

CHLOROPRENE MODIFIED ASPHALTIC (CMA) MEMBRANE

REVISIONS				
SYM	DESCRIPTION	PREPARED BY	DATE	APPROVED

A. Applications

These specifications are applicable to the following types of methane gas control installations:

- Under slab
- On free standing walls or lagging
- Against shoring
- Behind zero-lot–line block walls (against vertical excavation)

B. Materials

1. Membrane

Two part, single course, high build, chloroprene modified asphaltic (CMA) emulsion and catalytic emulsion. Water borne. Spray or trowel applied at surface temperatures ranging from 35 to 100 degrees F. Self–bonding to all common construction materials except silicone and release agents. Non–toxic. Odorless. Capable of immediate reapplication. Test values shall be within 20% of value listed below.

PROPERTY	TEST METHOD	VALUE
Ultimate Tensile Strength at 55 mil Average thickness, 10 Specimens	ASTM D412–A DIE C	58 psi
Elongation at 55 mil Average thickness, 10 Specimens	ASTM D412–A DIE C	1332%
Water Vapor Transmission at 52 mil Average thickness, 10 Specimens	ASTM E96–80	0.10 Grains/H/ft2
Water Vapor Permeance at 52 mil Average thickness, 3 Specimens	ASTM E96–80	0.24 U.S. Perms
Accelerated Weathering 500 Hours	ASTM D–822–80	No Adverse Affect
Fire Retardance	U.L. 790	Class C (Self Extinguish)
Methane Permeability 2.38 mils Average Thickness 2 Specimens at 55 psi	ASTM D1434–82 Procedure V	< 0.20 * Barrers <5.2ml/day – m ² –a
Methane permeability Calculated ** From Data on the Helium Permeability of 1 Specimen. Literature Data Show That Helium Permeability is 20 to 100,000 Fold Greater Than Methane Perm– eability Depending on the Membrane Material	N/A	9.1 X 10–4 to 0.46 Barrers 0.016 to 7.85 ml/day/m2/ATM
Helium Permeability Observed ** for 1 Specimen. These Data Are Used As The Basis For The Calculations Above.	ASTM D1434–82	9.1 Barrers 157 ml/day/m2/ATM

The "barrer" is the unit adopted by ASTM for a gas permeability coefficient which is a characteristic for the material of which the membrane consists and corrects for thickness and gradient across the membrane. The "barrer" has the units 10–10 ml (stp) cm cm2 (sec) (cmhg)

** Permeabilities of polymer modified asphalt comparison of the observed permeability to methane with the methane permeability calculated from the observed permeability to helium

2. Carrier Fabric: 0.38mm thick, thermally bonded polypropylene. Heat set one side.

3. Protection Course (for horizontal surfaces)

Protection course (where called for on plans) shall be a three–ply composite of polyester with with one layer of thick nonwoven cushioning fabric sandwiched between two layers of spunbond continuous filament polyester.

PROPERTY	TEST METHOD	UNITS	VALUE
Puncture Resistance	ASTM D 4833	lbs (kN)	180 (.80)
Mullen Burst	ASTM D 3786	psi (kPa)	650 (4482)
Elongation	ASTM D 4632	%	55
Weight	–	lbs (kg)	90 (41)
Roll Dimensions	–	40" x 200' (102cm x 61m)	

4. Protection Course (for vertical surface)

Protection Course (where called for on plans) A two–ply composite of spun polyester, continuous filament fabric.

C. Material Handling and Quality Assurance

1. Membrane Emulsion

The CMA emulsion and catalyst shall be supplied in 55 gallon drums or other suitable containers, clearly marked with manufacturer, contents, batch number, and marked "NONFLAMMABLE", "DO NOT FREEZE". Manufacturer shall provide quality assurance of its formulas. All membrane products shall be supplied by the same source and manufacturer.

2. Protection Courses

Protection Course shall not be affected by inclement weather and may be stored outside. It should be protected from prolonged exposure to direct sunlight.

For proper protection of the product in warehouse storage, consult the National Fire Protection Association Standard 231–1979 or the local authority.

