# Guide Specification

polyguard

**SECTION 07 13 26**

**SHEET WATERPROOFING MEMBRANE (UNDERSLAB SYSTEM)**

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*This guide specification has been prepared by Polyguard Products Inc., in printed and electronic media, as an aid to specifiers in preparing written construction documents for chemical-resistant underslab sheet waterproofing membrane systems. Polyguard® Underseal® CRM™ is used as a chemical-resistant waterproofing membrane/vapor barrier to eliminate water and vapor transmission through concrete slabs on grade. In addition to protecting floor finishes and indoor air quality, Underseal® CRM™ also acts as a barrier to withstand elevated concentrations of soil, fluid and vapor contaminants typically found in construction sites which may be considered brownfield projects.*

*Edit entire master document to suit project requirements. Modify or add items as necessary. Delete items which are not applicable. Words and sentences may contain a choice to be made regarding inclusion or exclusion of a particular item or statement. This section may include performance-, proprietary-, and/or descriptive-type specifications. Edit to avoid conflicting requirements. Editor notes to guide the specifier are included between lines of asterisks to assist in choices. Remove these editor notes before final printing of specification.*

*This guide specification is written around the Construction Specifications Institute (CSI) Section Format standards.*

*For specification assistance on specific product applications, please contact our offices or any of our local product representatives throughout the country.*

*Polyguard Products Inc. reserves the right to modify these guide specifications at any time. Updates for this guide specification will be posted on the manufacturer's web site and/or in printed media as they occur. Manufacturer makes no expressed or implied warranties regarding content, errors, or omissions in the information presented.*

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PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Application of sheet waterproofing membrane system.

C. Accessory Products

1.02 RELATED SECTIONS

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*Specifier Notes: Edit the list of related sections as required for the project. List other sections dealing with work directly related to this section.*

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A. Section 03 10 00 – Concrete Forming.

B. Section 03 15 00 – Concrete Accessories.

C. Section 03 20 00 – Concrete Reinforcing.

D. Section 03 30 00 - Cast-in-Place Concrete.

E. Section 31 20 00 – Earth Moving.

F. Section 31 62 00 – Driven Piles.

G. Section 31 64 00 – Caissons.

1.03 REFERENCES

A. ASTM C 836 - Standard Specification for High Solids Content, Cold Liquid Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course.

B. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.

C. ASTM D 543 - Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents.

D. ASTM D 570 - Standard Test Method for Water Absorption of Plastics.

E. ASTM D 882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting.

F. ASTM D 903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.

G. ASTM D 1000 - Standard Test Methods for Pressure-Sensitive, Adhesive-Coated Tapes used for Electrical and Electronic Applications.

H. ASTM D 1434 – Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting.

I. ASTM D 1876 - Standard Test Method for Peel Resistance of Adhesives (T Peel Test).

J. ASTM D 1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

K. ASTM D 4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

L. ASTM D 4716 - Test Method for Determining the (In plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.

M. ASTM D 5385 - Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes.

N. ASTM D 6574 - Test Method for Determining the (In Plane) Hydraulic Transmissivity of a Geosynthetic by Radial Flow.

O. ASTM E 96 (Method B) - Standard Test Methods for Water Vapor Transmission of Materials.

P. ASTM E 154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.

Q. ASTM F 739 - Standard Test Method for Permeation of Liquids and Gases through Protective Clothing Materials under Conditions of Continuous Contact.

R. General Services Administration, Public Building Service: GSA-PBS-07115 Guide Specification for Elastomeric Waterproofing.

S. Radon Reduction Technology Laboratory - Resistance to Permeance by Radioactive Radon Gas; Resistance to Diffusion by Radioactive Radon Gas.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer’s product data, installation instructions, use limitations and recommendations. Include certification of data indicating VOC (Volatile Organic Compound) content of all components of waterproofing system.

B. Samples: Submit representative samples of the following for approval:

1. Sheet membrane

2. Fabric Tape and Accessories.

C. Sustainable Design Submittals:

1. Submit invoices and documentation from manufacturer of the amounts of materials and content for products specified.

2. Submit invoices and documentation showing manufacturing locations and origins of materials for products manufactured and sourced within 500 miles of project site.

