A Subsidiary of Garland Industries

Submittal Package

TegoBloc Pre-Wrap and Pre-Wrap EX Blindside and Under Slab Fully Adhered Waterproofing Membrane

GMX, Inc.
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SECTION 071326 - SELF-ADHERING BLINDSIDE SHEET WATERPROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Blindside sheet waterproofing.
2. Molded-sheet drainage panels.
3. Insulation drainage panels.

B. Related Requirements:

1. Section 072100 "Thermal Insulation."
2. Section 079513.16 "Exterior Expansion Joint Cover Assemblies" for exterior-wall expansion-joint assemblies that interface with waterproofing.
3. Section 079513.19 "Parking Deck Expansion Joint Cover Assemblies" for deck expansion-joint assemblies that interface with waterproofing.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at [**Project site**] <**Insert location**>.

1. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.
2. Review transitions within waterproofing system and between waterproofing and adjacent air barrier.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.
2. Include manufacturer's written installation instructions for evaluating, preparing, and treating substrate.

B. Shop Drawings: Show locations and extent of waterproofing and details of substrate joints and cracks, expansion joints, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, air barrier, and other termination conditions.

1. Include setting drawings that indicate layout, sizes, sections, profiles, and joint details of pedestal-supported concrete pavers.

C. Samples: For each product, including the following materials:

1. 3-by-3-inch square of waterproofing and flashing sheet.
2. 3-by-3-inch square of drainage panel.

1.4 INFORMATIONAL SUBMITTALS

A. Research Reports: For modified bituminous sheet waterproofing/termite barrier, showing compliance with ICC-ES AC380.

B. Field quality-control reports.

C. Qualification Statements: For Installer.

D. Sample warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by the waterproofing manufacturer.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended in writing by waterproofing manufacturer. Do not apply waterproofing to frozen, damp, or wet substrates.

1. Do not apply waterproofing when snow, rain, fog, or mist is present.

B. Maintain adequate ventilation during preparation and application of waterproofing materials.

1.7 COORDINATION

A. Coordinate Work under this Section with adjacent concrete foundation work.

B. Coordinate requirements for concrete formwork to provide suitable substrate for waterproofing and to minimize penetrations through waterproofing.

C. Coordinate formwork and form bracing requirements for blindside sheet waterproofing. Coordinate restrictions on use of form ties and other components as necessary to eliminate or minimize penetrations through blindside sheet waterproofing.

1.8 WARRANTY

A. Manufacturer's Warranty:

1. Waterproofing Warranty: Manufacturer agrees to furnish replacement waterproofing material for waterproofing that does not comply with requirements or that fails to remain watertight within specified warranty period.

a. Warranty Period: [**Three**] [**Five**] <**Insert number**> years from date of Substantial Completion.

B. Installer's Special Warranty: Specified form, [**on warranty form at end of this Section,] signed** by Installer, covering Work of this Section, for warranty period of [**two**] <**Insert number**> years.

1. Warranty includes removing and reinstalling protection board, drainage panels, insulation, [**and**] [**plaza-deck pavers**] [**, including paver pedestal assembly**].

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

2.2 BLINDSIDE SHEET WATERPROOFING

A. Blindside Sheet Waterproofing for Vertical Applications: Uniform, flexible, multilayered-composite sheet membrane that forms a permanent bond with fresh concrete placed against it; complete with accessories and preformed shapes for an unbroken waterproofing assembly; with the physical properties as specified below:

1. Manufacturer: Subject to compliance with requirements, provide products the following:

a. GMX, Inc. TegoBloc Pre-Wrap

2. Physical Properties:

a. Membrane thickness 90 mils. ASTM D1970

b. Film thickness 3.5 mils. ASTM D1970

c. Low-Temperature Flexibility: Pass at minus 20 deg F (minus 29 deg C); ASTM D1970/D1970M.
d. Peel Adhesion to Concrete: 5 lbf/in. (875 N/m) minimum; ASTM D903, modified.
e. Lap Adhesion: 5 lbf/in. (875 N/m) minimum; ASTM D1876, modified.
f. Hydrostatic-Head Resistance: 230 ft. (70 m); ASTM D5385/D5385M, modified.
g. Puncture Resistance: 100 lbf (445 N) minimum; ASTM E154/E154M.
h. Water Vapor Permeance: 0.1 perm (6 ng/Pa x s x sq. m) maximum; ASTM E96/E96M, Water Method.
i. Ultimate Elongation: 335 percent minimum; ASTM D412, modified.

B. Blindside Sheet Waterproofing for Horizontal Applications: Uniform, flexible, multilayered-composite sheet membrane that forms a permanent bond with fresh concrete placed against it; complete with accessories and preformed shapes for an unbroken waterproofing assembly; with the physical properties as specified below:

1. Manufacturer: Subject to compliance with requirements, provide products of the following:

a. GMX, Inc. TegoBloc Pre-Wrap EX

2. Physical Properties:

a. Membrane Thickness 90 Mils ASTM D1970

b. Film thickness 8.5 mils. ASTM D1970

c. Low-Temperature Flexibility: Pass at minus 20 deg F (minus 29 deg C); ASTM D1970/D1970M.
d. Peel Adhesion to Concrete: 5 lbf/in. (875 N/m) minimum; ASTM D903M.
e. Lap Adhesion: 5 lbf/in. (875 N/m) minimum; ASTM D1876M.
f. Hydrostatic-Head Resistance: 230 ft. (70 m); ASTM D5385/D5385M.
g. Puncture Resistance: 200 lbf (890 N) minimum; ASTM E154/E154M.
h. Water Vapor Permeance: 0.1 perm (6 ng/Pa x s x sq. m) maximum; ASTM E96/E96M, Water Method.
i. Ultimate Elongation: 335 percent minimum; ASTM D412M.

C. Mastic, Adhesives, and Detail Tape: Liquid mastic and adhesives, and adhesive tapes recommended by waterproofing manufacturer.

2.3 ACCESSORIES FOR WATERPROOFING

A. Furnish accessory materials as recommended in writing by waterproofing manufacturer for intended use and compatibility with sheet waterproofing.

1. Furnish liquid-type accessory materials that comply with VOC limits of authorities having jurisdiction.

B. Metal Termination Bars: Aluminum or stainless-steel bars, approximately 1 by 1/8-inch (25 by 3 mm), predrilled at 9-inch (229-mm) centers.

