SYSTEM NAME

PRETAK

DRAFTER

RJT

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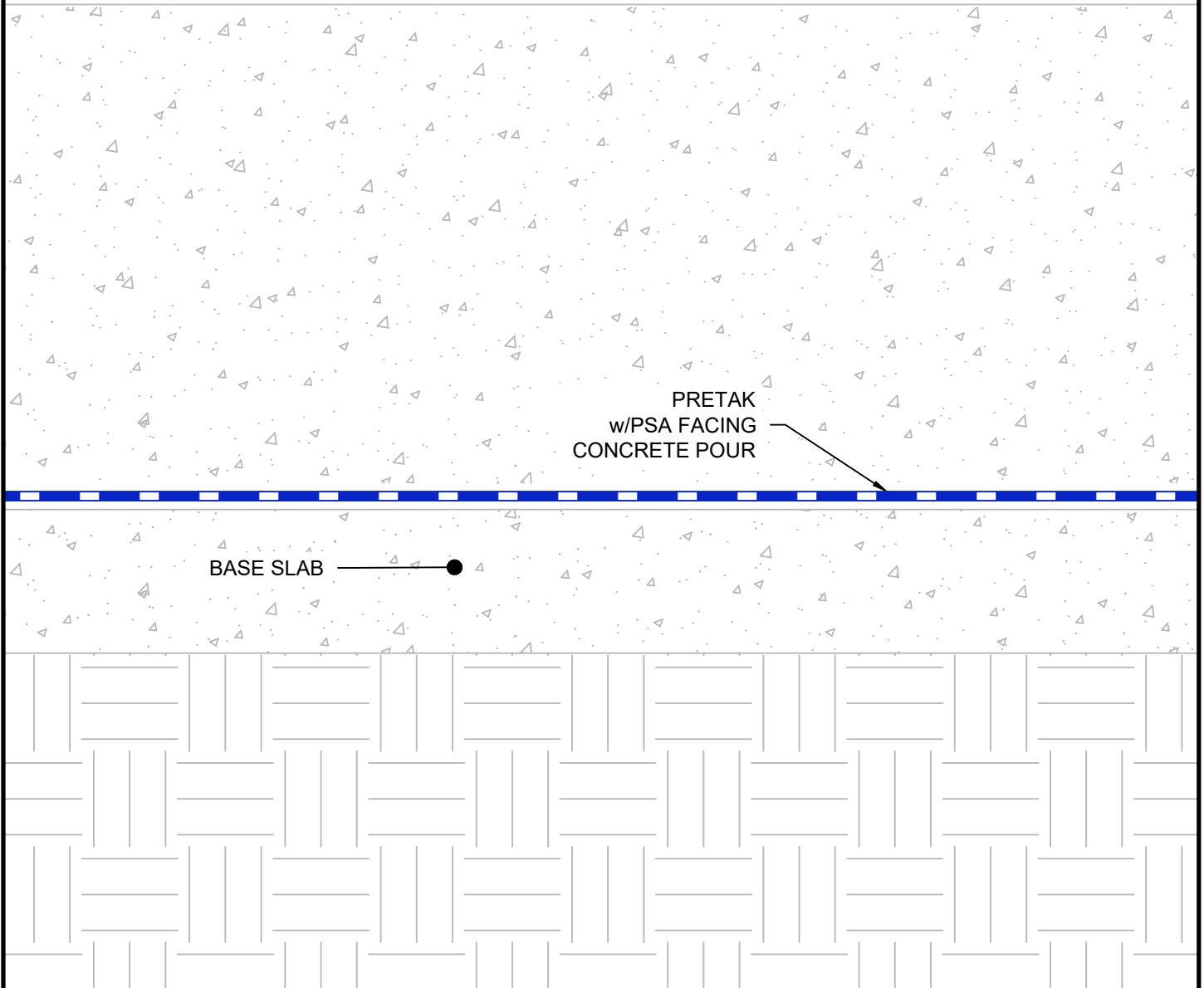
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PRETAK
w/PSA FACING
CONCRETE POUR

2" RIGID INSULATION

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PRETAK

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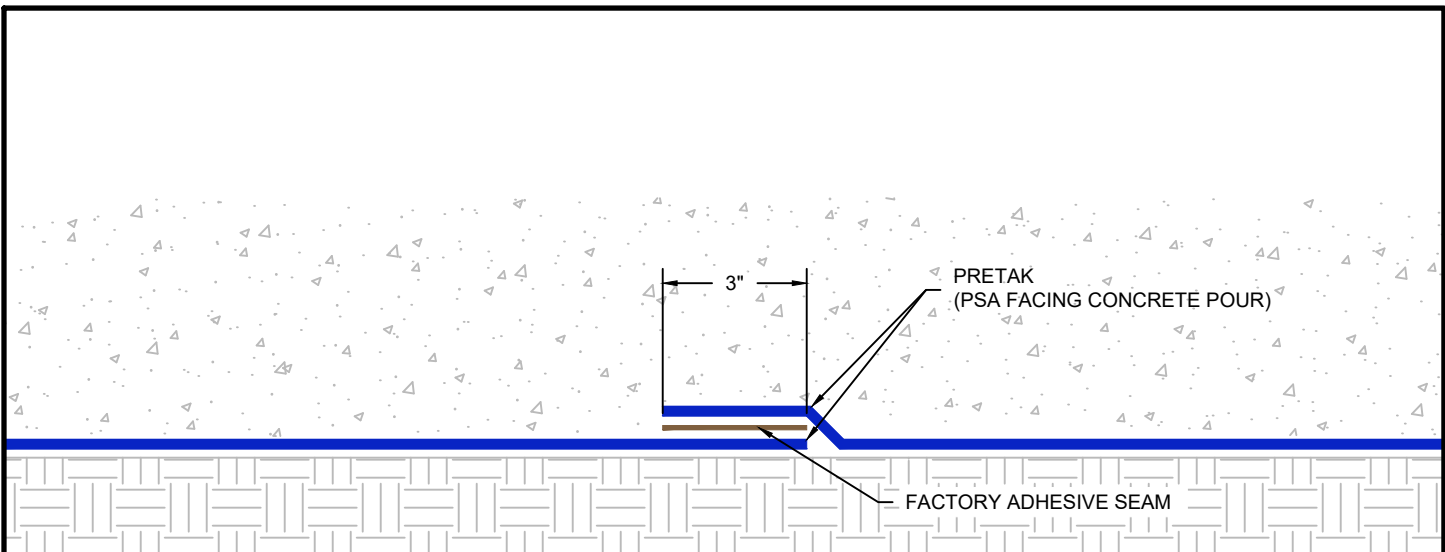
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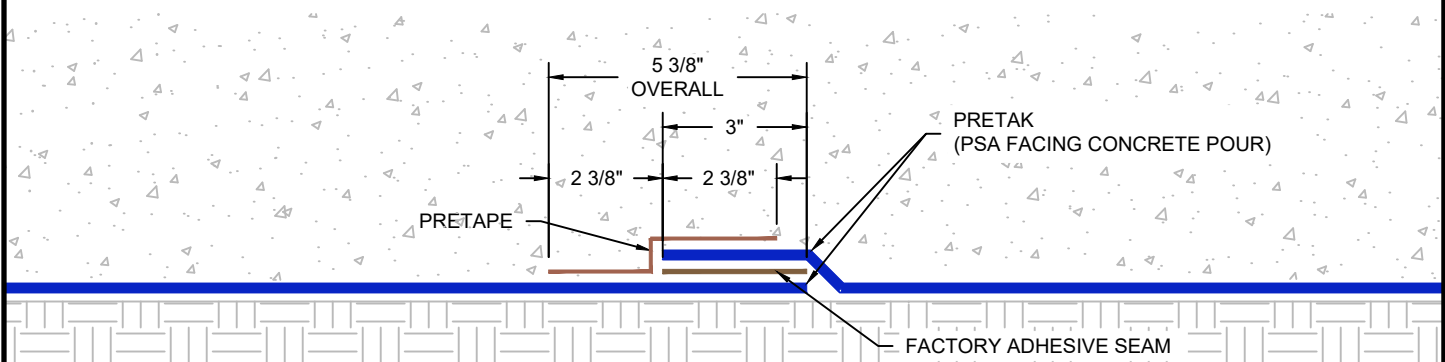
PAGE 1 OF 1



A FACTORY SANDWICH SEAM

APPLICATION NOTES: SANDWICH FACTORY SEAM

- 1) LINE UP TOP LAYER OF PRETAK TO BOTTOM SHEET FACTORY SEAM LINE
- 2) REMOVE RELEASE LINER COVERING ADHESIVE EDGE ON BOTTOM OF SHEET
- 3) ROLL STEEL ROLLER OVER TOP SHEET SEAM SEVERAL TIMES WHILE APPLYING SIGNIFICANT PRESSURE
- 4) VERIFY SEAM IS COMPLETELY BONDED
- 5) REPAIR ANY FISHMOUTHS OR POOR SEAM BONDS WITH PRETAPE



B REINFORCED SEAM

* REINFORCED SEAM REQUIRED FOR SHOTCRETE APPLICATIONS AND HYDROSTATIC WATER TABLE CONDITIONS

APPLICATION NOTES: REINFORCED FACTORY SEAM

- 1) APPLY FACTORY SANDWICH SEAM
- 2) REMOVE RELEASE LINER COVERING PSA EDGE ON BOTTOM AND TOP OF SHEET
- 3) REMOVE PRETAPE RELEASE LINER COVERING ADHESIVE
- 4) POSITION PRETAPE EVENLY CENTERED OVER CENTER OF SEAM AND ROLL OUT ONTO SEAM
- 5) ROLL STEEL ROLLER OVER TOP SHEET SEAM SEVERAL TIMES WHILE APPLYING SIGNIFICANT PRESSURE
- 6) VERIFY SEAM IS COMPLETELY BONDED
- 7) REPAIR ANY FISHMOUTHS OR POOR SEAM BONDS WITH PRETAPE

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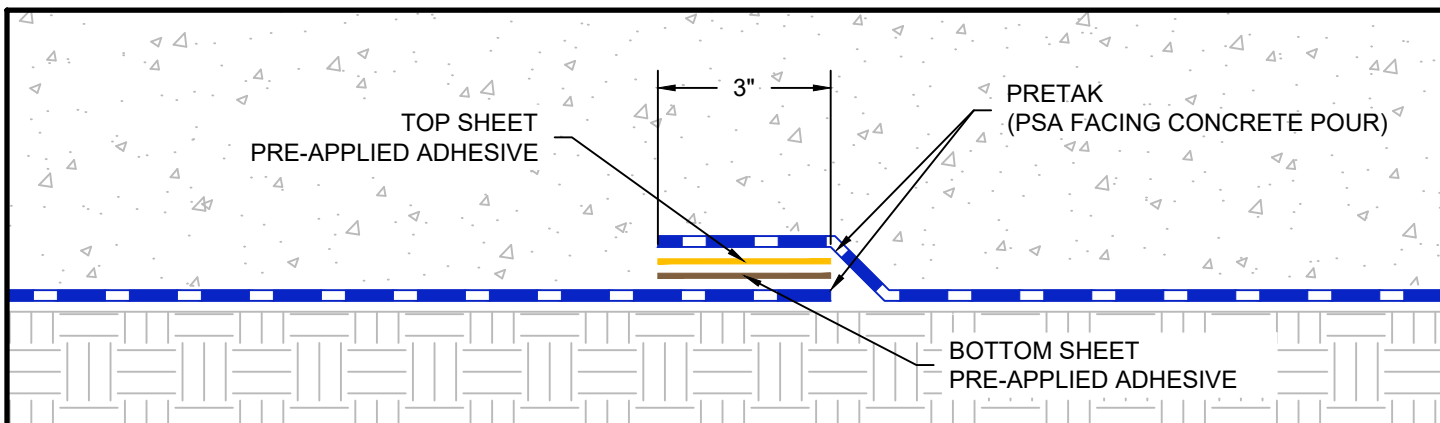
FACTORY LAP SEAMS