D. LEED Submittals:

1. LEED Indoor Environmental Quality (IEQ) Credit 5 – Indoor Chemical and Pollutant Source Control: Design to minimize and control the entry of pollutants into buildings and later cross-contamination of regularly occupied areas.

2. LEED Innovation in Design (ID) Credit 1 – The opportunity to achieve exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED Green Building Rating System.

3. LEED Materials & Resources (MR) Credit 2 – Construction Waste Management: Provide documentation of reusable materials by weight and volume diverted back to manufacturing process or to appropriate sites.
4. LEED Materials & Resources (MR) Credit 5 – Regional Materials: Provide documentation for cost of materials or products that have been extracted, harvested, or recovered and also manufactured within 500 miles of project site.

   a. If only a portion of the materials or products is extracted, harvested, or recovered and manufactured locally, then only provide percentage by weight for credit value.

5. LEED Sustainable Site (SS) Credit 3 – Brownfield Development: Provide documentation of materials that contribute to the redevelopment of a contaminated land site that has been defined as a Brownfield by a local, state or federal government agency.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Sheet Membrane Waterproofing Barrier System must be manufactured by a company with a minimum of ten (10) years of experience in the production and sales of membrane waterproofing materials.

B. Applicator Qualifications: A firm having at least three (3) years of experience in applying these types of specified materials and specifically accepted in writing by the membrane system manufacturer.

C. Materials: For each type of material required to complete the work of this section, provide primary materials which are the products of a single manufacturer.

D. Pre- Application Conference: A pre-application conference shall be held to establish procedures and to review conditions, installation procedures and coordination with other related work. All trades that intersect the pre-applied membrane waterproofing need to have representation at the meeting. Meeting agenda shall include review of special details and flashing.

E. Manufacturer’s Representative: Arrange to have trained representative of the manufacturer on site periodically to review installation procedures.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Store materials in a clean, dry area in accordance with manufacturer's instructions.

C. For best results, store membrane and accessories above 50° F (10º C) prior to application to facilitate handling.

D. Store membrane cartons on pallets. Do not stack membrane and accessory material(s) higher than 5' vertically, nor double stack pallets.

E. Keep membrane and accessory material(s) away from sparks and flames.

F. Completely cover membrane when stored outside. Protect from rain, heat above 90°F (32°C) for extended periods, cold below 50°F (10°C) for extended periods, and lack of ventilation.

G. Protect materials during handling and application to prevent damage or contamination.

H. Avoid use of products which contain tars, solvents, pitches, polysulfide polymers, PVC materials, or polyurethanes that may come into contact with the waterproofing membrane system.

1.07 PROJECT CONDITIONS

A. Perform work only when existing and forecasted weather conditions are within the limits established by the membrane manufacturer. Do not install the membrane or accessory products in inclement weather. Install Underseal® CRM™ when temperature is 40°F (5°C) and rising.

B. Proceed with installation only when substrate construction and preparation work is complete and accepted by manufacturer. Manufacturer approved horizontal substrate bases include compacted soil, mud slab, or #57 Stone. Manufacturer approved vertical substrate bases include Soil Retention Systems [timber lagging or cementitious material (i.e. shotcrete)], native soil, removable form work, and adjoining structures. Ensure substrate base is also approved by architect or geotechnical firm.

C. Warn personnel against breathing of vapors and contact with skin and eyes; wear appropriate protective clothing and respiratory equipment.

D. Keep flammable products away from spark or flame. Post "No Smoking" signs. Do not allow use of spark-producing equipment during application and until all vapors have dissipated.