2.4 MOLDED-SHEET DRAINAGE PANELS

A. Molded-Sheet Drainage Panel with or without Polymeric Film, Woven or Nonwoven-Geotextile Faced: Composite subsurface drainage panel acceptable to waterproofing manufacturer and consisting of a studded, nonbiodegradable, molded-plastic-sheet drainage core; with a nonwoven, needle-punched geotextile facing with an apparent opening size not exceeding No. 70 (0.21 mm) sieve laminated to one side of the core and a polymeric film bonded to the other side; and with a vertical flow rate through the core of [**9 to 21 gpm per ft. (112 to 261 L/min. per m)**] <**Insert values**>.

1. Manufacturer: Subject to compliance with requirements, provide products by the following:

a. GMX, Inc. DrainMax

2.5 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of waterproofing.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

2.6 PREPARATION

A. Clean, prepare, and treat substrates in accordance with manufacturer's written installation instructions. Provide clean, dust-free, and dry substrates for waterproofing applications.

2.7 INSTALLATION OF BLINDSIDE SHEET WATERPROOFING

A. Install blindside sheet waterproofing in accordance with manufacturer's written installation instructions.

B. Place and secure molded-sheet drainage panels over substrate. Lap edges and ends of geotextile to maintain continuity.

1. Ensure transition with other waterproofing membrane.

C. Horizontal Applications: Install sheet with face against substrate. Accurately align sheets and maintain uniform side and end laps of minimum dimensions required by membrane manufacturer. Overlap and seal seams, and stagger and tape end laps to ensure watertight installation.

D. Corners: Seal lapped terminations and cut edges of sheet waterproofing at inside and outside corners with manufacturer’s required detail.

E. Seal penetrations through sheet waterproofing to provide watertight seal with detail patches or wraps and a liquid-membrane troweling.

F. Install sheet waterproofing and accessory materials to produce a continuous watertight tie into adjacent waterproofing.

G. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Tape perimeter of damaged or nonconforming area extending 6 inches (150 mm) beyond repaired areas in all directions. Apply a patch of sheet waterproofing and firmly secure with detail tape.

2.8 INSTALLATION OF MOLDED-SHEET DRAINAGE PANELS

A. Place and secure molded-sheet drainage panels, with geotextile facing away from wall or deck substrate, in accordance with manufacturer's written installation instructions. Use adhesive or another method that does not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.

2.9 INSTALLATION OF INSULATION DRAINAGE PANELS

A. Install insulation drainage panels over waterproof surfaces. Cut and fit to within 3/4 inch (19 mm) of projections and penetrations.

B. Ensure that drainage channels are aligned vertically and free of obstructions.

C. On vertical surfaces, set insulation drainage panels in adhesive or tape applied in accordance with manufacturer's written installation instructions.

D. On horizontal surfaces, loosely lay insulation drainage panels in accordance with manufacturer's written installation instructions. Stagger end joints and tightly abut insulation units.

2.10 FIELD QUALITY CONTROL

A. Testing Agency: [**Owner will engage**] [**Engage**] a qualified testing agency to perform tests and inspections.

B. Waterproofing will be considered defective if it does not pass tests and inspections.

2.11 PROTECTION, REPAIR, AND CLEANING

A. Do not permit foot or vehicular traffic on unprotected membrane.

B. Protect waterproofing from damage and wear during remainder of construction period.

C. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.

D. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

END OF SECTION 071326

TEGOBLOC™ Pre-Wrap

7 SHEET APPLIED |Self-Adhering Blindside Sheet Waterproofing

PRODUCT DESCRIPTION

TegoBloc™ Pre-Wrap is a prefabricated, self-adhering blindside waterproofing sheet. It is composed of a durable, multi-layer polymer film which is coated with a proprietary rubberized asphalt adhesive, a non-woven geotextile surface and a high-density film.

TegoBloc™ Pre-Wrap is specifically engineered for vertical blindside below grade waterproofing applications where foot or vehicular traffic will not occur. It adheres aggressively when concrete is poured onto the membrane and cures. Typical applications include waterproofing zero property line foundation walls and elevator pits.

Additional Product Benefits Include:

- Factory formulation which ensures uniform film thicknesses and depend- able waterproofing protection.
- A rubberized adhesive layer with self-sealing capability to accommodate the use of fasteners, staples and screws.
- A rubberized adhesive layer with excellent elongation capability and tensile strength to accommodate the expansion and contraction of the substrate.
- Superior adhesion to poured concrete.
- It is compatible with a wide range of insulation, drainage and protection products.

Storage and Handling Considerations:

Store materials in a dry area and protect from direct sunlight. Ideally, the materials should be stored inside in a temperature-controlled environment (interior temperatures between 60–80°F). Any materials exposed to the elements should be elevated above the ground and covered by a tarpaulin. Materials should not be exposed to excessive heat or direct flame.

TegoBloc™ Pre-Wrap should not be applied during inclement weather and the installation should not proceed if precipitation is probable during the application. Consult your local GMX representative or the GMX Technical Department for application recommendations when application temperatures are less than 25°F. Store waterproofing materials at room temperature until immediately prior to use when the ambient temperature is less than 40°F.

INSTALLATION

The surface over which the membrane is to be applied should be reasonably smooth and free of sharp projections. The surface must be structurally sound.

Protection, drainage or insulation board must be installed prior to TegoBloc™ Pre-Wrap.

Refer to Published details for specific instructions.

TEGOBLOC™ Pre-Wrap

7 SHEET APPLIED |Self-Adhering Blindside Sheet Waterproofing

AVAILABILITY AND COST

GMX materials are produced in and shipped from our plant in Monroe, NC. For the name and number of the nearest GMX representative, call us at 866-228-7743. Our representatives can provide pricing and put you in contact with our nearest stocking distributor.

WARRANTY

GMX warrants its material, and its systems provided our materials are applied in accordance with the published installation guidelines in effect at the time of application. For specific warranty terms and conditions, contact your local GMX representative.

TECHNICAL SERVICES

Your local GMX representative is available to assist you in selecting the appropriate product and to provide on-site application assistance. For further information, please contact our Technical Service Dept. at 866-228-7743.