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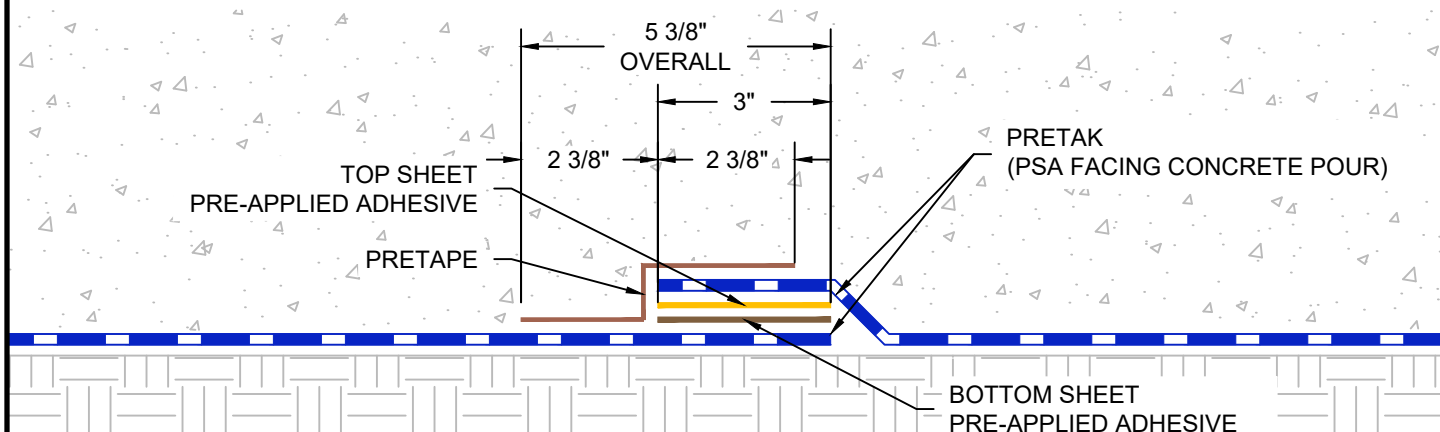
PAGE 1 OF 1



A SANDWICH SEAM - HYDROLAP PRE-APPLIED ADHESIVE

APPLICATION NOTES: SANDWICH FACTORY SEAM

- 1) LINE UP TOP LAYER OF PRETAK TO BOTTOM SHEET FACTORY SEAM LINE
- 2) REMOVE RELEASE LINERS COVERING ADHESIVE EDGES ON BOTTOM AND TOP SHEET
- 3) ROLL HEAVY ROLLER OVER TOP SHEET SEAM WHILE APPLYING SIGNIFICANT PRESSURE
- 4) VERIFY SEAM IS COMPLETELY BONDED
- 5) REPAIR ANY FISHMOUTHS OR POOR SEAM BONDS WITH PRETAPE AND PM SEALANT



B REINFORCED SEAM - HYDROLAP PRE-APPLIED ADHESIVE

* REINFORCEMENT REQUIRED ALONG ALL HORIZONTAL SEAMS FOR SHORING CONDITIONS

- 1) APPLY SANDWICH FACTORY SEAM
- 2) REMOVE RELEASE LINER COVERING PSA EDGE ON BOTTOM AND TOP OF SHEET
- 3) REMOVE PRETAPE RELEASE LINER COVERING ADHESIVE
- 4) CENTER PRETAPE EVENLY OVER SEAM AND ADHERE PRESSING DOWN ONTO SEAM
- 5) ROLL HEAVY ROLLER OVER PRETAPE SEAM WHILE APPLYING SIGNIFICANT PRESSURE
- 6) VERIFY SEAM IS COMPLETELY BONDED
- 7) REPAIR ANY FISHMOUTHS OR POOR SEAM BONDS WITH PRETAPE AND PM SEALANT

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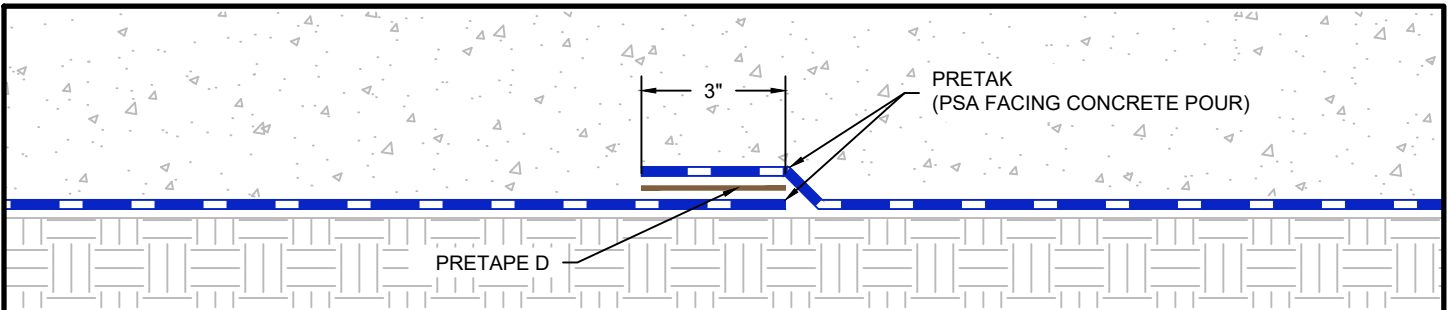
SEAMS OPTIONS - FACTORY PRE-APPLIED ADHESIVE

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AS A SUPPLIER OF FINISHED RPRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

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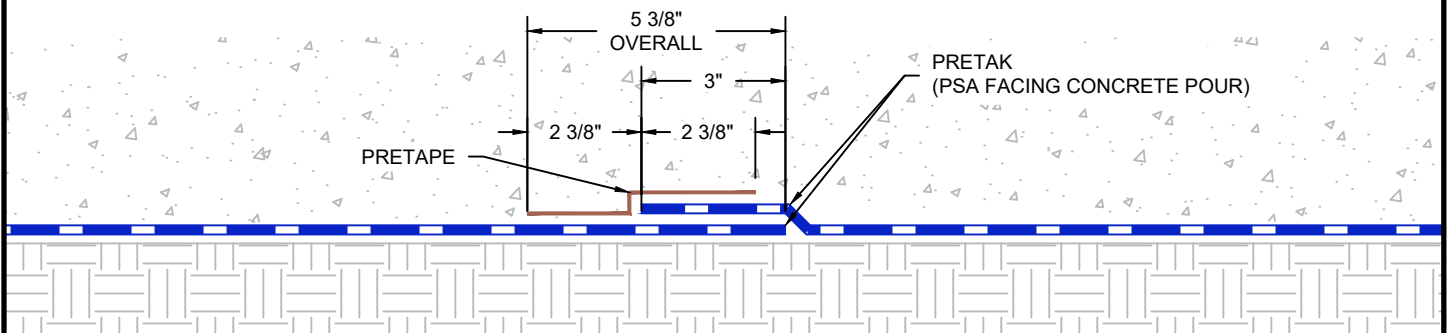
PAGE 1 OF 1



C SANDWICH SEAM - TAPED

APPLICATION NOTES: SANDWICH NON-FACTORY SEAM

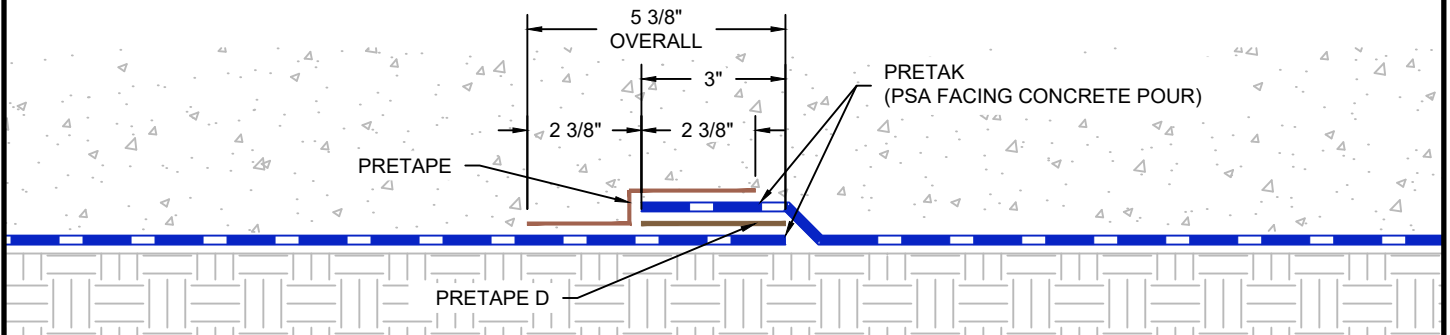
- 1) APPLY PRETAPE D ONTO PSA SURFACE TO LOCATION OF OVERLAP SEAM
- 2) OVERLAP TOP LAYER OF PRETAK OVER BOTTOM SHEET (MIN 3")
- 3) REMOVE PRETAPE D RELEASE LINER AND ADHERE SHEETS TOGETHER
- 4) ROLL HEAVY ROLLER OVER TOP SHEET SEAM WHILE APPLYING SIGNIFICANT PRESSURE
- 5) VERIFY SEAM IS COMPLETELY BONDED
- 6) REPAIR ANY FISHMOUTHS OR POOR SEAM BONDS WITH PRETAPE AND PM SEALANT



D POSITIVE SIDE LAP SEAM - TAPED

APPLICATION NOTES: POSITIVE LAP SEAM

- 1) OVERLAP TOP LAYER OF PRETAK OVER BOTTOM SHEET (MIN 3")
- 2) REMOVE RELEASE LINER COVERING PSA EDGE ON TOP AND BOTTOM SHEET
- 3) REMOVE PRETAPE RELEASE LINER COVERING ADHESIVE
- 4) CENTER PRETAPE EVENLY OVER SEAM AND ADHERE PRESSING DOWN ONTO SEAM
- 5) ROLL HEAVY ROLLER OVER PRETAPE SEAM WHILE APPLYING SIGNIFICANT PRESSURE
- 6) VERIFY SEAM IS COMPLETELY BONDED
- 7) REPAIR ANY FISHMOUTHS OR POOR SEAM BONDS WITH PRETAPE AND PM SEALANT



E REINFORCED SEAM - TAPED

*REINFORCEMENT REQUIRED ALONG CUT ENDS AND END LAPS FOR HYDROSTATIC AND METHANE CONDITIONS, AND ALL HORIZONTAL SEAMS FOR SHORING CONDITIONS

G:\My Drive\Epro Master Folder\Drafting\Details\Underslab\Pretak\51.110.7.2 SEAM OPTIONS - TAPED.dwg [Detail] July 26, 2022 - 10:38am