D. Installation

Spray application pumps shall be Air Driven 5 to 1, ratio.

The application of the product shall be in accordance with the manufacturer's instructions, a copy of which shall be kept at the job site.

The membrane shall be furnished and installed in the areas as shown on the drawings. All work shall be done in strict accordance with the project drawings and specifications. Sufficient lining material shall be furnished to cover all lined areas shown on the plans including seam overlaps.

All surfaces to receive methane gas barrier shall be free of laitance, sharp projections, oil, loose dirt or other contaminants. The surfaces shall be dry and free of voids. Surface temperatures shall be in the range 35° F to 100° F. Prepare surfaces in accordance with all manufacturer's instructions.

1. Under Slabs on dirt

a. Prepared Subgrade

Prepared earth subgrade shall be compacted smooth and free of voids, loose material, debris, roots and standing water. All four inch or larger rock shall be removed and the subgrade prepared per soils engineer recommendations.

b. Drain Layer

Drain layers, where applicable, shall be installed per soils engineer recommendations.

c. Penetrations

All plumbing, electrical, mechanical and structural items to be under or passing through the methane barrier shall be positively secured in their proper positions and appropriately protected, prior to membrane application.

d. Logging

Offsets 19mm or greater shall be canted or otherwise made smoother.

e. Protection Board – Not Applicable

f. Carrier fabric (Scrim)

Roll out scrim onto subgrade, overlapping seams by at least three 75mm. Bond the seams with CMA Compound–A. Cut scrim at vertical intersections.

g. Masking

All adjoining areas not to receive membrane shall be masked.

h. Membrane

Spray apply membrane onto scrim to a 60 mil minimum dry thickness. Reinforce intersections of membrane planes by applying 100 mil minimum dry thickness at least 75mm to both sides of intersections.

2. Free Standing Walls

Surfaces shall have 610mm minimum clearance all around to allow access for spraying membrane.

a.

Carrier Fabric is not to be used when spraying membrane directly onto free standing walls

b. Masking

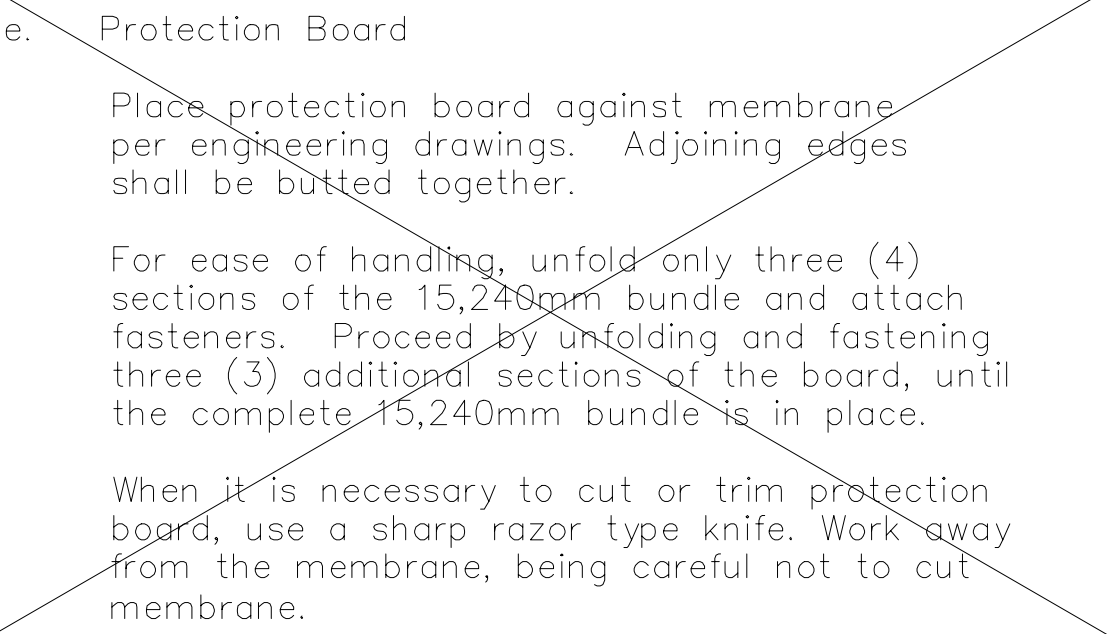
All adjoining areas not to receive membrane shall be masked.