TECHNICAL SERVICES | PRODUCT SPECIFICATIONS
Type: TegoBloc™ Pre-Wrap

Property	Test Method	Result
Material Thickness	ASTM D 1970	90 Mils Nom.
Film Thickness	ASTM D1970	3.5 mils.
Water Vapor Permeance	ASTM E 96/E96M Water Method	0.1 perm
Ultimate Elongation	ASTM D 412M	335% minimum
Lap Adhesion	ASTM D 1876M	5 lbf/in. (875 N/n)
Peel Adhesion to Concrete	ASTM D 903M	5 lbf/in. (875 N/n)
Water Absorption	ASTM D 570	Unaffected
Water Vapor Transmission	ASTM E 96	Pass
Puncture Resistance	ASTM E154/E154M	>100 lbf. (445 N)
Resistance to Decay	ASTM C 1306	Pass
Hydrostatic Head Pressure	ASTM D 5385/D5385M	>230 ft. (70m)
Low Temp Flexibility @ -20 deg F	ASTM D 1970/1970M	Pass
Crack Cycling	ASTM C 838/836M	Unaffected
Tensile Strength Film	ASTM D882	7000 p.s.i.

May help to contribute to LEED® credits:

EA Credit 1:	Optimize Energy Performance
EQ Credit 3.1:	Construction IAQ Management Plan: During Construction
EQ Credit 4.2:	Low Emitting Materials: Paints and Coatings
MR Credit 5.1:	Regional Materials: 10% Extracted, Processed and Manufactured Regionally
MR Credit 5.2:	Regional Materials: 20% Extracted, Processed and Manufactured Regionally

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TEGOBLOC™ Pre-Wrap EX

7 SHEET APPLIED |Self-Adhering Blindside Sheet Waterproofing

PRODUCT DESCRIPTION

TegoBloc™ Pre-Wrap EX is a prefabricated, self-adhering blindside waterproofing sheet. It is composed of a durable, multi-layer polymer film which is coated with a proprietary rubberized asphalt adhesive, a non-woven geotextile surface and a high-density film.

TegoBloc™ Pre-Wrap EX is specifically engineered for vertical and horizontal blindside below grade waterproofing applications where high puncture resistance is required. It adheres aggressively when concrete is poured onto the membrane and cures. Typical applications include waterproofing zero property line foundation walls and underslab floors.

Additional Product Benefits Include:

- Factory formulation which ensures uniform film thicknesses and depend- able waterproofing protection.
- A rubberized adhesive layer with self-sealing capability to accommodate the use of fasteners, staples and screws.
- A rubberized adhesive layer with excellent elongation capability and tensile strength to accommodate the expansion and contraction of the substrate.
- Superior adhesion to poured concrete.
- It is compatible with a wide range of insulation, drainage and protection products.

Storage and Handling Considerations:

Store materials in a dry area and protect from direct sunlight. Ideally, the materials should be stored inside in a temperature-controlled environment (interior temperatures between 60–80°F). Any materials exposed to the elements should be elevated above the ground and covered by a tarpaulin. Materials should not be exposed to excessive heat or direct flame.

TegoBloc™ Pre-Wrap EX should not be applied during inclement weather and the installation should not proceed if precipitation is probable during the application. Consult your local GMX representative or the GMX Technical Department for application recommendations when application temperatures are less than 25°F. Store waterproofing materials at room temperature until immediately prior to use when the ambient temperature is less than 40°F.

INSTALLATION

The surface over which the membrane is to be applied should be reasonably smooth and free of sharp projections. The surface must be structurally sound.

Protection, drainage or insulation board must be installed prior to TegoBloc™ Pre-Wrap EX.

Refer to Published details for specific instructions.

TEGOBLOC™ Pre-Wrap EX

7 SHEET APPLIED |Self-Adhering Blindside Sheet Waterproofing

AVAILABILITY AND COST

GMX materials are produced in and shipped from our plant in Monroe, NC. For the name and number of the nearest GMX representative, call us at 866-228-7743. Our representatives can provide pricing and put you in contact with our nearest stocking distributor.

WARRANTY

GMX warrants its material, and its systems provided our materials are applied in accordance with the published installation guidelines in effect at the time of application. For specific warranty terms and conditions, contact your local GMX representative.

TECHNICAL SERVICES

Your local GMX representative is available to assist you in selecting the appropriate product and to provide on-site application assistance. For further information, please contact our Technical Service Dept. at 866-228-7743.

TECHNICAL SERVICES | PRODUCT SPECIFICATIONS
Type: TegoBloc™ Pre-Wrap EX

Property	Test Method	Result
Material Thickness	ASTM D 1970	90 Mils Nom.
Film Thickness	ASTM D1970	8.5 mils.
Water Vapor Permeance	ASTM E 96/E96M Water Method	0.1 perm
Ultimate Elongation	ASTM D 412M	335% minimum
Lap Adhesion	ASTM D 1876M	5 lbf/in. (875 N/n)
Peel Adhesion to Concrete	ASTM D 903M	5 lbf/in. (875 N/n)
Water Absorption	ASTM D 570	Unaffected
Water Vapor Transmission	ASTM E 96	Pass
Puncture Resistance	ASTM E154/E154M	>200 lbf. (890 N)
Resistance to Decay	ASTM C 1306	Pass
Hydrostatic Head Pressure	ASTM D 5385/D5385M	>230 ft. (70m)
Low Temp Flexibility @ -20 deg F	ASTM D 1970/1970M	Pass
Crack Cycling	ASTM C 838/836M	Unaffected
Tensile Strength Film	ASTM D882	7000 p.s.i.

May help to contribute to LEED® credits:

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TEGOBLOC™ DETAIL FABRIC

7 SHEET APPLIED | Membrane Waterproofing

GMX
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COMMERCIAL

DESCRIPTION

TegoBloc™ Detail Fabric is a proprietary needle-punched non-woven geotextile made of 100% polypropylene staple fibers, which are random network for dimensional stability. TegoBloc™ Detail Fabric resists ultraviolet deterioration, rotting, biological degradation, naturally occurring bases and acids. Polypropylene is stable within a pH range of 2 – 13.

TegoBloc™ Detail Fabric is used in conjunction with Ultra-Guard® EFS sealant to detail end laps and penetrations for TegoBloc™ Pre-Wrap and TegoBloc™ Pre-Wrap EX.