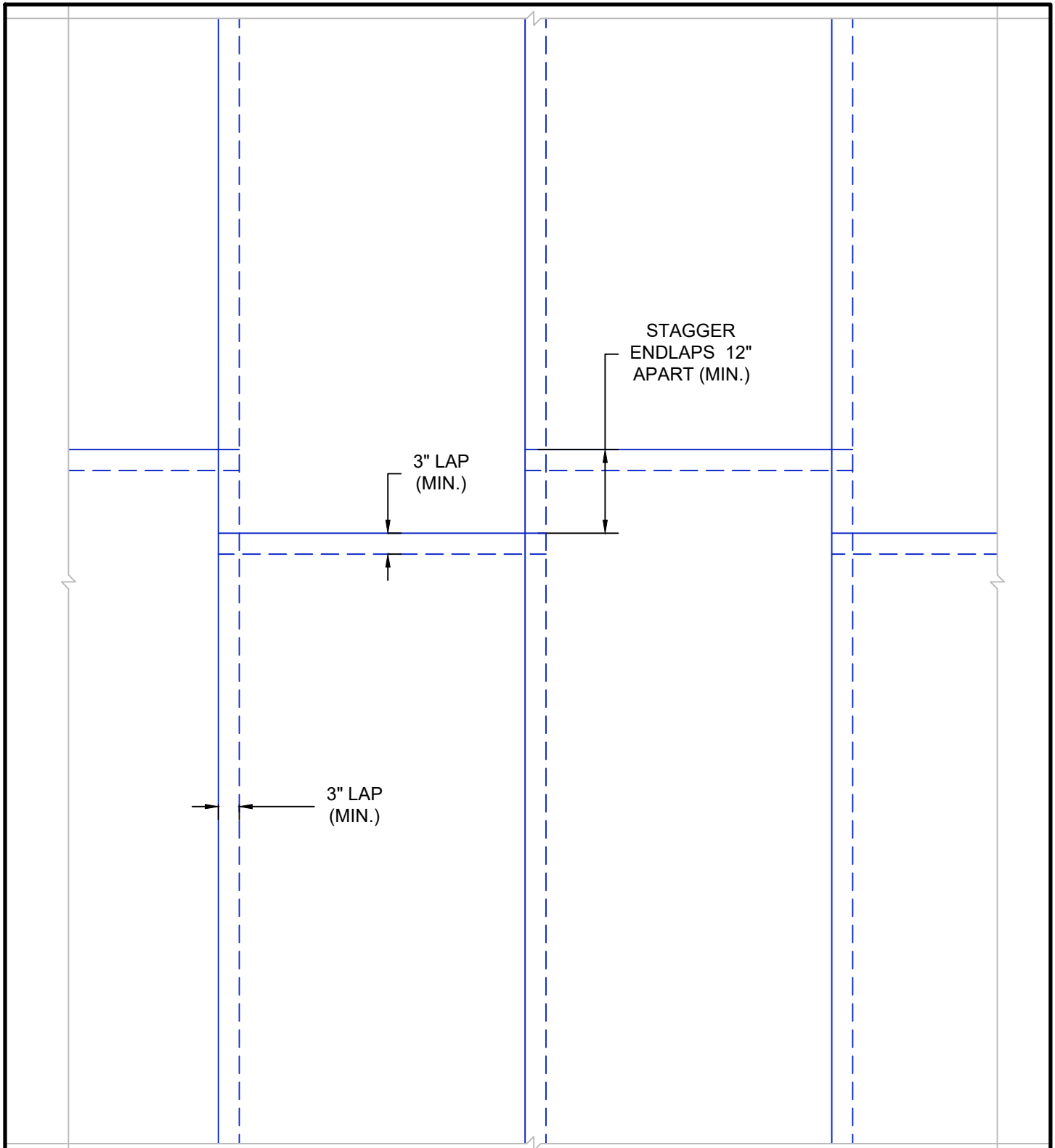
SEAM OPTIONS - TAPED

	SYSTEM NAME	DRAWING NUMBER	
	PRETAK	51.110.7.2	
	DRAFTER	DATE	
	RJT	7/26/2022	

AS A SUPPLIER OF FINISHED PRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

NTS

PAGE 1 OF 1



G:\My Drive\Epro Master Folder\Drafting\Details\Underslab\Pretak\51.116.1.1 UNDERSLAB - FIELD LAPS.dwg [Detail] June 22, 2021 - 10:06am

UNDERSLAB - FIELD LAPS

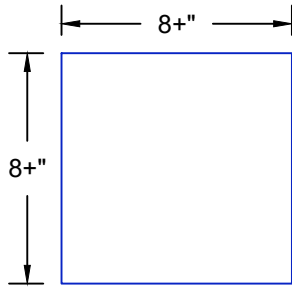
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	PRETAK	51.116.1.1	
	DRAFTER	DATE	
	RJT	6/10/2021	

AS A SUPPLIER OF FINISHED PRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

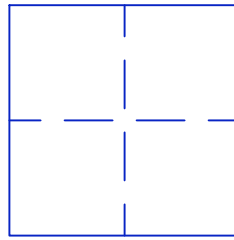
NTS

PAGE 1 OF 1

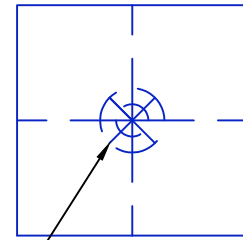
STEP 1:
CUT A SQUARE PATCH OF
PRETAK 8" WIDER THAN THE
WIDTH OF THE PENETRATION



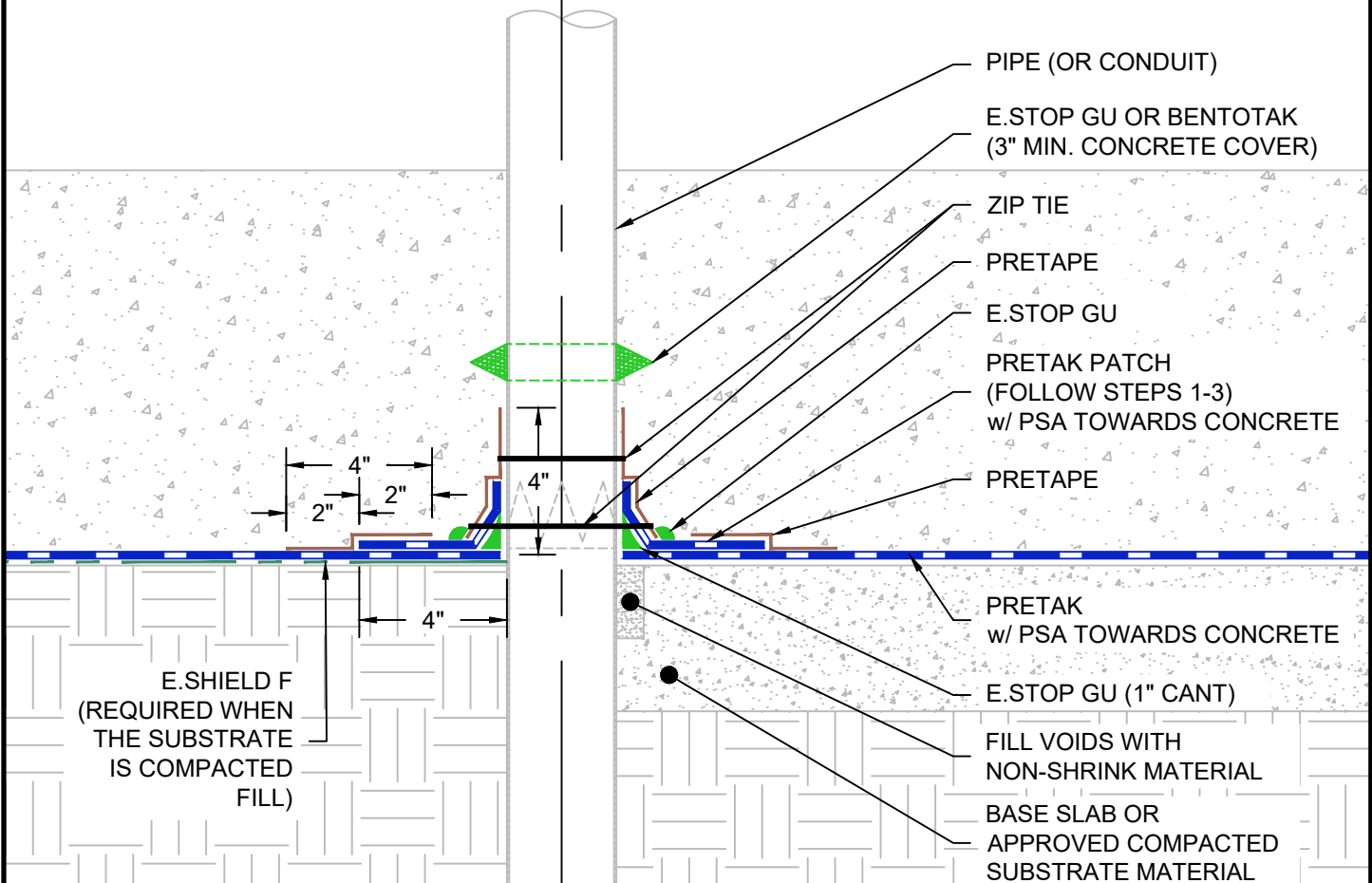
STEP 2:
FIND THE CENTER OF THE
SQUARE BY FOLDING IT
INTO QUARTERS



STEP 3:
STAR-CUT CENTER OF
SQUARE TO THE WIDTH
OF THE PENETRATION
(TRIM FLANGES TO 2" MAX.
LENGTH)



CUT & TRIM



G:\My Drive\Epro Master Folder\Drafting\Details\Underslab\Pretak\51.120.1.2 UNDERSLAB PENETRATION - PIPE - HYDROSTATIC.dwg [Detail] April 19, 2022 - 2:07pm

UNDERSLAB PENETRATION - PIPE - HYDROSTATIC



SYSTEM NAME

PRETAK

DRAFTER

RJT

DRAWING NUMBER

51.120.1.2

DATE

4/19/2022

PRETAK

AS A SUPPLIER OF FINISHED PRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

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PAGE 1 OF 1

A square is shown with a side length of 8 inches. The top and bottom sides are labeled with dimension lines and the text "8+\".

A diagram consisting of a square divided into four equal quadrants by a horizontal line and a vertical line. The lines intersect at the center, forming a crosshair. The quadrants are empty.

CUT & TRIM



- 1) BLOCKOUT OR SAW CUT A SQUARE OPENING A MINIMUM OF 6" FROM THE OUTSIDE OF THE PIPE
-IF SAW CUT, BREAKOUT CONCRETE AROUND PIPE
- 2) CUT PIPE A MINIMUM OF 4" DOWN BELOW TOP OF SLAB
- 3) FILL BOTTOM OF PIPE WITH BENTONITE SLURRY PER BUILDING CODE
- 4) FILL PIPE WITH NON-SHRINK GROUT - EXTEND FROM TOP OF WELL TO 12" BELOW UNDERSLAB SYSTEM
- 5) APPLY HOT GLUE CAP ON PIPE
- 6) APPLY BENTOTAK WATERSTOP AROUND THE INNER PERIMETER OF BLOCKOUT/SAW CUT AREA
- 7) FILL BLOCKOUT/SAW CUT AREA WITH NON-SHRINK GROUT OR CEMENT

- 1) PRETAK MEMBRANE BOOT MUST BE FIT SNUG AROUND PIPE WITHOUT FOLDING OR FALLING DOWN. PRETAPE MUST BE USED TO COMPLETELY SEAL BETWEEN BOOT AND PIPE, TIGHTEN HOSE CLAMP AS TIGHT AS POSSIBLE WITHOUT DAMAGING THE MEMBRANE
- 2) SPACE PENETRATIONS A MINIMUM OF 6" FROM SLAB EDGE, CORNERS, WALLS, OR OTHER PENETRATIONS.

