

ARCHITECTURAL SPECIFICATIONS

RUB-R-WALL[®] WATERPROOFING MEMBRANES

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PART 1. FLUID APPLIED, 100% RUBBER POLYMER WATERPROOFING

1.01 SCOPE

A. The scope of work includes, but is not limited to the following:

1. Fluid-applied, 100% rubber polymer membrane as sub-grade foundation waterproofing.
2. Fluid-applied, 100% rubber polymer membrane as slab and deck underlayment waterproofing.
3. Fluid-applied, 100% rubber polymer membrane as containment liner.
4. Foam boards, sheetings and geo-textiles as protective coverings.

1.02 REFERENCES

A. ASTM D-412	Rubber Properties: in Tension
B. ASTM D2240	Rubber Properties: Durometer Hardness
C. ASTM C836	Crack Bridging & Low Temperature Flexibility
D. ASTM D95	Liquid Water Absorption
E. ASTM E96-72	Water Vapor Permeance
F. ASTM D2020	Resistance to Fungus
G. ASTM GT29-75	Resistance to Algae
H. ASTM D4299-83	Resistance to Bacteria
I. ASTM E154	Resistance to Degradation in Soil
J. ASTM D466	Resistance to Re-emulsification
K. ASTM D2939	Adhesion Loss
L. NRCA	Waterproofing Manual

1.03 MANUFACTURER

A. All waterproofing membrane products as referred to in this specification are as manufactured by RPC, Inc. (Rubber Polymer Corporation), Akron, Ohio, herein referred to as RPC.

1.04 QUALIFICATIONS

A. Rub-R-Wall Waterproofing membranes are to be applied only by applicators certified by RPC. The use of RPC products must be done so in strict accordance with RPC and standard waterproofing practices in order to maintain applicable warranties.

B. All associated products used in conjunction with Rub-R-Wall Waterproofing membranes and forming an integral part of the waterproofing system must meet the approval of RPC in order to maintain applicable warranties.

1.05 MATERIALS

A. All membrane materials referred to in this section are 100% rubber polymer products that yield an asphalt-free, highly elastic, seamless waterproofing membrane.

B. All membrane materials shall be certified by the manufacturer that they meet or exceed the manufacturer's specifications.

C. Waterproofing products as manufactured by RPC are intended for use according to the following schedule:

1. Rub-R-Wall Waterproofing

- a. All sub-grade foundation applications on new construction substrates such as concrete, masonry and EPS forms. Rub-R-Wall may be applied to other substrates provided approval is obtained from the manufacturer.
- b. Any above-grade application not exposed to ultra-violet conditions such as silo and tank interior walls.
- c. As an underlayment membrane for decks, slabs, etc.
- d. As a component of geotextile composite membranes.
- e. As a base membrane for HDR 4000, HDR W 4000, Aluma-Shield or Graywall.

2. Graywall™ Waterproofing

- a. An aluminized rubber polymer membrane.
- b. All sub-grade foundation applications on new construction substrates such as concrete and masonry. Graywall may be applied to other substrates provided approval is obtained from the manufacturer.
- c. Any above-grade application not exposed to ultra-violet conditions such as silo and tank interior walls.

3. Aluma-Shield™ Restorational Waterproofing

- a. For sub-foundation coating in conjunction with restoration work on foundations previously coated with asphalt-based products.

4. HDR 4000™ Industrial Maintenance Coating

- a. An all-purpose, silver-gray colored maintenance coating for exposed surfaces (For Roofing, see new product specification sheet independent of this document). Can be used in conjunction with Rub-R-Wall and geotextile composites. Can withstand foot traffic. Slippery when wet. UV protected.

5. HDR W 4000™ Industrial Maintenance Coating

- a. Same as HDR 4000 except it is white in color.

6. Rub-R-Wall[®] Mastic

- a. A heavy-bodied rubber mastic for use prior to spraying. It is applied with a caulking gun or troweled for repair of minor imperfections and blemishes in concrete and block substrates such as form tie holes, minor honeycombs and minor cracks.

7. Wet-Prime™ Primer

- a. A cold-sprayed, low viscosity primer used in damp areas prior to membrane application. Not intended for application over snow, ice or liquid water. Intended for small problem areas only.

8. SLH™ Primer

- a. A brush-applied primer for use around perimeter edges prior to the placement of HDR 4000 and HDR W 4000.

- D. All membrane materials are to be delivered to the job site in either 55 gallon drums or in self-contained tanks which are an integral part of the spray unit. Mastics are supplied in 1-quart caulking tubes, 1 gallon units or 5 gallon units and are sprayed by tank sprayer, brush or troweling knife, Primers are supplied in 5 gallon units or in 55 gallon drums.