TECHNICAL SERVICES | PRODUCT SPECIFICATIONS
Type: TegoBloc™ Detail Fabric

Property	Test Method	Result
Weight (Typical)	ASTM D 5261	8.8 oz/yd^2
Grab Tensile	ASTM D 4632	225 lbs
Thickness	ASTM D 5199	95 mils
Grab Elongation	ASTM D 4632	50%
Trapezoid Tear Strength	ASTM D 4533	90 lbs
CBR Puncture Resistance	ASTM D 6241	600 lbs
Permittivity*	ASTM D 4491	1.3 sec^{-1}
AOS*	ASTM D 4751	80 US Sieve
UV Resistance	ASTM D 4355	70% / 500 hrs
Roll Length		100’
Roll Width		12”

* At the time of manufacturing.

GMX

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Results may differ based upon statistical variations depending upon mixing methods and equipment, temperatures, application methods, test methods, actual site conditions and curing conditions. Installation conditions and methods can impact product performance.
Consult your local GMX Sales Representative for Questions.

TEGOBLOC Pre-Wrap®

Application Guide

This Installation Guide serves as a supplement to our TEGOBLOC PRE-WRAP OR PRE-WRAP EX technical data sheets, focusing on the proper application of the waterproofing/vapor proofing membrane in scenarios where it interfaces with a soil retention system in a blindside installation. The following set of installation instructions, recommended by GMX, INC., outlines the standard procedures. However, it is imperative to assess each application individually, as project-specific needs may necessitate modifications to this protocol. In such cases, please reach out to GMX, INC. technical service for tailored guidance.

Products Required:

1. **TEGOBLOC PRE-WRAP or PRE-WRAP EX Waterproofing/Vapor Proofing Membrane:**
   - Composite sheet membrane consisting of a non-woven fabric, elastomeric membrane, and high-strength base sheet.
2. **ULTRA-GUARD EFS:**
   - Single-component moisture-cure waterproofing compound used for detailing TEGOBLOC PRE-WRAP or PRE-WRAP EX at end laps, penetrations, and repair areas.
3. **TEGOBLOC DETAIL FABRIC:**
   - Polypropylene, staple fiber, needle-punched, non-woven geotextile fabric used for end laps and penetration details.
4. **GMX WATERSTOP:**
   - Waterstop containing bentonite.
5. **DRAINMAX:**
   - Dimple-raised, molded polystyrene sheet bonded to high-strength polypropylene fabric.
6. **TOTALDRAIN:**
   - Prefabricated strip drain consisting of molded polystyrene sheet bonded to high-strength polypropylene fabric.
7. **TERMINATION BAR:**
   - High-strength metal or plastic strip designed to support TEGOBLOC PRE-WRAP or PRE-WRAP EX and DrainMax at the top of the wall termination point.
8. **FASTENERS:**
   - Flat-headed stainless-steel fasteners with washers. Must be appropriate for the substrate.

Limitations

1. **Concrete Pour Timing:**
   - Concrete should be poured within 60 days of membrane installation.
2. **Application Temperature:**
   - TEGOBLOC PRE-WRAP or PRE-WRAP EX may be applied in temperatures down to 25°F (-4°C).
3. **Pre-Pour Surface Condition:**
   - Prior to the concrete pour, any ponded water, dirt, or debris that has accumulated on TEGOBLOC PRE-WRAP or PRE-WRAP EX must be removed as this could affect the bond of the membrane to the concrete.
4. **Water Accumulation During Installation:**
   - In situations where there is water accumulation behind the membrane during installation, the presence of this water may inhibit proper bond formation at the edge and end laps due to the stress resulting from the constant hydrostatic pressure exerted by this water.
5. **High Temperature Installations:**

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- Care needs to be taken in high temperature installation situations, as softening of the elastomeric membrane could occur, causing sagging.

Storage

1. **General Storage Conditions:**
   - Store materials in a clean, dry area in accordance with the manufacturer's instructions.
2. **Membrane Storage:**
   - Store membrane cartons on pallets and cover if left outside. Keep materials away from sparks and flames.
3. **Adhesive Storage:**
   - Store adhesive at temperatures of 40°F (4.4°C) and above to facilitate handling.
   - Do not store adhesive at temperatures above 90°F (32°C) for extended periods.

Substrate Preparation:

Blindside applications present several challenges, including the condition of the substrate upon which the membrane is installed. Various soil retention systems are designed to retain the earth, each presenting unique installation and preparation challenges prior to the installation of the TEGOBLOC PRE-WRAP or PRE-WRAP EX waterproofing system. Common shoring wall construction techniques include H-piles and timber lagging, corrugated sheet piles, rock, auger cast caissons, and even cement-stabilized soil.

For the membrane to perform properly, it is essential to address the surface to ensure that the membrane is not damaged and will adhere fully to the concrete once poured in place. Overlooking this can result in water intrusion into the structure.

Regardless of the type of soil retention system, all preparation work should provide a monolithic substrate surface upon which the waterproofing can be installed without damage during installation and concrete placement.

GMX, INC. recommends using TotalDrain for all installations of TEGOBLOC PRE-WRAP or PRE-WRAP EX. However, certain site conditions and project requirements may make this difficult. The decision to omit the TotalDrain should be made by the engineer. When TotalDrain is not used, surface preparation becomes even more critical.

Due to the wide variety of these substrates and their conditions, it is recommended to contact your local GMX, INC. technical representative for any questions prior to the installation of TEGOBLOC PRE-WRAP or PRE-WRAP EX. The following are standard guidelines for surface preparation:

1. **Ensure a Clean Surface:**
   - Remove any debris, loose material, or contaminants from the substrate surface.
2. **Repair Surface Imperfections:**
   - Fill in any voids, gaps, or irregularities to create a smooth and uniform surface.
3. **Verify Stability:**
   - Ensure that the substrate is stable and will not shift or settle, which could damage the membrane.
4. **Surface Moisture:**
   - Address any issues with surface moisture to ensure proper adhesion of the membrane.
5. **Technical Consultation:**
   - Contact a GMX, INC. technical representative for guidance specific to your substrate conditions.

Substrate Preparation: Wood Lagging with Steel Piles

1. **Nail Management:**
   - Ensure all lagging board nails are pounded

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flush or removed.

2. **Surface Cleaning:**
   - Remove all sharp protrusions, mud, debris, ice, or any other materials that will affect the membrane's performance.

3. **Irregularities and Voids:**
   - Fill or cover any irregularities and voids between lagging boards exceeding 1 inch (25 mm) using appropriate materials such as spray foam, concrete grout, patching mortar, rigid insulation, or treated plywood to provide a sound substrate.