UNDERSLAB PENETRATION - DEWATERING PIPE

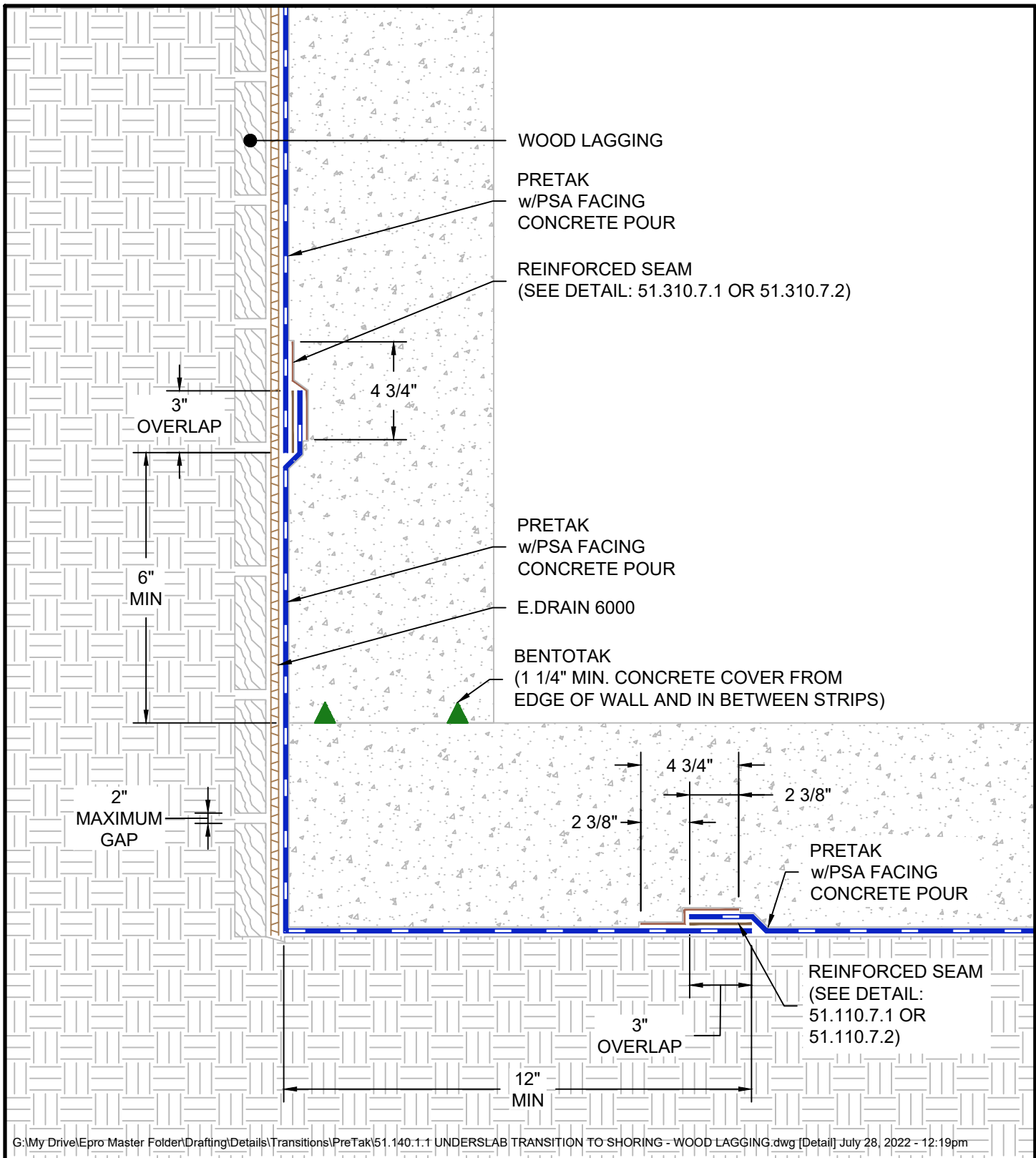


SYSTEM NAME	DRAWING NUMBER
PRETAK	51.127.1
DRAFTER	DATE
RJT	7/26/2022

PRETAK

NTS

PAGE 1 OF 1



UNDERSLAB TRANSITION TO SHORING - WOOD LAGGING



SYSTEM NAME

PRETAK

DRAFTER

RJT

DRAWING NUMBER

51.140.1.1

DATE

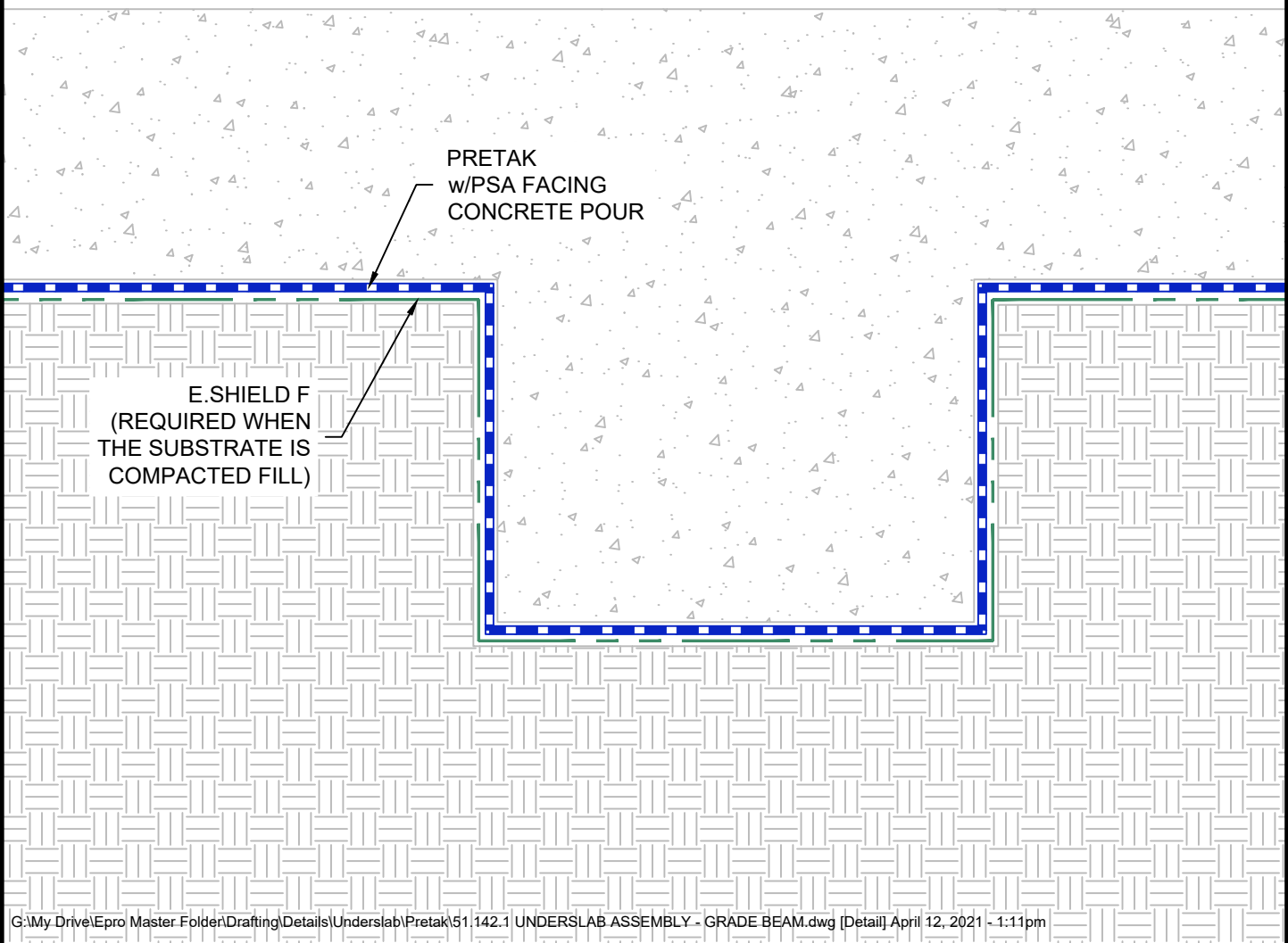
7/28/2022

PRETAK

AS A SUPPLIER OF FINISHED PRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

NTS

PAGE 1 OF 1



UNDERSLAB ASSEMBLY - GRADE BEAM



SYSTEM NAME

PRETAK

DRAFTER

RJT

DRAWING NUMBER

51.142.1

DATE

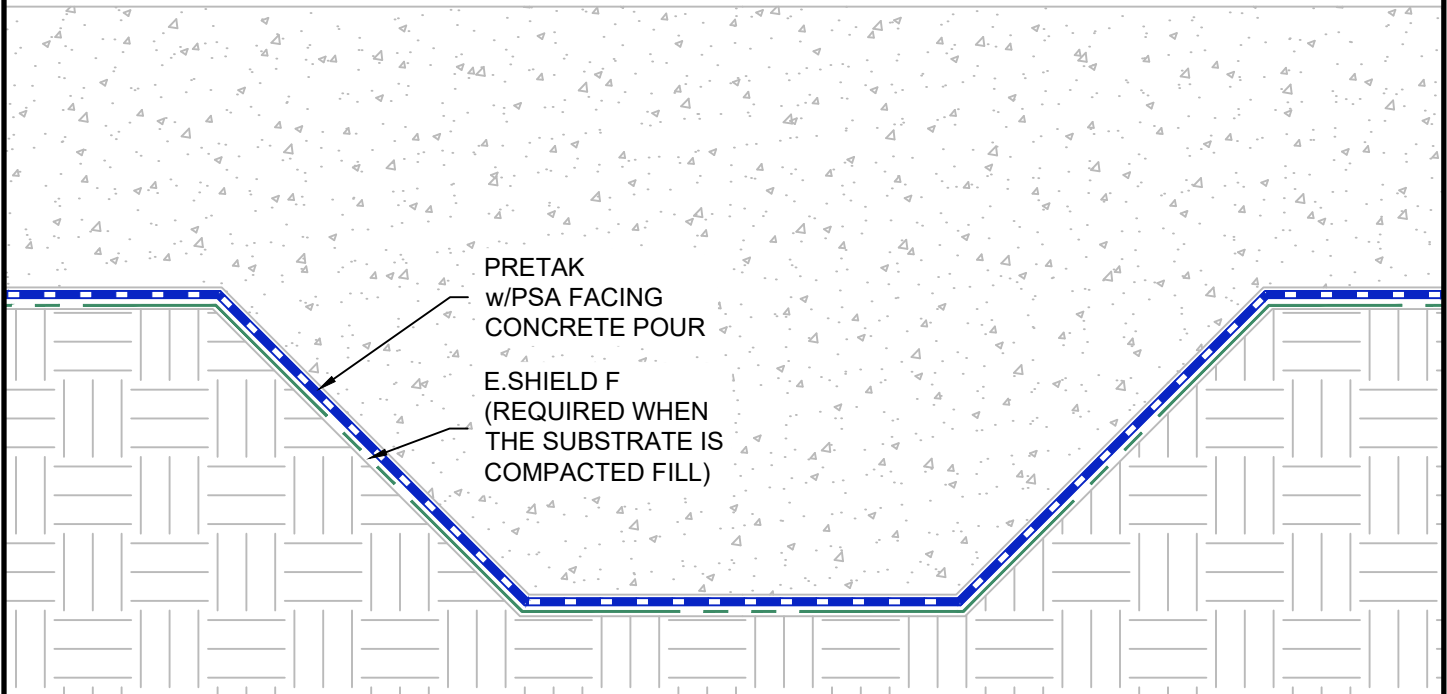
3/01/2021

PRETAK

AS A SUPPLIER OF FINISHED PRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

NTS

PAGE 1 OF 1



G:\My Drive\Epro Master Folder\Drafting\Details\Underslab\Pretak\51.142.3 UNDERSLAB ASSEMBLY - GRADE BEAM - SLOPED.dwg [Detail] March 22, 2022 - 4:00pm