E. Maintain work area in a neat and workmanlike condition. Remove empty cartons and rubbish from the site daily.

1.08 WARRANTY

A. Product will be replaced, at no charge, if proved to be defective within twelve (12) months of purchase, provided it has been applied in accordance with manufacturer written directions for uses recommended as suitable for this product. Proof of purchase must be provided. A five (5) year material or system warranty may be available upon request. Contact Polyguard Products, Inc. for further details.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Polyguard Products Inc. P.O. Box 755 Ennis, TX 75120-0755; Phone: (214) 515-5000; Email: info@polyguard.com

2.02 SYSTEM MATERIALS

A. Robust, pre-applied Chemical-Resistant Waterproofing: Shall be Polyguard® Underseal® CRM™, a strong sheet membrane with purpose-built, multi-component, proprietary chemical resistant backing laminated to a thick layer of proprietary waterproofing adhesive compound integrated into a high-strength, nonwoven geotextile fabric. Total membrane thickness is factory controlled at 85 mils. On the fabric side, a four (4) inch-wide lap of waterproofing adhesive compound is left exposed along one edge with a removable silicone-coated release sheet, which creates a four (4) inch-wide self-adhesive overlap seam.

PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL VALUE |
|---|---|---|
| FILM COLOR | | Black/Silver |
| MEMBRANE THICKNESS | ASTM D 1000 | 85 mils |
| TENSILE STRENGTH OF 1" WIDTH | ASTM D 4632 | 440 lbs. |
| HYDRAULIC TRANSMISSIVITY OF A GEOSYNTHETIC USING A CONSTANT HEAD | ASTM D 4716 | No measurable flow |
| (IN-PLANE) HYDRAULIC TRANSMISSIVITY OF A GEOSYNTHETIC BY RADIAL FLOW | ASTM D 6574 | No water flow |
| BREAKING STRENGTH OF 1" WIDTH SAMPLE | ASTM D 882 | 14,220 PSI |
| ELONGATION - ULTIMATE FAILURE OF RUBBERIZED ASPHALT | ASTM D 412 | 839% |
| PERMEANCE TO WATER VAPOR TRANSMISSION | ASTM E 96 Method B | 0.02 Perms |
| CRACK CYCLING | ASTM C 836 Tested @ -15° F | No effect |
| PEEL ADHESION TO CONCRETE | ASTM D 903 | 31.3 lbs./in. |
| LAP PEEL ADHESION | ASTM D 1876 | 8.7 lbs./in. |
| LOW TEMPERATURE FLEXIBILITY | ASTM D 1970<br>180° bend over 1" mandrel<br>at -20° F (-29° C) | No effect |
| PUNCTURE RESISTANCE (MINIMUM) | ASTM E 154 | 256 lbs. |
| RESISTANCE TO HYDROSTATIC HEAD (MINIMUM) | ASTM D 5385 | 231 ft. |
| EXPOSURE TO SOIL FUNGI | GSA-PBS 07115 (16 weeks) | No effect |
| RESISTANCE TO PERMEANCE BY METHANE GAS | ASTM D 1434<br>tested using 99.99% purity | $< 5 \times 10^{-19}$ mol/m$^2$•s•Pa |
| RESISTANCE TO RADIOACTIVE RADON GAS | Radon Reduction Technology Laboratory % reduction in radon gas diffusion | 97.10% |
| WATER ABSORPTION (MAXIMUM) | ASTM D 570 | 0.1% |

| **CHEMICAL VAPOR TRANSMISSION (AT 75ºF, 90% RH)** | | |
|---|---|---|
| **GAS AND VAPOR** | | |
| METHANE | ASTM D 1434 | 0.0028 Perms |
| HYDROGEN SULFIDE | ASTM F 739 | $7.183 \times 10^{-7}$ Perms |
| WATER VAPOR TRANSMISSION | ASTM E 96 Method B | 0.054 Perms |
| **FUELS** | | |
| GASOLINE | ASTM E 96 Method B | 0.192 Perms |
| DIESEL | ASTM E 96 Method B | 0.165 Perms |
| ETHANOL | ASTM E 96 Method B | 0.351 Perms |
| ISOOCTANE | ASTM E 96 Method B | 0.471 Perms |
| **CHLORINATED SOLVENTS** | Test Methods & Results Upon Request | |
| **ORGANIC SOLVENTS** | Test Methods & Results Upon Request | |
| **ASTM D 543 CHEMICAL RESISTANCE (7 DAYS TOTAL IMMERSION)** | | |
| **CHEMICAL** | **PHYSICAL APPEARANCE** | **WEIGHT CHANGE** |
| WATER | No swelling or delamination | 0.24% |
| **OILS & FUELS** | **PHYSICAL APPEARANCE** | **WEIGHT CHANGE** |
| MOTOR OIL | No swelling or delamination | - 0.02% |
| DIESEL | No swelling or delamination | 0.74% |
| ETHANOL | No swelling or delamination | 0.14% |
| ISOOCTANE | No swelling or delamination | 3.27% |
| GASOLINE | No swelling or delamination | 4.49% |
| **ORGANIC SOLVENTS** | Test Methods & Results Upon Request | |