Caissons:

1. **Smooth Augured Caissons:**
   - TEGOBLOC PRE-WRAP or PRE-WRAP EX can be installed directly onto smooth caissons.
   - Remove any sharp protrusions.
   - Fill the depressed areas between each pile with concrete grout before installing TEGOBLOC PRE-WRAP or PRE-WRAP EX.

2. **Rough and Irregular Augured Caissons:**
   - Install a minimum ¾ inch (19.1 mm) pressure-treated plywood.
   - Fill the void behind the plywood in the depressed areas with sand, aggregate, or grout to provide a solid substrate.
   - Plywood selection and installation shall be determined by the project engineer.

Sheet Piling:

1. **Direct Contact with Steel Piling:**
   - Remove all sharp protrusions where TEGOBLOC PRE-WRAP or PRE-WRAP EX is to be in direct contact with the steel piling.

2. **Spanning Sheet Piling:**
   - Install a minimum ¾ inch (19.1 mm) pressure-treated plywood where TEGOBLOC PRE-WRAP or PRE-WRAP EX is to span the sheet piling.
   - Fill the void behind the plywood in the depressed areas with sand, aggregate, or grout to provide a solid substrate.
   - Plywood selection and installation shall be determined by the project engineer.

Shotcrete:

1. **Surface Cleaning:**
   - Remove all sharp protrusions, mud, debris, ice, or any other materials that could affect the membrane's performance.

2. **Void and Irregularity Management:**
   - Fill or cover any voids or irregularities exceeding 1 inch (25 mm) using concrete grout or patching mortar.

Slurry Wall:

1. **Surface Cleaning:**
   - Remove all sharp protrusions, mud, debris, ice, or any other materials that could affect the membrane's performance.

2. **Void and Irregularity Management:**
   - Fill or cover any voids or irregularities exceeding 1 inch (25 mm) using concrete grout or patching mortar**.**

General Note for All Substrates:

If using DrainMax drainage board prior to TEGOBLOC PRE-WRAP or PRE-WRAP EX installation, a void of up to 2 inches (50 mm) is acceptable.

Detailing Penetrations:

1. **Surface Preparation:**
   - Ensure all penetration and protrusion surfaces are clean, rust-free, and sound.

2. **Small Penetrations:**

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- Fully cover nails and fasteners with Ultra-Guard EFS.

3. **Larger Penetrations:**
   - Apply ULTRA-GUARD EFS onto the fabric face of pre-installed TEGOBLOC PRE-WRAP or PRE-WRAP EX and around the penetration, extending a minimum of 2 ½" (64 mm) in all directions.
   - Form a fillet or cant around the base of the penetration to aid in the transition. The application thickness of ULTRA-GUARD EFS should be 60 mils.
   - Embed TEGOBLOC DETAIL FABRIC into the ULTRA-GUARD EFS and press it into place, ensuring the fabric is fully wetted out with ULTRA-GUARD EFS.

Tiebacks/Soil Nails:

1. **Waterproofing Membrane Installation**:
   - Install the TEGOBLOC PRE-WRAP or PRE-WRAP EX waterproofing membrane as close to the tieback as possible.
2. **Application of ULTRA-GUARD EFS**:
   - Apply ULTRA-GUARD EFS onto the fabric face of the pre-installed TEGOBLOC PRE-WRAP or PRE-WRAP EX, extending a minimum of 2 ½" (64 mm) in all directions.
   - Form a fillet or cant around the base to aid in the transition.
3. **Coating the Tieback**:
   - Fully coat the tieback with ULTRA-GUARD EFS, ensuring an application thickness of 60 mils.
4. **Embedding the Fabric**:
   - Embed TEGOBLOC DETAIL FABRIC into the ULTRA-GUARD EFS and press it into place.
   - Ensure the TEGOBLOC DETAIL FABRIC is fully wetted out with Ultra-Guard EFS, fully encasing the tieback.

Construction Joints:

1. **Waterstop Installation:**
   - Install GMX WATERSTOP a minimum of 2" (50 mm) from the face of the wall.
   - Before installation, apply Ultra-Guard EFS to all areas that will receive the GMX WATERSTOP. This will act as an adhesive to hold the waterstop in place along with the fasteners.
2. **Adhesive Exposure:**
   - Remove the release paper to expose the adhesive on the GMX WATERSTOP.
3. **Fastening:**
   - Fasten with nails and washers every 12" (300 mm) on center (O.C.).
   - For subsequent applications, place the ends of the waterstop together to ensure continuity.

Membrane Installation:

1. **Mechanical Fastening:**
   - Mechanically fasten the membrane across the top lagging at 12" (300 mm) on center, ½" (12 mm) from the top, using fasteners and a termination bar approved by the manufacturer.
2. **Orientation:**
   - Ensure the fabric side of the membrane is facing the interior side of the installation. This is the side against which the concrete will be poured.
3. **Application of ULTRA-GUARD EFS:**
   - Apply ULTRA-GUARD EFS over the areas where the fasteners have been attached.
4. **Vertical Fasteners:**
   - If fasteners are required vertically, install

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them at 24" (600 mm) O.C. in the factory edge of the membrane prior to the overlap of the subsequent sheet. These fasteners do not require additional detailing.

5. **Field Fasteners:**
   - Any fasteners installed in the field of the membrane need to be detailed with ULTRA-GUARD EFS, fully encasing the fastener.

Factory Edge:

1. **Remove Release Paper:**
   - Remove the release paper from the 6" (150 mm) factory edge to expose the bituminous membrane.

2. **Overlap and Adhere:**
   - Overlap the edge of the subsequent sheet.
   - Roll and press the overlap into place to ensure good adhesion.

End Lap:

1. **Application of ULTRA-GUARD EFS:**
   - Apply ULTRA-GUARD EFS in a 6" (150 mm) band onto the fabric face of the TEGOBLOC PRE-WRAP OR PRE-WRAP EX area to be overlapped, ensuring an application thickness of approximately 60 mils.

2. **Embedding Fabric:**
   - Apply ULTRA-GUARD EFS in a 12" (300 mm) band centered over the lap edge.
   - While the ULTRA-GUARD EFS is still wet, embed 12" (300 mm) wide TEGOBLOC DETAIL FABRIC into the ULTRA-GUARD EFS.