UNDERSLAB ASSEMBLY - GRADE BEAM - SLOPED



SYSTEM NAME

PRETAK

DRAFTER

RJT

DRAWING NUMBER

51.142.3

DATE

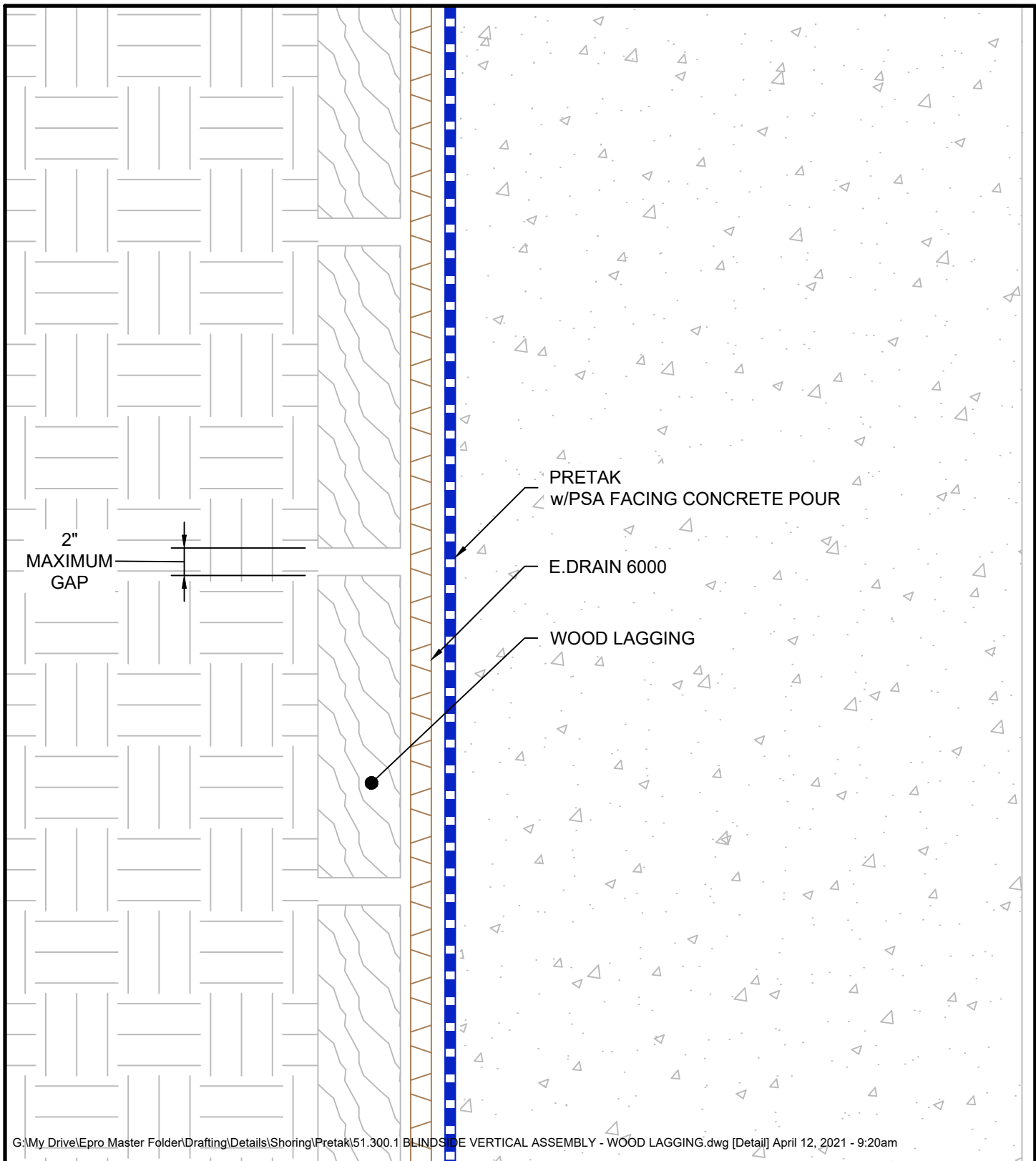
4/01/2021

PRETAK

AS A SUPPLIER OF FINISHED PRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

NTS

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BLINDSIDE VERTICAL ASSEMBLY - WOOD LAGGING



SYSTEM NAME

PRETAK

DRAFTER

RJT

DRAWING NUMBER

51.300.1

DATE

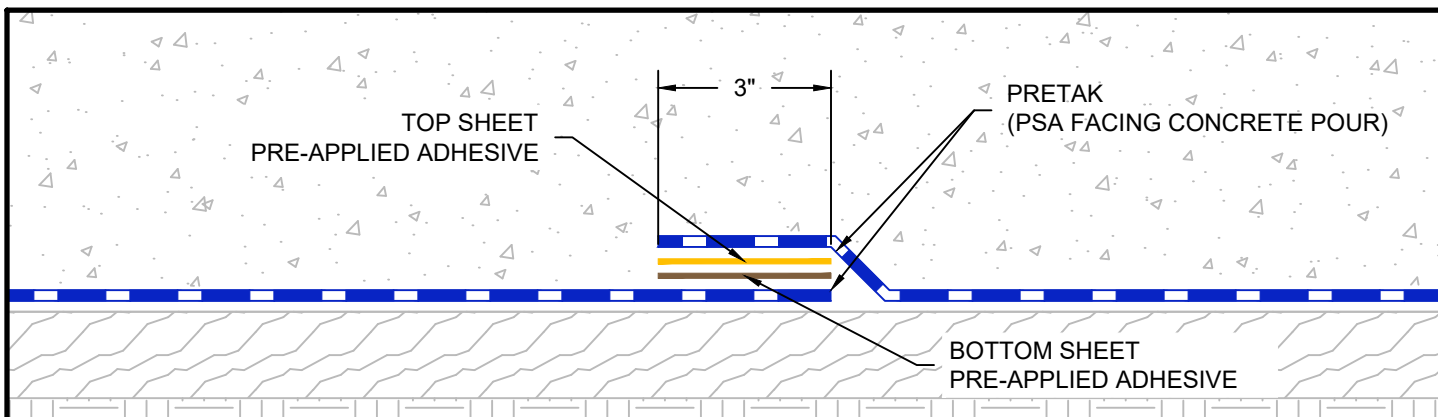
3/17/2021

PRETAK

AS A SUPPLIER OF FINISHED RPRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

NTS

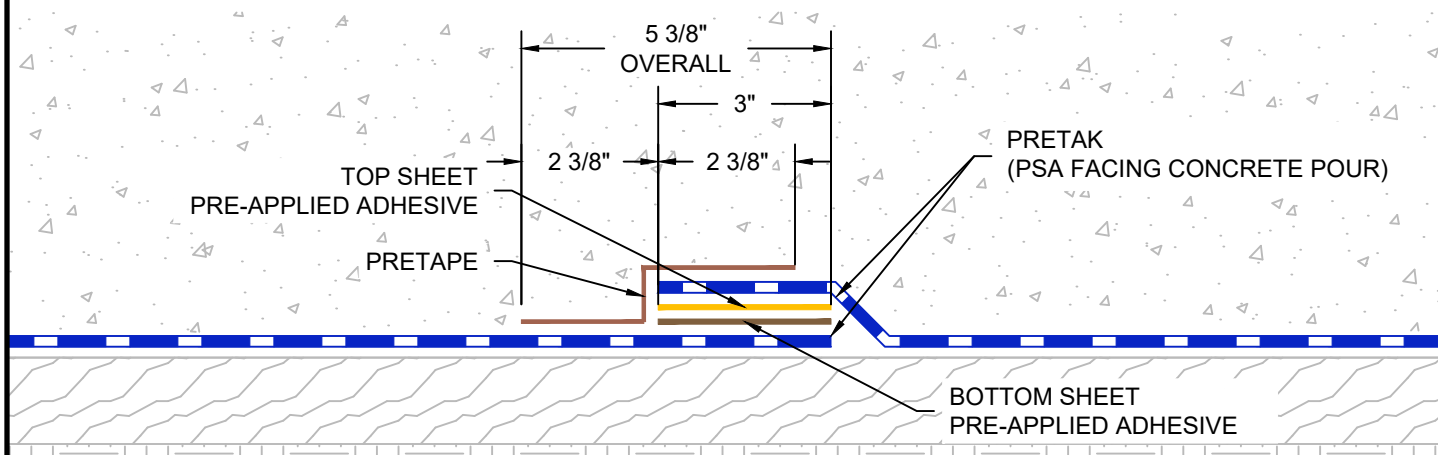
PAGE 1 OF 1



A SANDWICH SEAM - HYDROLAP PRE-APPLIED ADHESIVE

APPLICATION NOTES: SANDWICH FACTORY SEAM

- 1) LINE UP TOP LAYER OF PRETAK TO BOTTOM SHEET FACTORY SEAM LINE
- 2) REMOVE RELEASE LINERS COVERING ADHESIVE EDGES ON BOTTOM AND TOP SHEET
- 3) ROLL HEAVY ROLLER OVER TOP SHEET SEAM WHILE APPLYING SIGNIFICANT PRESSURE
- 4) VERIFY SEAM IS COMPLETELY BONDED
- 5) REPAIR ANY FISHMOUTHS OR POOR SEAM BONDS WITH PRETAPE AND PM SEALANT



B REINFORCED SEAM - HYDROLAP PRE-APPLIED ADHESIVE

* REINFORCEMENT REQUIRED ALONG ALL HORIZONTAL SEAMS FOR SHORING CONDITIONS

- 1) APPLY SANDWICH FACTORY SEAM
- 2) REMOVE RELEASE LINER COVERING PSA EDGE ON BOTTOM AND TOP OF SHEET
- 3) REMOVE PRETAPE RELEASE LINER COVERING ADHESIVE
- 4) CENTER PRETAPE EVENLY OVER SEAM AND ADHERE PRESSING DOWN ONTO SEAM
- 5) ROLL HEAVY ROLLER OVER PRETAPE SEAM WHILE APPLYING SIGNIFICANT PRESSURE
- 6) VERIFY SEAM IS COMPLETELY BONDED
- 7) REPAIR ANY FISHMOUTHS OR POOR SEAM BONDS WITH PRETAPE AND PM SEALANT

G:\My Drive\Epro Master Folder\Drafting\Details\Shoring\Pretak\51.310.7.1 SEAM OPTIONS - FACTORY PRE-APPLIED ADHESIVE.dwg [Detail] July 28, 2022 - 9:14am