2.03 SYSTEM ACCESSORIES

A. Surface Primer Roller-Grade Adhesive:

1. Polyguard® CR™ Sealant: A 100% solids, moisture tolerant, penetrating epoxy primer which is specifically formulated to provide excellent adhesion with the Polyguard Chemical-Resistant Waterproofing Membranes to prime all structural concrete, masonry, insulation, or wood surfaces. Designed to be used on applications down to 40° F (4° C).

B. Seam Tapes:

1. Polyguard® Underseal® Fabric Tape: A proprietary waterproofing adhesive compound laminated to polypropylene geotextile fabric backing. The Fabric Tape is wound onto a disposable, silicone-treated release sheet to prevent from sticking onto itself while in the roll. Fabric Tape is designed for use around pipe penetrations with an annular space of pipe through opening exceeding 1/2", and as end laps for patching damaged areas of the membrane.

2. Polyguard® CR™ Seam Tape: A chemical-resistant waterproofing membrane laminated to chemical-resistant backing. The Seam Tape is wound onto a disposable, silicone-treated release sheet to prevent from sticking onto itself while in the roll. Polyguard CR™ Seam Tape is used around pipe penetrations, end laps, and for patching damaged areas.

C. Liquid Membrane:

1. Polyguard® CR™ Liquid Membrane: A 100% solids, two-component, highly elastomeric, polysulfide-based waterproofing membrane to be used in a variety of applications in conjunction with Polyguard® Chemical Resistant Waterproofing System.

D. Corner Boots:

1. Polyguard® CR™ Inside Corner Boot: 15-mil combination of chemical-resistant adhesive bonded to a silver, chemical-resistant backing. The adhesive surface is covered with a release liner which will be removed prior to application on an inside corner to reinforce and seal corners of the Underseal® CRM™.

2. Polyguard® CR™ Outside Corner Boot: 15-mil combination of chemical-resistant adhesive bonded to a silver, chemical-resistant backing. The adhesive surface is covered with a release liner which will be removed prior to application on an outside corner to reinforce and seal corners of the Underseal® CRM™.

3. Polyguard® CR™ Pit Top Corner Boot: 15-mil combination of chemical-resistant adhesive bonded to a silver, chemical-resistant backing. The adhesive surface is covered with a release liner which will be removed prior to application on all corners to reinforce and seal corners of the Underseal® CRM™.

E. Drainage and Protection Board:

1. Polyguard® Polyflow 15: Polyflow® 15 Sheet Molded Drainage Mat, geo-composite drain consisting of a formed polypropylene core covered on one side with non-woven filter fabric. The fabric allows water to pass into the drain core while restricting the movement of soil particles which might clog the core. The core allows the water to flow to designated drainage exits. Polyflow 15 is designed for vertical applications.

2. Polyguard® Polyflow 18: Polyflow® 18 Sheet Molded Drainage Mat is a two-part, prefabricated, geocomposite drain consisting of a formed polypropylene core covered on one side with woven filter fabric. The fabric allows water to pass into the drain core while restricting the movement of soil particles which might clog the core. The core allows the water to flow to designated drainage exits. Polyflow 18 is designed for horizontal applications.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive chemical-resistant waterproofing membrane. Notify General Contractor if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

A. Horizontal Surfaces:

1. Protect adjacent surfaces not designated to receive the Underseal® CRM™ waterproofing system.

2. Clean and prepare sub-base surfaces to receive the Underseal® CRM™ waterproofing in accordance with manufacturer's instructions.