3. **Overlap the Area:**
   - Overlap this area with the next sheet.

4. **Ensure Proper Centering:**
   - Ensure that TEGOBLOC DETAIL FABRIC is centered over the termination with 6" (150 mm) on each side of the lap edge.
   - Press the TEGOBLOC DETAIL FABRIC into place to ensure that the ULTRA-GUARD EFS has fully wetted out the fabric.

Repairs:

Small Punctures [1/2" (12.7 mm) or less]:

1. **Apply ULTRA-GUARD EFS:**
   - Apply ULTRA-GUARD EFS over the damaged area.

Punctures ½" to 1" (12.7 - 25.4 mm):

1. **Apply ULTRA-GUARD EFS:**
   - Apply ULTRA-GUARD EFS over the damaged area, extending onto TEGOBLOC PRE-WRAP or PRE-WRAP EX.
2. **Embed Fabric:**
   - Embed a piece of TEGOBLOC DETAIL FABRIC into the wet ULTRA-GUARD EFS.

Damaged Areas Greater than 1" (25.4 mm):

1. **Remove Damaged Portion:**
   - Remove the damaged portion of TEGOBLOC PRE-WRAP or PRE-WRAP EX.
2. **Apply ULTRA-GUARD EFS:**
   - Apply ULTRA-GUARD EFS in a 6" (150 mm) band onto the fabric face of the TEGOBLOC PRE-WRAP or PRE-WRAP EX area to be lapped, at approximately 60 mils thickness.
3. **Install New Piece:**
   - Install a piece of TEGOBLOC PRE-WRAP or PRE-WRAP EX extending 6" (150 mm) from the damaged area in all directions and embed it into the wet ULTRA-GUARD EFS. Mechanically fasten to hold in place.
4. **Apply ULTRA-GUARD EFS Over Termination:**
   - Apply ULTRA-GUARD EFS in a 12" (300 mm) band centered over the termination and while still wet, embed 12" (300 mm) wide TEGOBLOC DETAIL FABRIC into the ULTRA-GUARD EFS.
5. **Ensure Proper Centering:**
   - Ensure that TEGOBLOC DETAIL FABRIC is centered over the termination with 6" (150 mm) on each side of the lap edge. Press the

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TEGOBLOC DETAIL FABRIC into place to ensure that the ULTRA-GUARD EFS has fully wetted out the fabric.

Inspection and Protection:

1. **Membrane Inspection:**
   - Inspect the membrane prior to pouring concrete for any punctures or damage and repair as described above.
2. **Protection from Other Trades:**
   - Protect TEGOBLOC PRE-WRAP or PRE-WRAP EX from other trades prior to concrete placement.
3. **Concrete Placement Timeline:**
   - Ensure that concrete is poured within 60 days of TEGOBLOC PRE-WRAP or PRE-WRAP EX installation.

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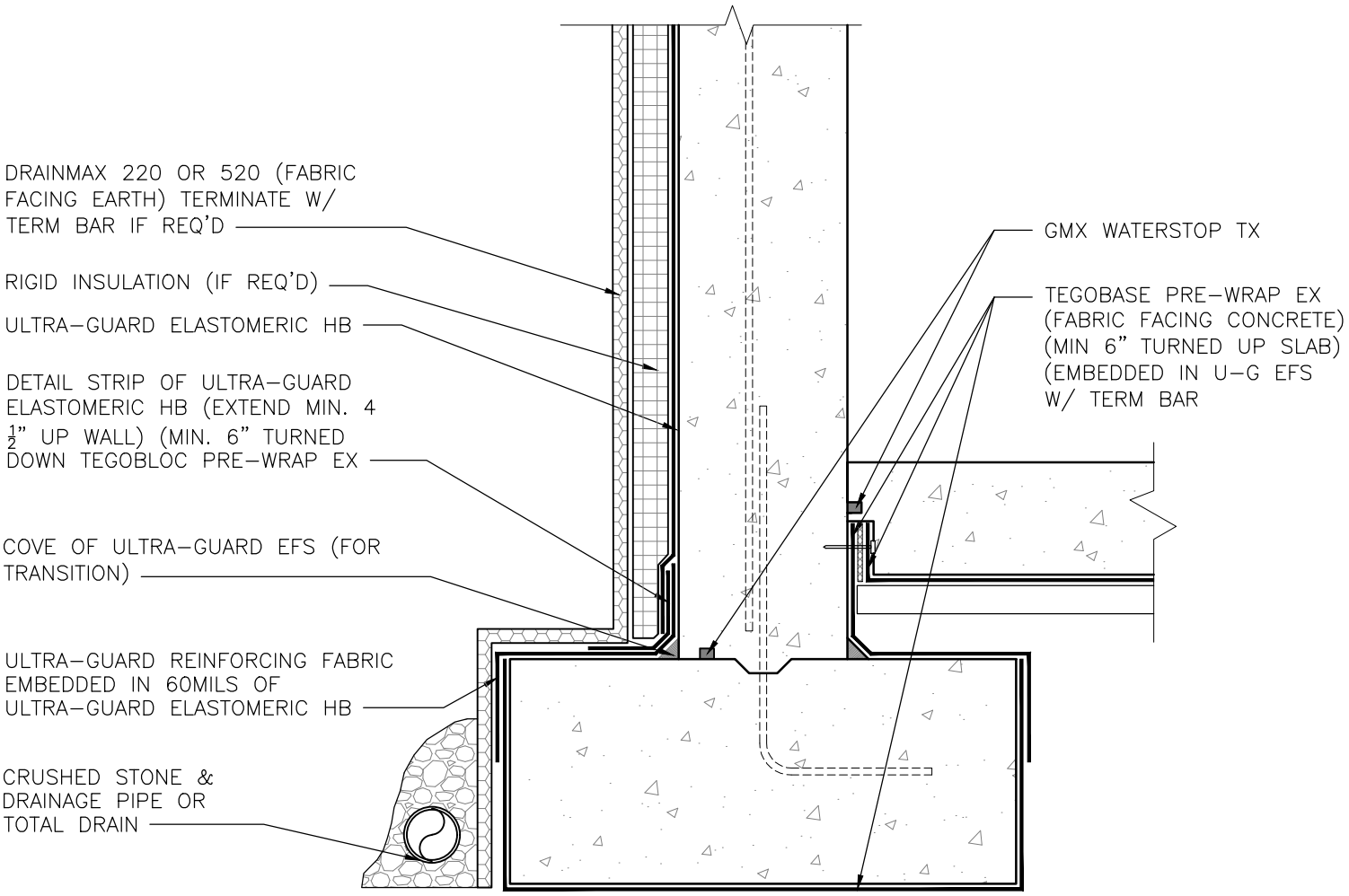


DRAWINGS ON 8½"x11 TITLE BLOCKS ARE NOT TO SCALE.