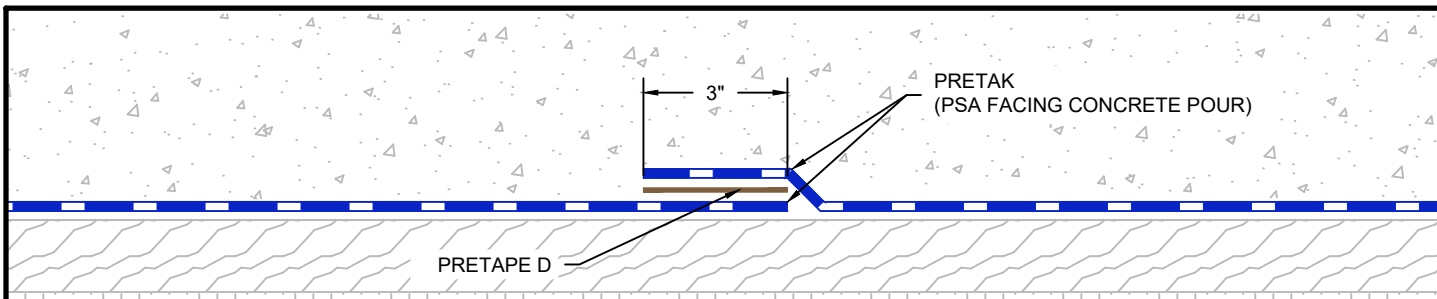
SEAMS OPTIONS - FACTORY PRE-APPLIED ADHESIVE

	SYSTEM NAME	DRAWING NUMBER	
	PRETAK	51.310.7.1	
	DRAFTER	DATE	
	RJT	7/27/2022	

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NTS

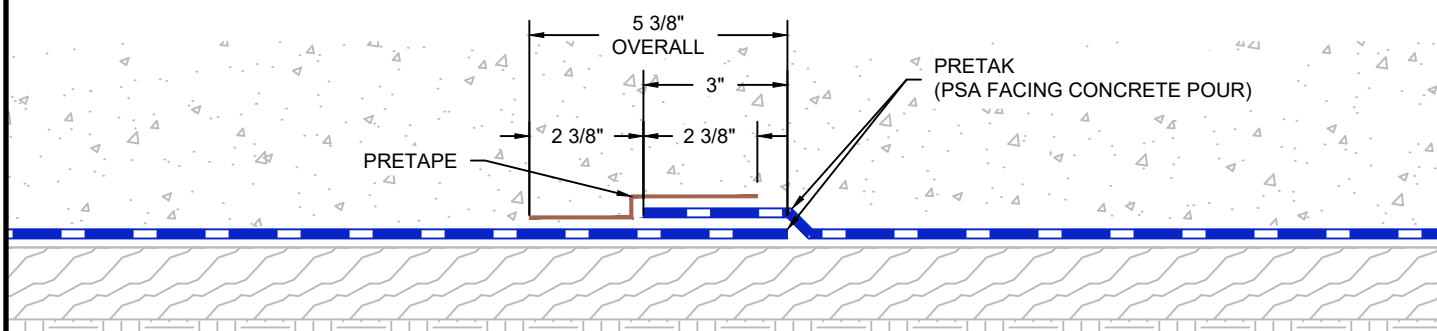
PAGE 1 OF 1



C SANDWICH SEAM - TAPED

APPLICATION NOTES: SANDWICH NON-FACTORY SEAM

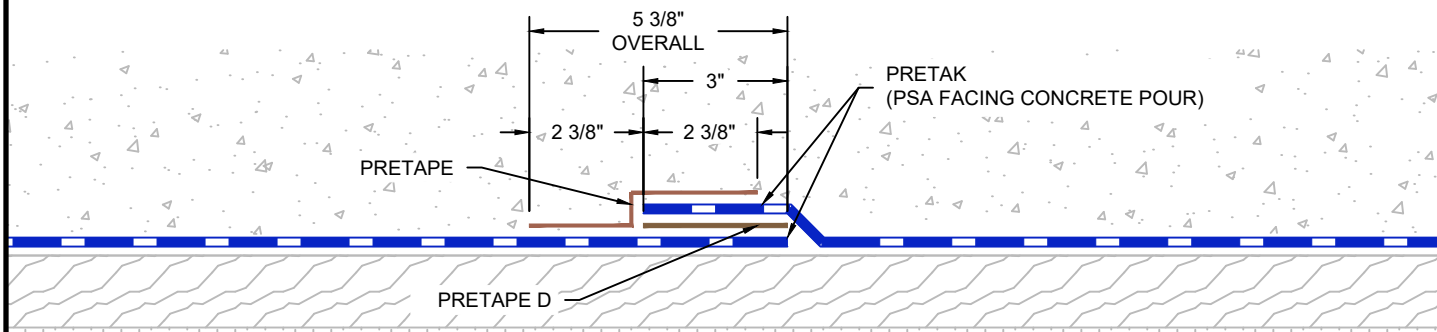
- 1) APPLY PRETAPE D ONTO PSA SURFACE TO LOCATION OF OVERLAP SEAM
- 2) OVERLAP TOP LAYER OF PRETAK OVER BOTTOM SHEET (MIN 3")
- 3) REMOVE PRETAPE D RELEASE LINER AND ADHERE SHEETS TOGETHER
- 4) ROLL HEAVY ROLLER OVER TOP SHEET SEAM WHILE APPLYING SIGNIFICANT PRESSURE
- 5) VERIFY SEAM IS COMPLETELY BONDED
- 6) REPAIR ANY FISHMOUTHS OR POOR SEAM BONDS WITH PRETAPE AND PM SEALANT



D POSITIVE SIDE LAP SEAM - TAPED

APPLICATION NOTES: POSITIVE LAP SEAM

- 1) OVERLAP TOP LAYER OF PRETAK OVER BOTTOM SHEET (MIN 3")
- 2) REMOVE RELEASE LINER COVERING PSA EDGE ON TOP AND BOTTOM SHEET
- 3) REMOVE PRETAPE RELEASE LINER COVERING ADHESIVE
- 4) CENTER PRETAPE EVENLY OVER SEAM AND ADHERE PRESSING DOWN ONTO SEAM
- 5) ROLL HEAVY ROLLER OVER PRETAPE SEAM WHILE APPLYING SIGNIFICANT PRESSURE
- 6) VERIFY SEAM IS COMPLETELY BONDED
- 7) REPAIR ANY FISHMOUTHS OR POOR SEAM BONDS WITH PRETAPE AND PM SEALANT



E REINFORCED SEAM - TAPED

*REINFORCEMENT REQUIRED ALONG CUT ENDS AND END LAPS FOR HYDROSTATIC AND METHANE CONDITIONS, AND ALL HORIZONTAL SEAMS FOR SHORING CONDITIONS

G:\My Drive\Epro Master Folder\Drafting\Details\Shoring\Pretak\51.310.7.2 SEAM OPTIONS - TAPED.dwg [Detail] July 27, 2022 - 11:17am

SEAM OPTIONS - TAPED

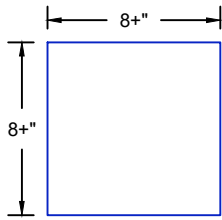
	SYSTEM NAME	DRAWING NUMBER	
	PRETAK	51.310.7.2	
	DRAFTER	DATE	
	RJT	7/27/2022	

AS A SUPPLIER OF FINISHED PRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

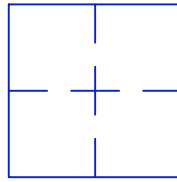
NTS

PAGE 1 OF 1

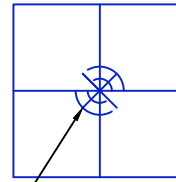
STEP 1:
CUT A SQUARE PATCH OF
PRETAK 8" WIDER THAN THE
WIDTH OF THE PENETRATION



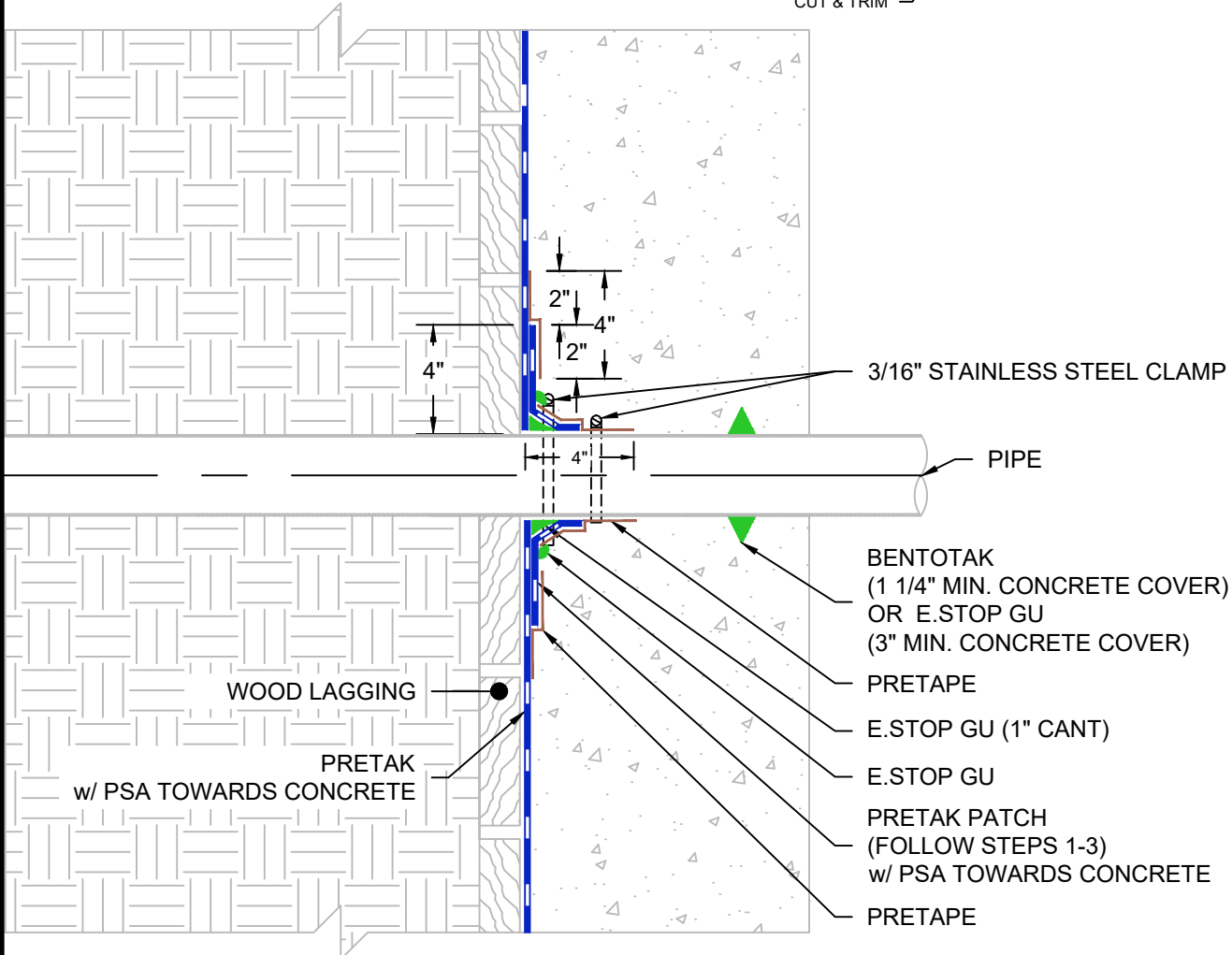
STEP 2:
FIND THE CENTER OF THE
SQUARE BY FOLDING IT
INTO QUARTERS



STEP 3:
STAR-CUT CENTER OF
SQUARE TO THE WIDTH
OF THE PENETRATION
(TRIM FLANGES TO 2" MAX.
LENGTH)



CUT & TRIM



NOTES:

- 1) PRETAK MEMBRANE BOOT MUST BE FIT SNUG AROUND BLOCKOUT TUBE WITHOUT FOLDING OR FALLING DOWN. PRETAPE MUST BE USED TO COMPLETELY SEAL BETWEEN BOOT AND TUBE, TIGHTEN HOSE CLAMP AS TIGHT AS POSSIBLE WITHOUT DAMAGING THE MEMBRANE
- 2) SPACE PENETRATIONS A MINIMUM OF 6" FROM SLAB EDGE, CORNERS, WALLS, OR OTHER PENETRATIONS.

G:\My Drive\Epro Master Folder\Drafting\Details\Shoring\Pretak\51.320.1 BLINDSIDE VERTICAL PENETRATION - SOE SHORING.dwg [Detail] July 26, 2022 - 1:12pm