c. Membrane

Spray apply membrane to a 60 mil minimum dry thickness. Reinforce intersections of membrane planes by applying 100 mil minimum dry thickness at least three 75mm to both sides of intersections.

d. Penetrations

All plumbing, electrical, mechanical and structural items to or pass through the methane barrier shall be positively secured in their proper positions and appropriately protected, prior to membrane application.



f. Drain Layers

Drain layers, where applicable, shall be installed per soils engineer recommendations.

3. Against Shoring

a. Shoring and Lagging

Any Shoring or Lagging shall be securely in place.

b. Drain Layers

Drain layers, where applicable, shall be installed per soils engineer recommendations.

c. Penetrations

All plumbing, electrical, mechanical and structural items to be under or passing through the methane barrier shall be positively secured in their proper positions and appropriately protected, prior to membrane application.

d. Scrim

Roll out scrim vertically over lapping seams by at least three 75mm, stapling or nailing flat to substrate.

e. Masking

All adjoining areas not to receive membrane shall be masked.

f. Membrane

Spray apply membrane over scrim to a 60 mil minimum dry thickness. Reinforce intersections of membrane planes by applying 100 mil minimum dry thickness at least three 75mm to both sides of intersections.

d. Spray apply membrane material onto scrim to a minimum

4. Against Vertical Excavation

a. Excavation shall be vertical.

Use 12oz. non–woven geotextile backing against vertical excavation.

c. With the geotextile in place, install scrim.

Dry thickness of membrane sandwich shall be scrim thickness plus 60 mils. Reinforce at protrusions by applying 100 mil min. dry thickness at least three inches to both sides of intersections.

In the event that a previously presumed solid embankment should slough or shed dirt, the membrane and concrete placement work in that area shall cease. Any concrete in slough areas shall be removed. Rigid backing shall be installed before any further membrane or shotcrete work is done.

5. Onto Concrete Substrate

Where membrane is to be sprayed directly onto concrete substrate, the surface shall be clean and free of standing water prior to application. Application shall be similar to that described for concrete walls, section D.2 above. Anytime membrane is to be sprayed onto concrete, blistering may be a problem. In case of blistering, a test area shall be delineated on site with minimum dimensions of 3050mm X 3050mm. A thin (10 mil) tack coat of "liquid boot 'A' side" (no catalyst) shall be applied and left to cure for 24–hours. The design thickness of spray–on membrane shall be applied as normal, and allowed to cure for 24–hours. In most cases, blistering should not occur with the described use of tack coat.

Where the standard details call for scrim to be placed throughout on concrete substrate, the above is not a consideration. Normally, if damp or wet conditions are anticipated, such as application to basement areas where high groundwater is present, scrim should be used throughout to avoid blistering problems, and provide a release mechanism for cure water.

E. Precautions and Special Notes

1. Masonry Walls & Concrete Lagging

When directly applied to masonry walls or concrete lagging no scrim is required. Apply CMA membrane to a 60 mil minimum dry thickness.

2. Membrane Penetrations

Prime penetration with spray on CMA membrane. Overspray with CMA per boot details.

3. Membrane Terminations

Caution shall be taken by general contractor and concrete contractor to insure a smooth concrete surface along all foundations where the membrane terminates. Membrane cannot be applied over highly irregular surfaces. Any unacceptable surfaces shall be made smooth and solid prior to installing membrane.

4. Masking Removal

Remove masking as soon as desired following application of membrane.