- E. All protective, insulation or drainage media which become an integral part of the membrane system must meet the approval and acceptance of RPC. Alternative products must be submitted according to Section 1.06. Protection fabrics, sheetings and boards may be one of, or a combination of several products such as the following:
1. Standard closed-cell extruded polystyrene foam boards such as manufactured by Amoco, Dow, Foamular or other RPC approved equal. These boards may not be used if the thickness is 1/4" or less and are perforated. Manufacturer recommends the use of a board 1/2" or greater in areas where heavy clay or shale is present or the use of products such as listed in no. 2 which follows:
 2. Cross-laminated high density poly-ethylene sheeting such as Rufco 400 as manufactured by Raven Industries or other RPC approved equal.
 3. Slit-film, non-woven geotextiles such as Amoco "Amowrap", Webtec "Terra Tex" or other RPC approved equal.
 4. Non-woven polyester or poly-propylene geotextiles such as DuPont "Typar", Bradley Industries "Phoenix NW 3.5", Carthage Mills "FX-40" series or other RPC approved equal.
 5. Rigid foam extruded polystyrene foam insulation and drainage boards such as "Thermadry" by Dow-Corning, Amoco, Foamular or other RPC approved equal.

1.06 SUBMITTALS

- A. An "Approved Course List" issued by RPC is available.
- B. All submittals for alternative products or products not listed herein which are to be used as an integral part of the membrane system and requiring RPC approval as provided for this specification shall be done so through the project engineer requesting approval by submitting such for approval prior to installation to the following:

Rubber Polymer Corporation
Attn: Mike Roberts, Sr., President
1135 West Portage Trail Extension
Akron, Ohio 44313-8283 USA

PART 2. EXECUTION

2.01 APPLICATION OF RUB-R-WALL MEMBRANES

- A. Sub-Grade Foundations
 1. Preparation
 - a. Footers must be clean and free of dirt, sand, soil or any other deleterious materials that would prevent full adhesion of the rubber membrane. Footers must be dry and free of any visible water. Any water present must be removed and the substrate dried. Damp areas may also be treated with Wet-Prime Primer to the extent practical according to manufacturer's specifications.

- b. Concrete walls must be free of voids and honeycomb. Any such areas, if present, must be repaired by standard methods using a cementitious grout. Form ties must be removed inside and outside below the concrete surface such that the membrane will not possibly be punctured. Minor surface defects such as entrapped air holes and tie holes may be repaired by using Rub-R-Wall Mastic.
- c. Concrete walls may be sprayed 24-48 hours after the form stripping process is complete, provided any excess water or moisture due to subsequent rains, etc., is not present.
- d. Concrete walls must be smooth and free of projections and other foreign material such as organic matter, asphalt or other frozen material. NOTE: Substrate need not be above freezing temperature at time of application of Rub-R-Wall, provided that moisture is not frozen in or on the wall. (See specific product specifications.)
- e. Medium or high density concrete masonry must have no voids in mortar joints. Repair to voids must be done at least 24 hours prior to membrane application. If the masonry cores are to be filled, this must also be done prior to the application. The fresh core fill must be cured before the Rub-R-Wall application.
- f. Low density or cinder block must be pargeted prior to the membrane application unless prior approval not to do so has been obtained by RPC
- g. Brick ledges and buttress walls constructed from masonry must be capped prior to application of the membrane.
- h. Check all wall penetrations to insure that they are secure and in the correct and final position.

2. Application

- a. The RPC product must be at the proper temperature (Refer to specific product specifications). This is generally about 110-150^o F depending on the particular product used.
- b. RPC products should not be sprayed when the ambient temperature is below 15^o F. Substrates less than 32^o F may be sprayed provided they are fully cured and free of frost and ice.
- c. Properly ground the spray vehicle, spray equipment, product drums and product tank.
- d. Spray equipment must meet the minimum standards as set forth by RPC.
- e. Wear only approved safety equipment as specified by all of the applicable safety regulations. All standard safety procedures

are to be followed.

- f. Notify ALL persons in the immediate vicinity where the work will be performed that the spraying is about to commence. **UNDER NO CIRCUMSTANCES SHALL THERE BE ANY SMOKING, GRINDING, WELDING, OR OTHER OPEN FLAMES PERMITTED IN THE IMMEDIATE AREA!!!**
- g. Proceed to apply the waterproofing membrane in accordance with RPC standards. Application should be made in multiple, uniform passes such that a wet membrane thickness of 60-80 mils is obtained as determined by a standard mil gauge. A cured thickness of 30-40 mils will result. Where additional membrane thickness is required allow a minimum cure time between applications of 2 hours before proceeding with additional application to the specified mil thickness. Typically, the coverage rate should be 18-23 SF/gal on masonry walls and 22-27 SF/gal on poured walls.
- h. Spray the top of the footer 3" away from the wall. It is not desirable to spray the entire top surface of the footer. Continue the membrane up the wall to a minimum height of 6" above the final grade line or a previously determined elevation.
- i. After completion of various sections of the wall, check for thin spots and voids. Re-Spray any such areas as necessary to obtain proper mil thickness.
- j. After allowing a cure time of approximately 15 minutes (depending on ambient temperature and humidity) application of the protection course can proceed. Protection board, insulation board, drainage board, cross-laminated high density polyethylene sheeting or geotextiles can be used depending upon the specific project requirements. All of these will adhere tenaciously to the Rub-R-Wall membrane so care must be taken to ensure proper initial placement. Do not overlap protection boards. Geotextiles should overlap 3 ".
- k. Backfill should not begin sooner than 24 hours after the membrane application. Manufacturer recommends even 48 hours delay to ensure full product strength, particularly in regions experiencing extreme winter temperatures. Backfill material should be free of debris, organic material, boulders, rocks, masonry or any other deleterious material not considered as suitable fill. Backfilling must be done within 30 days to prevent deterioration of exposed membrane by ultra-violet radiation.
- l. Footer drains must be installed in accordance with standards. Downspouts must be tiled separately from the footer drains.