3. Do not apply the Underseal® CRM™ waterproofing to sub-base surfaces unacceptable to manufacturer.

4. Level, tamp or roll the granular base prior to the application of Underseal® CRM™ - typical 95 proctor.

5. Complete sub-base compaction per job specifications.

6. Remove surface debris and protrusions, including rocks (greater than 3/4-inch), trash, concrete chunks, roots, and sticks.

7. Provide a dry sub-base prior to application; never place the Underseal® CRM™ waterproofing in standing water or install the membrane in inclement weather.

8. After the Underseal® CRM™ installation is complete, remove standing water from the membrane prior to the concrete being poured onto the CRM™.

B. Vertical Surfaces:

1. Complete the soil retention system per the project specifications and proceed with the Underseal CRM installation after the soil retention system has been accepted by Polyguard.

2. Protect adjacent surfaces not designated to receive the Underseal® CRM™ waterproofing system.

3. Clean and prepare sub-base surfaces to receive the Underseal® CRM™ waterproofing in accordance with manufacturer's instructions.

4. Do not apply the Underseal® CRM™ waterproofing to sub-base surfaces unacceptable to manufacturer.

5. Remove sub-base surface debris and protrusions, including rocks, trash, concrete chunks, roots, and sticks.

6. Never install Underseal® CRM™ and its system accessory products in inclement weather.

3.03 MEMBRANE APPLICATION

A. Install Underseal® CRM™ and accessories when the surface and ambient temperatures are 40° F (5° C) and rising.

B. Do not install the CRM™ or accessory products in inclement weather.

C. Take precautions to protect the CRM™ during placement of reinforcing steel and concrete. Prior to pouring of concrete, visually inspect the CRM™ for any punctures or damage which needs to be repaired.

   a. For patches less than 3/4-inch in size, expand the hole to allow CR™ Liquid Membrane and CR™ Sealant to be applied through the sheet onto backside of CRM™ coating inner asphalt surface. Then apply CR Liquid Membrane over the fabric surface coated with CR Sealant at a coverage rate of 50 –75 sq. ft. per gallon.

   b. For patches greater than 3/4-inch in size, open membrane and apply CR™ Seam Tape to the silver chemical-resistant underside of the underlayment a minimum of 6-inches in all directions from the damaged area. Apply CR™ Liquid Membrane over the fabric surface coated with CR™ Sealant at a coverage rate of 50 – 75 sq. ft. per gallon. Apply Fabric Tape over the repaired area. Apply even pressure with a minimum 75 lb. linoleum roller.

D. Prior to the slab pour, all standing water must be removed from the membrane surface.

E. Horizontal Installation

   1. Horizontal application shall be in accordance with manufacturer's instructions.

   2. Place the CRM™ with the silver, chemical resistant backing toward the sub-base over Polyflow® 18 Drainage Composite.

   3. Side Laps

      a. If any lap areas become dirty during construction, remove all debris and/or dust from the silver chemical-resistant backing. Clean the silver, chemical resistant backing of the overlapping surface with 30% isopropyl alcohol prior to exposing the 4-inch self-adhesive seam. Apply CR™ Seam Tape. Align the adjacent roll of CRM™ for seaming then remove the 4-inch-wide silicone release sheet. Once the lap is secured, roll with a min. 75 lb. linoleum roller for horizontal surfaces and a 6-inch laminate-type roller for vertical surfaces to obtain full adhesion.

   4. End Laps

      a. The CRM™ end lap seam must be 4-inches. Apply CR™ Seam Tape between the end of the roll before proceeding onto the new roll. Apply a heavy coat 50-75 sq. ft. per gallon of CR™ Sealant to the fabric face of the underlayment a minimum of 6-inches wide. Apply 90 mils of CR™ Liquid Membrane over 4-inches of the primed fabric. Wet apply the new roll of CRM™. Apply another heavy coat 50-75 sq. ft. per gallon of CR™ Sealant and apply another 90 mil layer of CR Liquid Membrane to both surfaces then center a 12-inch wide piece of Fabric Tape over the seam; extend a minimum of 6-inches on each side of lap. Once the end lap is secured, roll with a min. 75 lb. linoleum roller for horizontal and a 6-inch laminate-type roller for vertical to obtain full adhesion.