5. Protective Cover

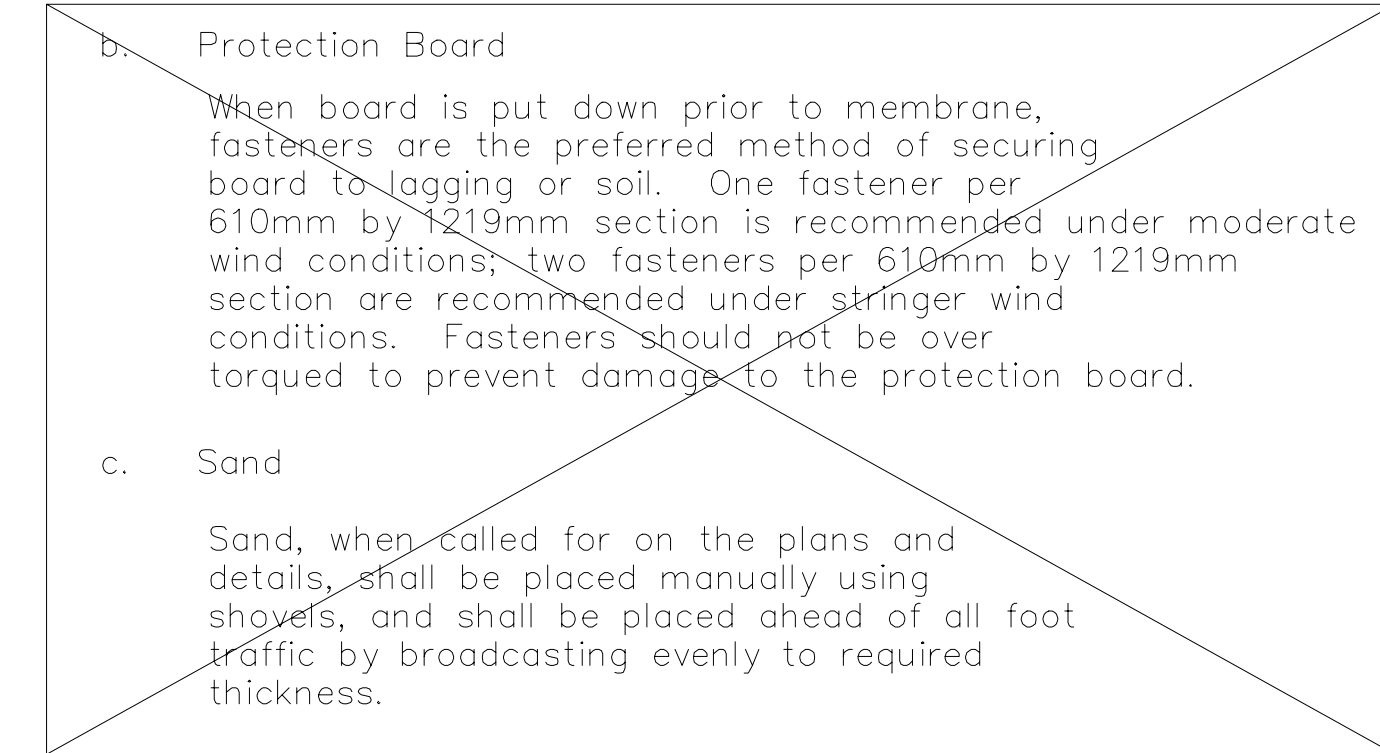
Protection cover shall be smooth and shall be installed so as to neither distort nor penetrate the membrane.

Keep membrane free of dirt, debris and traffic until protective cover is in place. Materials, equipment, or other items shall not be dragged across the surface of the liner or be allowed to slide down slopes onto the lining. All parties walking or working upon the lining material shall wear flat smooth shoes.

After all moisture has evaporated from membrane, Place protection course onto methane barrier surfaces.

a. Protection Mat

Mat shall be placed in front of foot traffic as the work progresses, and shall be carefully butt joined on the membrane.



IF SHEET IS LESS THAN 28"x42", IT IS A REDUCED PRINT. SCALE REDUCED ACCORDINGLY.

GC-7

MEDICAL/DENTAL CLINIC			
SUBSLAB NOTES and SPECIFICATIONS			
SIZE	CODE IDENT. NO.	DRAWING NO.	
F	XXXXX	8144531	
SCALE:		CONST. CONTR. NO.	
		SPEC.	11998048
		SHEET 26 OF 316	