B. Deck and Slab Underlayments

1. Preparation

- a. Clean and dry the sub-floor, deck or slab. Remove any loose or deleterious materials.
- b. Verify that all penetrations, sleeves, etc. are secure and properly placed.
- c. Determine all locations where membrane integrates with other waterproofing membranes, if any. Usually, this will occur around the perimeter of deck or slab. Verify that the membrane will maintain continuity and is compatible with substrate.

2. Application

- a. Proceed with application of membrane in accordance with the procedures as detailed in Item 2.01, A., 2.
- b. Protection board or geotextile is placed on the membrane per project requirements to provide protection until the wear surface is placed. Care must be taken to preserve membrane integrity.
- c. Flood test the area in accordance with standard procedures. If any leaks are detected then a re-application of membrane in the area of the source of the leak can be done as soon as the membrane is sufficiently dried. Re-test the area upon completion.

C. General Purpose Maintenance Coatings

1. Preparation

- a. For preparation of slabs, decks, etc. where the Rub-R-Wall membrane will be used as a wear surface proceed with preparation as outlined in Section 2.01, B., 1a.

2. Application

- a. Proceed with membrane application as outlined in Section 2.01, A., (Reference Section 1.05 for specific product application).
- b. Allow a minimum of 24 hours cure time prior to use of coated area.

D. Geocomposite Containment Liners (Earthen Substrate)

1. Purpose

- a. Rub-R-Wall products may be used to waterproof containment areas such as earthen ponds where there exists no concrete or block substrate on which to apply the materials. This is done by first placing geotextile on the unsuitable substrate and then application of the membrane directly on the geotextile.

2. Preparation

- a. Verify that the containment basin or vessel has a suitable substrate with no significant projections or irregularities. A 12" sand bedding is advisable for earth substrates.
- b. Prepare an earthen anchor or provide for mechanical anchoring system around the perimeter of the liner membrane.

3. Application

- a. Place the specified geotextile on the containment substrate overlapping the seams by 12". Secure the geotextile using the appropriate anchoring system.
- b. Proceed to spray the membrane in accordance with Section 2.01, A, 2. Work only with an area that will allow adequate time to place the top layer of geotextile. Should additional geocomposite layers be required per project specifications, allow 24 hours of cure time before the next application of Rub-R-Wall membrane. The geocomposite must be covered during the interim period to prevent the top geotextile layer from getting wet. Allow a minimum of 2 hours curing time prior to covering. If the top layer of the geocomposite is DURO-FLEX, HDR 4000 or HDR W 4000 a minimum of 2 hours is required before the membrane can be exposed to moisture.

E. Geocomposite Containment Liners (Concrete substrate)

1. Purpose

- a. Multiple layered or composite membranes may be utilized on concrete surfaces where specific project needs require heavier duty membranes. These are composed of alternating layers of rubber membrane and geotextile.

2. Preparation

- a. Verify that the containment basin or vessel has a suitable substrate with no significant projections or irregularities and in accordance with section 2.01, A, 1.

Geocomposite Containment Liners (concrete substrate, continued)

- b. Penetrations and other projections must first be sealed by placing a bead of Rub-R-Wall Mastic around the penetrations or projection.

3. Application

- a. Apply Rub-R-Wall membrane in accordance with Section 2.01, A, 2.
- b. Allow the membrane to cure a minimum of 24 hours.
- c. Apply the approved protective geotextile directly to the Rub-R-Wall membrane as in any application of protection courses. Application of protective geotextile should be done with sheets sized to be easy to handle. (Caution: Once the protection course is applied to the Rub-R-Wall membrane it is very difficult to remove!) Apply the geotextile in a manner that minimizes wrinkling and air entrapment that may effect subsequent applications of waterproofing membranes. It is preferable to butt all joints allowing 1/4" gap between sheets. If laps exist they should be back-coated to insure adhesion. Terminate the protection course a minimum of six (6) inches below the top of the waterproofing membrane.
- d. Apply the next waterproofing membrane in accordance with Section 2.01, A, 2 directly over the geotextile protection course.
- e. Repeat the application of geotextile protection application and waterproofing membrane if required. Do not apply more than three waterproofing layers.
- f. Allow the final membrane to cure a minimum of fort-eight (48) hours before use.

END OF TEXT SECTION