TEGOBLOC EX TIE-IN TO ULTRA-GUARD ELASTOMERIC HB

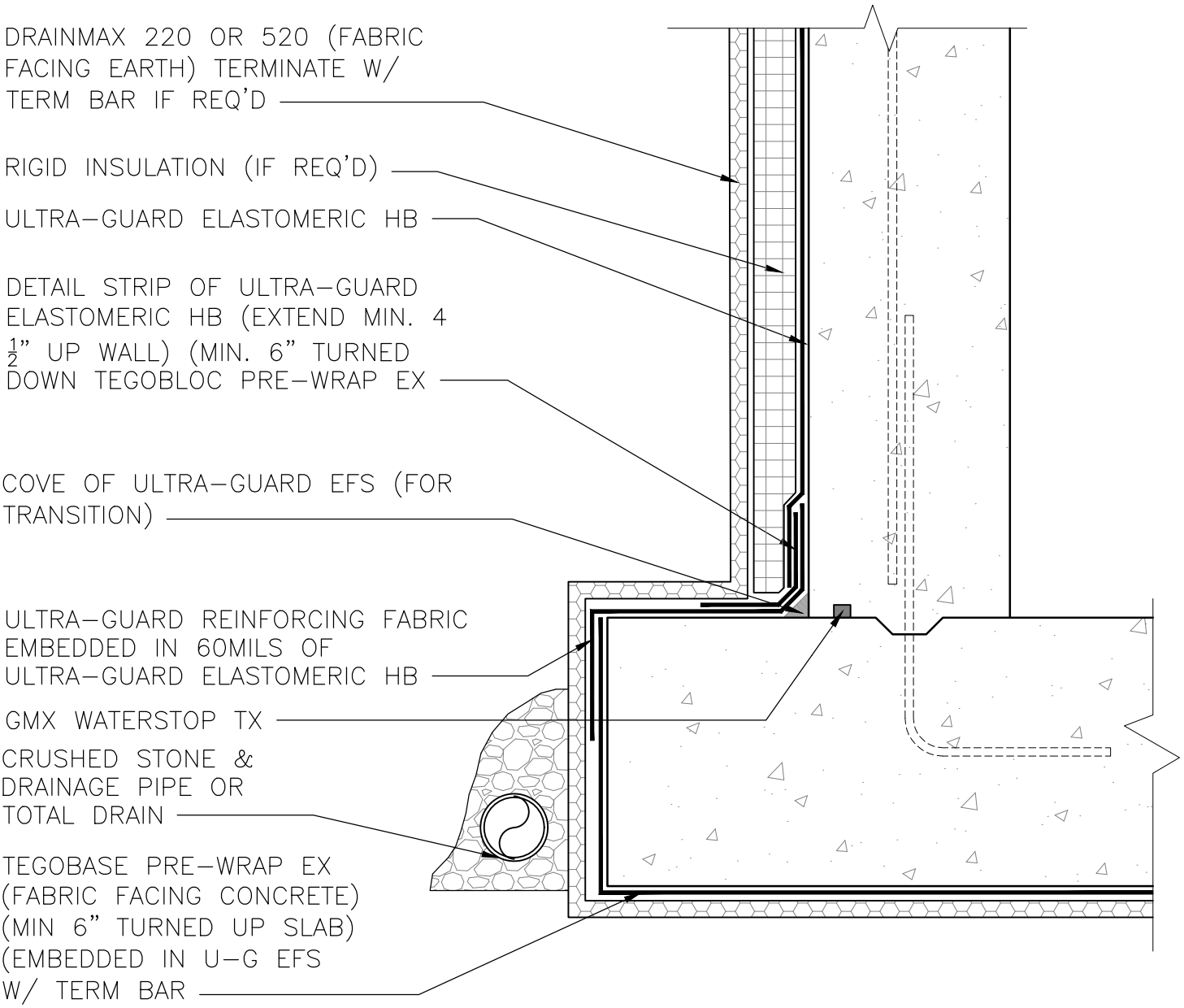
ELEVATED SLAB

GMX

DETAIL ID:

REPRESENTATIVE:

DATE: SHT: OF



DRAWINGS ON 8½"x11 TITLE BLOCKS ARE NOT TO SCALE.