   5. Pipe Penetrations

      a. For all pipe penetrations, construct a 6-inch, fast-set concrete well around the penetration. CR™ Seam Tape can replace the concrete well.

      b. Clean and roughen the pipe surface with sandpaper or a wire brush to ensure adequate adhesion.

      c. Position CRM™ in place around penetration. Remove CRM™ and apply 90 mils of CR™ Liquid Membrane on the concrete well a minimum of a 4-inch radius around the penetration. Place the CRM™ into the wet CR Liquid membrane. Prime the fabric side of the sheet membrane with CR™ Sealant a minimum of a 6-inch radius around the penetration. Apply 90 mils of the CR™ Liquid Membrane over all primed fabric and 3-inches onto the penetration surface. Allow to cure for a minimum 2 hours.

d. If pipes or penetrations are in tight clusters, use CR™ Liquid Membrane and CR™ Sealant; refer to CRM™ details. Pipes cannot be touching each other or wired together.

6. Steel reinforcement

a. Steel Reinforcements may be applied directly over the CRM system. It is important that reinforcement (rebar) chairs are acceptable with the CRM system. Acceptable (rebar) chairs will distribute the load of the steel reinforcement sufficiently to reduce the risk of the chair puncturing the CRM™ when fully loaded with the weight of the reinforcement steel and other common auxiliary loads.

b. Blocks, pavers or dobies made of concrete or brick are the best choice. Individual chairs are acceptable as long as they have a flat base or bolsters with rails. Contact Polyguard Technical Service for approval and written acceptance for other types of rebar chairs.

F. Vertical Applications

1. Place the silver, chemical-resistant backing toward the Polyflow 15 Drainage and Protection Board. Fasten the top end of a lift through the Polyflow and into the lagging wall using fasteners appropriate for the substrate with 6-inch spacing across the top and 2-inch spacing from the side laps.

2. Side Laps

a. If any lap areas become dirty during construction, remove all debris and/or dust from the silver chemical resistant backing. Clean the silver, chemical resistant backing of the overlapping surface with 30% isopropyl alcohol prior to exposing the 4-inch self-adhesive seam. Apply CR™ Seam Tape to previously applied CRM™ and pull away from drainboard. Apply a 12” coating of a low-rise spray adhesive and seal to drainboard. Align the adjacent roll of CRM for seaming then remove the 4-inch-wide silicone release sheet. Once the lap is secured, roll with a 6-inch, laminate-type roller to obtain full adhesion.

3. End Laps

a. For end laps in center of lifts, spray a 12” wide area of a low-rise spray adhesive onto the Polyflow 15 and onto the non-adhesive side of the CR Seam Tape. Allow all adhesive to flash off, then press CRM and CR Seam Tape together. Remove the film from the CR Seam Tape, exposing the sticky compound, and apply CRM to half of the CR Seam Tape, leaving a tail for connection to succeeding piece of CRM. Install a reverse shingle lap with the CRM on the vertical wall at a minimum 3-inch up to a maximum 4-inch overlap. Prime end laps with a heavy coat of CR Sealant at a rate of 50 – 75 sq. ft. per gallon, then cover the CR Sealant with a minimum 90 mils of CR Liquid Membrane. Lay the CRM into the wet CR Liquid Membrane. Place a 12-inch wide piece of Fabric Tape over the sealed end lap after priming the end lap with 650 LT Liquid Adhesive or California Sealant at a rate of 50 – 75 sq. ft. per gallon. Center the Fabric Tape over the end lap and extend a minimum of 6-inches onto the previous-applied sheets. Apply even pressure with a roller to obtain full adhesion. Seal top edge of Fabric Tape with a minimum 30 mils of Detail Sealant PW or LM-95.

b. For end lap securement at top of lift, apply a temporary fastener 12-inches above the top of the lift and fasten. Prior to applying the next lift of material, cut material from the anchor and follow the installation instructions listed for end laps in center of lifts. Maximum lift height is 16-feet.

## 3.04 MEMBRANE PROTECTION

A. CRM™ is adversely affected by prolonged ultraviolet light. The membrane must be covered as soon as possible and not left exposed to sunlight for over 30 days. Extended exposures may be considered; contact Polyguard for technical assistance.

END OF SECTION