BLINDSIDE VERTICAL PENETRATION - SOE WOOD LAGGING



SYSTEM NAME

PRETAK

DRAFTER

RJT

DRAWING NUMBER

51.320.1

DATE

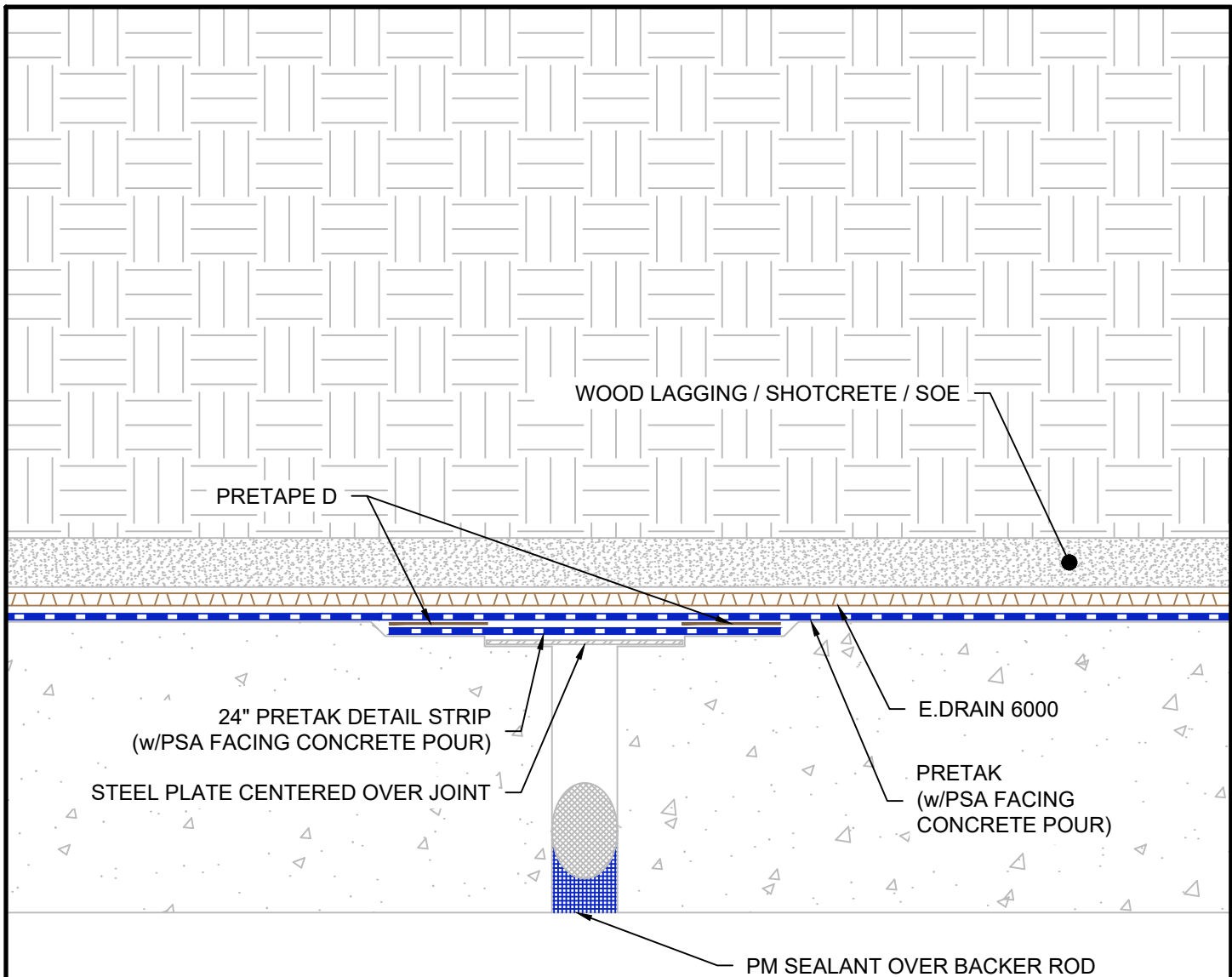
7/26/2022

PRETAK

AS A SUPPLIER OF FINISHED RPRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

NTS

PAGE 1 OF 1



G:\My Drive\Epro Master Folder\Drafting\Details\Shoring\Pretak\51.370.3 BLINDSIDE VERTICAL ASSEMBLY - PLAN VIEW - EXPANSION JOINT.dwg [Detail] April 12, 2021 - 9:37am

BLINDSIDE VERTICAL ASSEMBLY - PLAN VIEW - EXPANSION JOINT



SYSTEM NAME

PRETAK

DRAFTER

RJT

DRAWING NUMBER

51.370.3

DATE

3/17/2021

PRETAK

AS A SUPPLIER OF FINISHED RPRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

NTS

PAGE 1 OF 1

STEP 1:
APPLY PRETAK TO ONE SIDE OF CORNER
WITH A MINIMUM OF 6" EXTENDING PAST
CORNER'S EDGE.
CUT FOLD AT BOTTOM OF SHEET AND TURN
VERTICAL SECTION AROUND CORNER AND
LEAVE HORIZONTAL LEG EXTENDED.

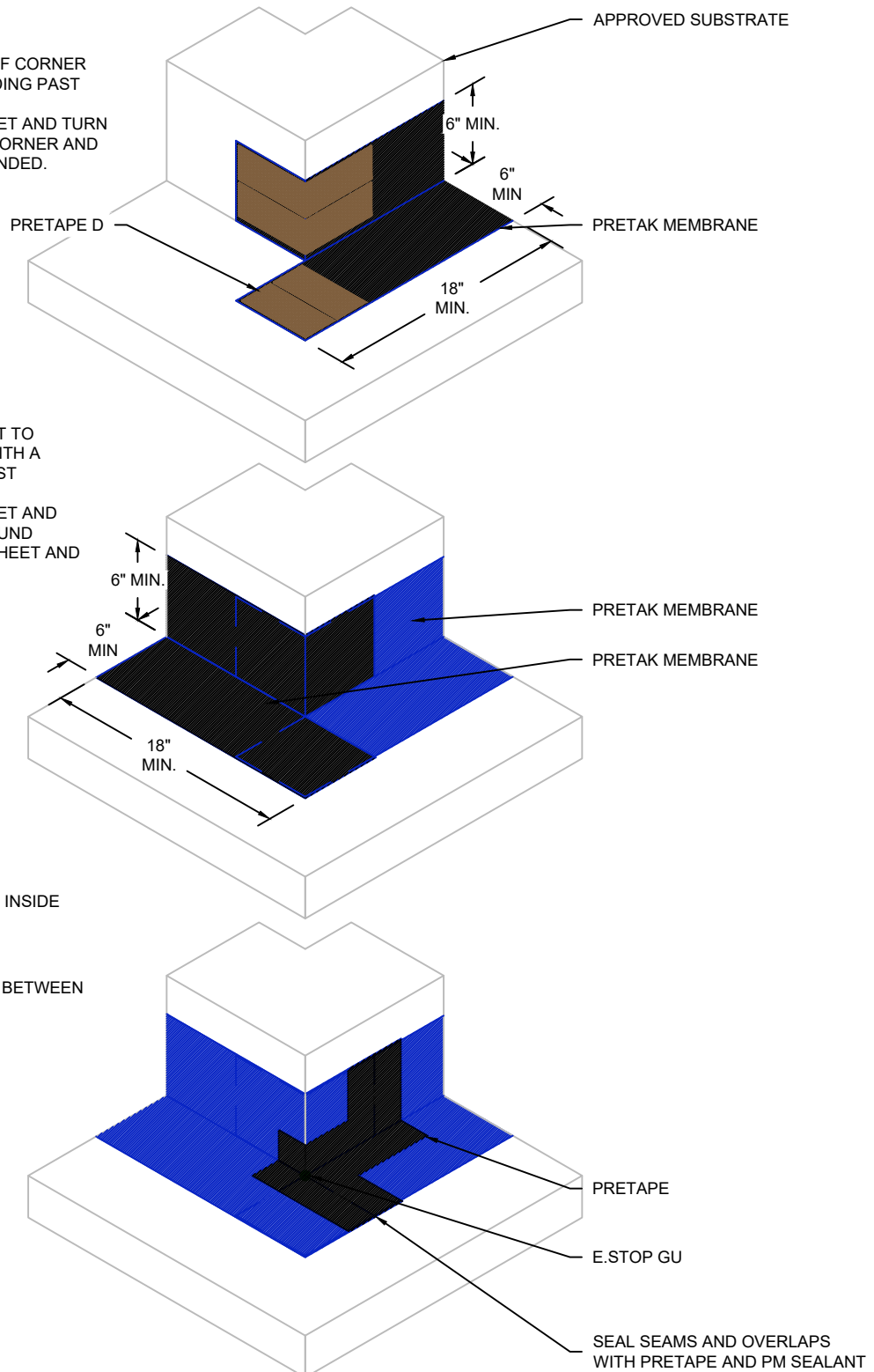
STEP 2:
APPLY PRETAPE D TO
AREAS COVERED BY
SECOND SHEET

STEP 3:
APPLY SECOND PRETAK SHEET TO
OPPOSITE SIDE OF CORNER WITH A
MINIMUM OF 6" EXTENDING PAST
CORNER'S EDGE.
CUT FOLD AT BOTTOM OF SHEET AND
TURN VERTICAL SECTION AROUND
CORNER TO OVERLAP FIRST SHEET AND
OVERLAP HORIZONTAL LEGS.

STEP 4:
REMOVE RELEASE LINER
FROM PRETAPE D AND
ADHERE SECOND SHEET
TO FIRST SHEET

STEP 5:
APPLY BEAD OF E.STOP GU TO INSIDE
CORNER OF DETAIL

STEP 6:
APPLY PRETAPE AT THE SEAM BETWEEN
THE TWO SHEETS



G:\My Drive\Epro Master Folder\Drafting\Details\Shoring\Pretak\51.381.2 CORNER - OUTSIDE - FIELD FORMED.dwg [Detail] April 12, 2021 - 9:37am

CORNER - OUTSIDE - FIELD FORMED



SYSTEM NAME

PRETAK

DRAFTER

RJT

DRAWING NUMBER

51.381.2

DATE

3/17/2021

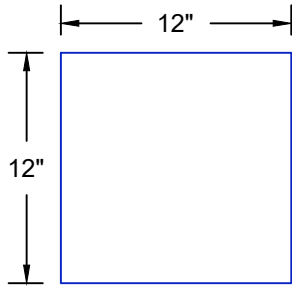
PRETAK

AS A SUPPLIER OF FINISHED RPRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR
ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND
SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

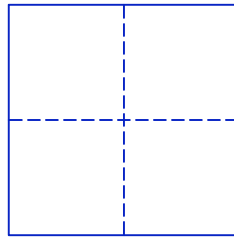
NTS

PAGE 1 OF 1

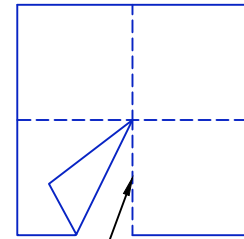
STEP 1:
CUT A 12"X12"
PRETAK SQUARE



STEP 2:
FOLD THE SQUARE IN
HALF IN BOTH
DIRECTIONS TO FIND
THE CENTER OF THE
PRETAK SQUARE

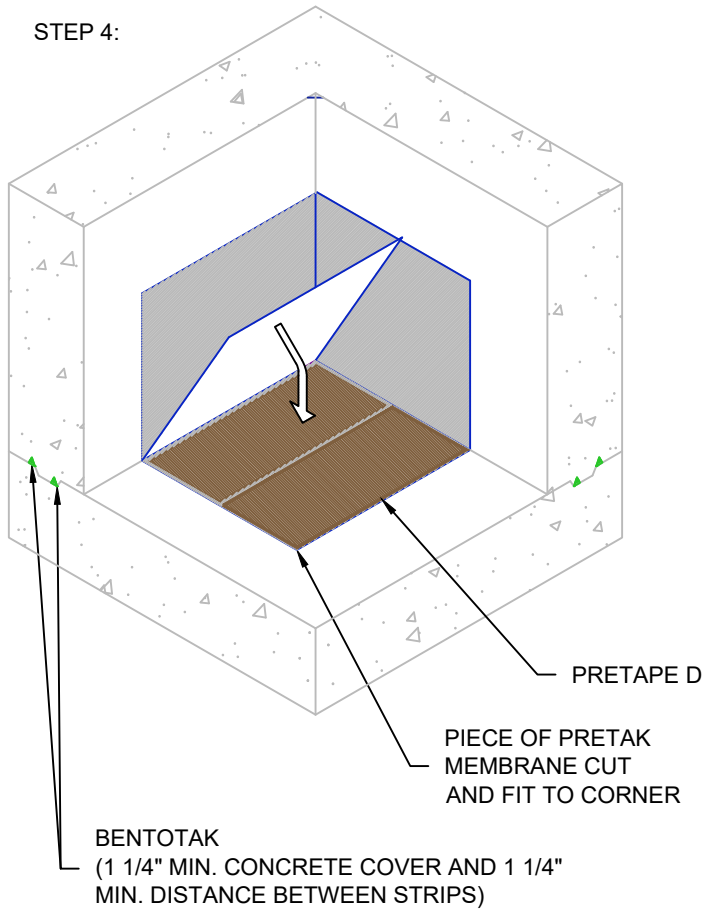


STEP 3:
CUT ONE FOLD LINE TO
THE CENTER OF THE
PRETAK SQUARE

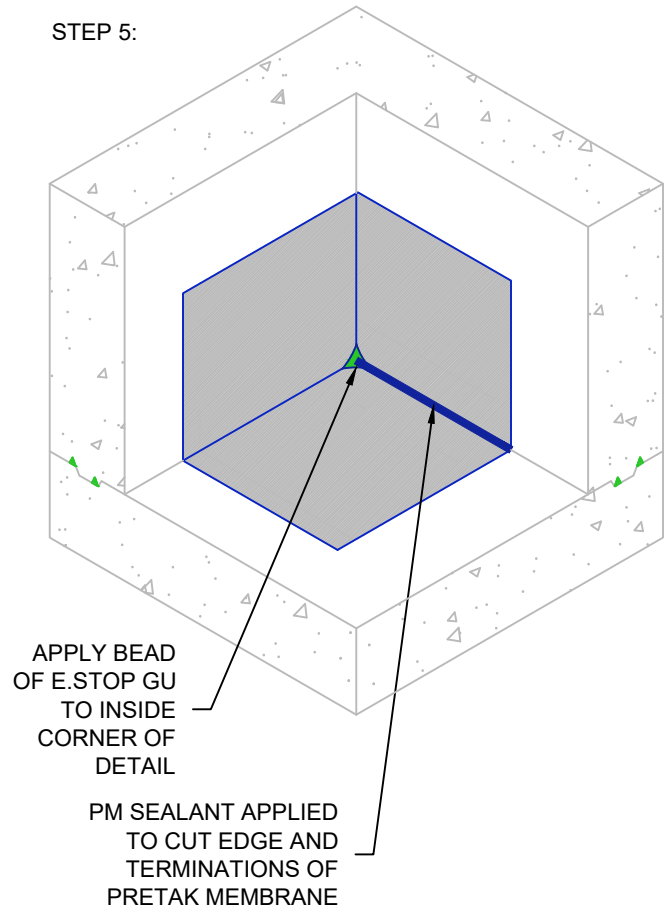


CUT

STEP 4:



STEP 5:



G:\My Drive\Epro Master Folder\Drafting\Details\Shoring\Pretak\51.381.3 CORNER - INSIDE - FIELD FORMED.dwg [Detail] April 12, 2021 - 9:30am

CORNER - INSIDE - FIELD FORMED



SYSTEM NAME

PRETAK

DRAFTER

RJT

DRAWING NUMBER

51.381.3

DATE

4/06/2021

PRETAK

AS A SUPPLIER OF FINISHED PRODUCTS ONLY, EPRO SERVICES, INC. DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING OR DIMENSIONS. THE PROJECT TEAM MUST VERIFY ALL DIMENSIONS AND SUITABILITY OF DETAILS. THE PRODUCTS LISTED ARE TRADEMARKS OF EPRO SERVICES, INC.

NTS

PAGE 1 OF 1

STEP 1:
APPLY PRETAK TO ONE SIDE OF CORNER
WITH A MINIMUM OF 6" EXTENDING PAST
CORNER'S EDGE.
CUT FOLD AT BOTTOM OF SHEET AND TURN
VERTICAL SECTION AROUND CORNER AND
LEAVE HORIZONTAL LEG EXTENDED.

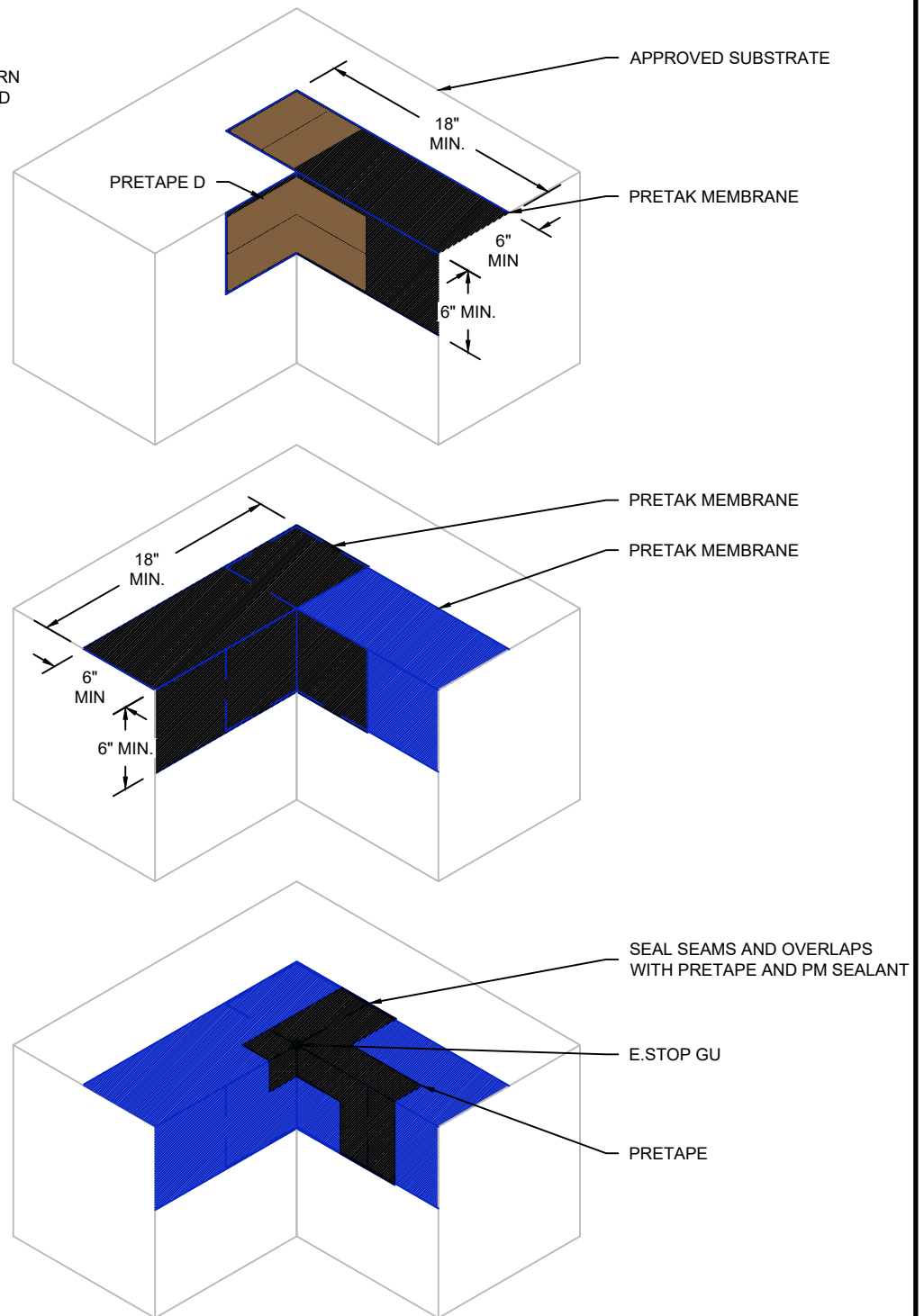
STEP 2:
APPLY PRETAPE D TO
AREAS COVERED BY
SECOND SHEET

STEP 3:
APPLY SECOND PRETAK SHEET TO
OPPOSITE SIDE OF CORNER WITH A
MINIMUM OF 6" EXTENDING PAST
CORNER'S EDGE.
CUT FOLD AT BOTTOM OF SHEET AND
TURN VERTICAL SECTION AROUND
CORNER TO OVERLAP FIRST SHEET AND
OVERLAP HORIZONTAL LEGS.

STEP 4:
REMOVE RELEASE LINER
FROM PRETAPE D AND
ADHERE SECOND SHEET
TO FIRST SHEET

STEP 5:
APPLY BEAD OF E.STOP GU TO INSIDE
CORNER OF DETAIL

STEP 6:
APPLY PRETAPE AT THE SEAM BETWEEN
THE TWO SHEETS



G:\My Drive\Epro Master Folder\Drafting\Details\Shoring\Pretak\51.381.4 CORNER - TOPSIDE - INSIDE - FIELD FORMED.dwg [Detail] April 12, 2021 - 9:31am

CORNER - TOPSIDE - INSIDE - FIELD FORMED



SYSTEM NAME

PRETAK

DRAFTER

RJT

DRAWING NUMBER

51.381.4

DATE

3/25/2021

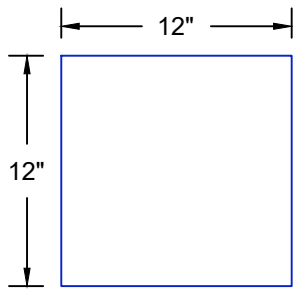
PRETAK

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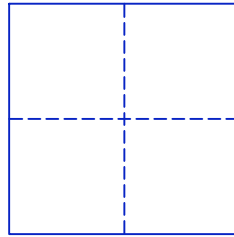
NTS

PAGE 1 OF 1

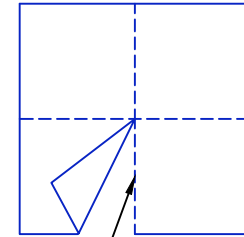
STEP 1:
CUT A 12"X12"
PRETAK SQUARE



STEP 2:
FOLD THE SQUARE IN
HALF IN BOTH
DIRECTIONS TO FIND
THE CENTER OF THE
PRETAK SQUARE

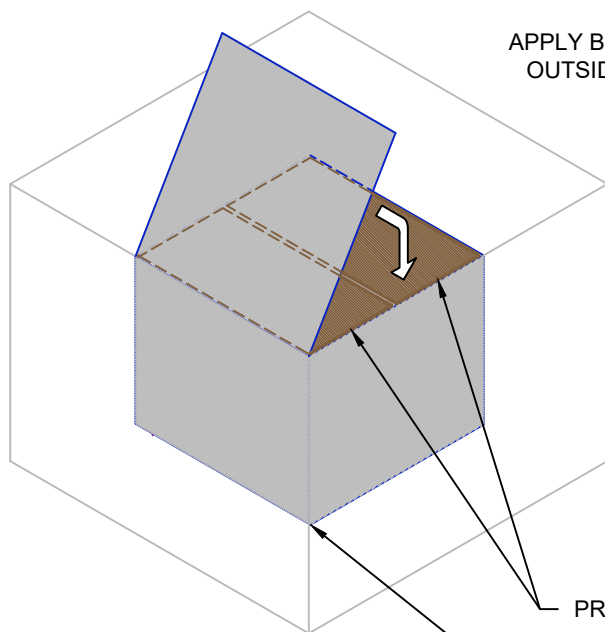


STEP 3:
CUT ONE FOLD LINE TO
THE CENTER OF THE
PRETAK SQUARE



CUT

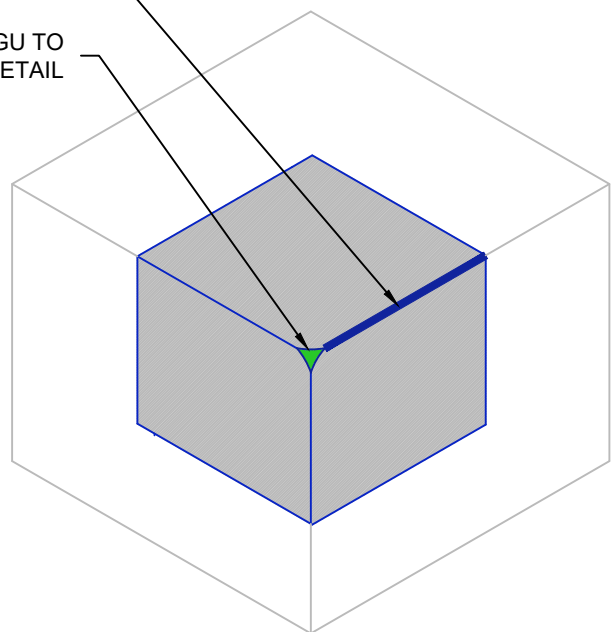
STEP 4:



STEP 5:

PM SEALANT APPLIED TO CUT
EDGE AND TERMINATIONS OF
PRETAK MEMBRANE

APPLY BEAD OF E.STOP GU TO
OUTSIDE CORNER OF DETAIL



PRETAPE D

PIECE OF PRETAK MEMBRANE CUT
AND FIT TO CORNER

G:\My Drive\Epro Master Folder\Drafting\Details\Shoring\Pretak\51.381.5 CORNER - TOPSIDE - OUTSIDE - FIELD FORMED.dwg [Detail] April 12, 2021 - 9:41am

CORNER - TOPSIDE - OUTSIDE - FIELD FORMED



SYSTEM NAME

PRETAK

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