TEGOBLOC EX TIE-IN TO ULTRA-GUARD ELASTOMERIC HB

DETAIL

GMX

DETAIL ID:	
REPRESENTATIVE:	
DATE:	SHT: OF

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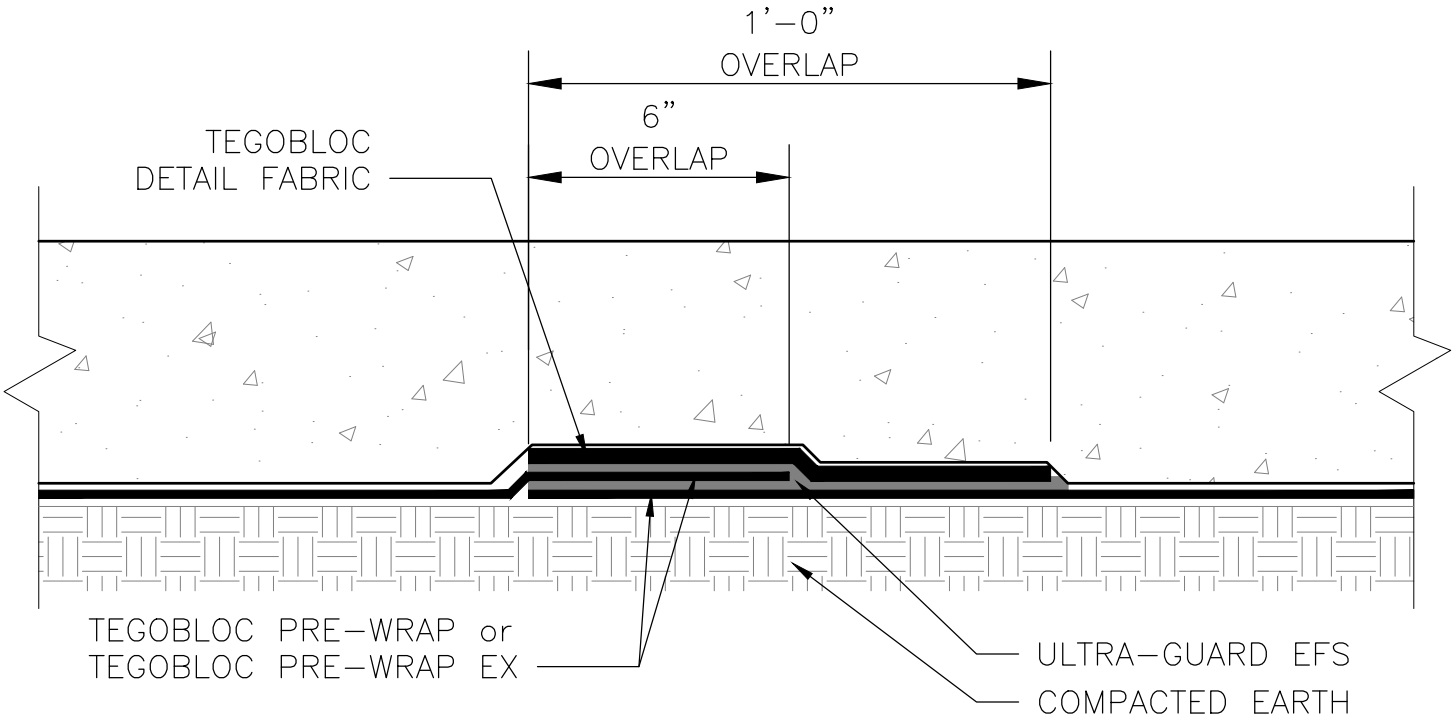

DETAIL

DRAWINGS ON 8½"x11 TITLE BLOCKS ARE NOT TO SCALE.

TEGOBLOC PRE-WRAP

TegoBloc Pre-Wrap End Lap

GMX

DETAIL ID:	
REPRESENTATIVE:	
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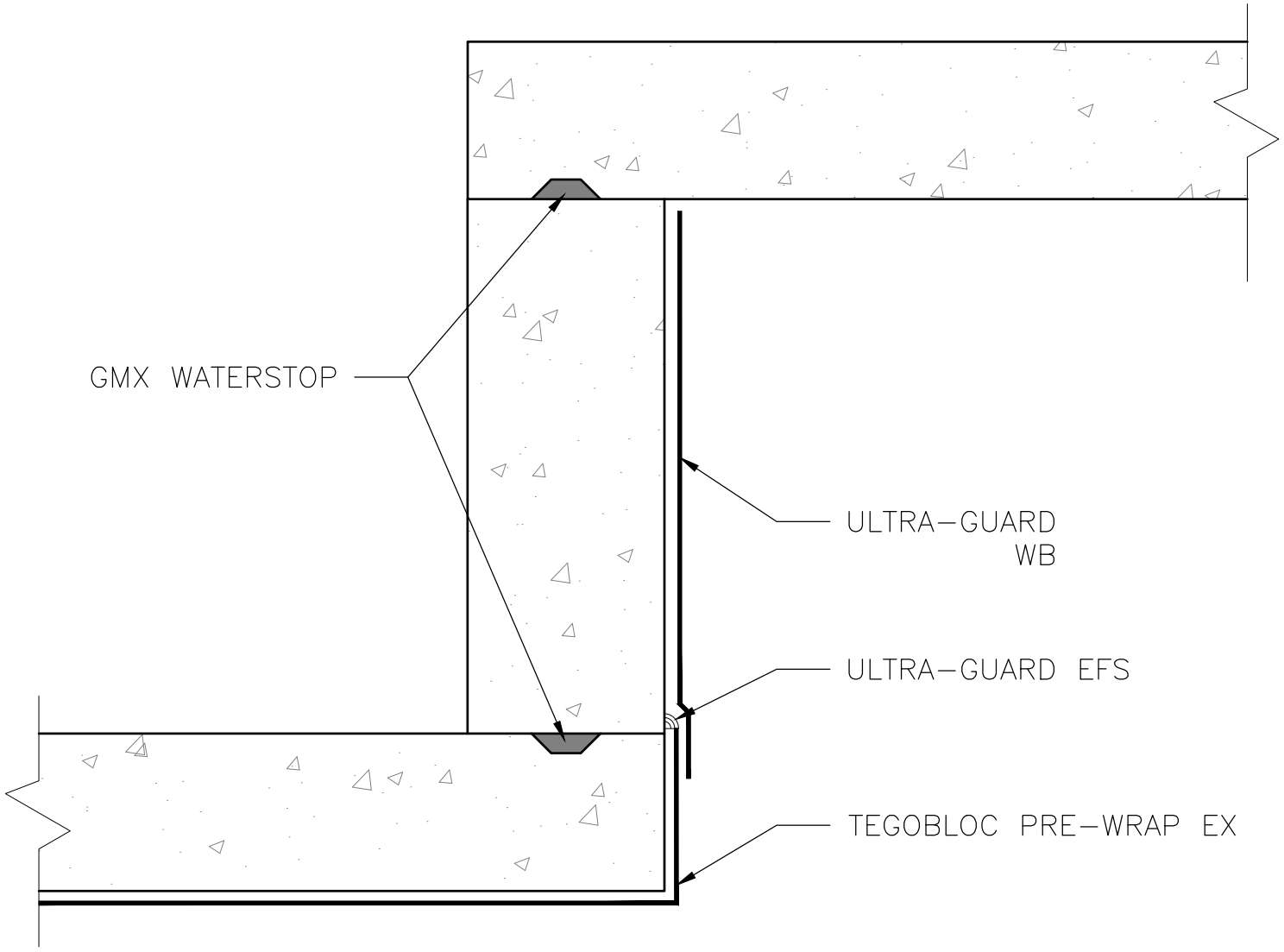

DRAWINGS ON 8½"x11 TITLE BLOCKS ARE NOT TO SCALE.

TEGOBLOC

TEGOBLOC PRE-WRAP EX TIE INTO ULTRA-GUARD WB

GMX

DETAIL ID:

REPRESENTATIVE:

DATE: SHT: OF