

PROCOR® DECK SYSTEM 3R

Fluid applied waterproofing for inverted roofs, elevated concrete decks and green roofs

Product Description

Procor® is a two component, synthetic rubber, cold vulcanized, fluid applied waterproofing membrane. It cures to form a resilient, monolithic, fully bonded elastomeric sheet.

Procor Deck System 3R comprises two layers of Procor at 120 mil (3 mm) total thickness with an embedded layer of Procor Reinforcing Mesh to provide extra strength and thickness control.

Procor Deck System 3R is recommended for inverted roofs, elevated plaza decks and green roofs above occupied spaces.

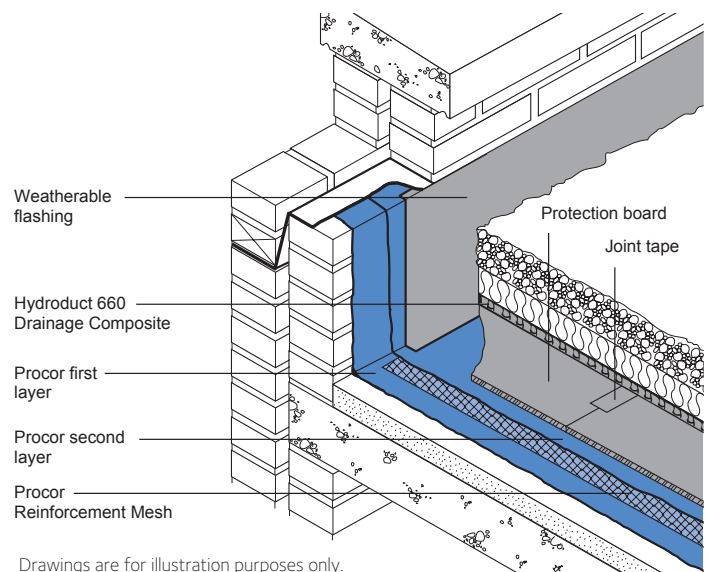
Architectural and industrial maintenance regulations limit the VOC content in products classified as architectural coatings. Refer to Technical Letters at gcpat.com for most current list of allowable limits.

Advantages

- **Fully bonded** — water cannot track beneath the membrane
- **Elastomeric** — accommodates minor structural movements and will bridge concrete shrinkage cracks
- **Asphalt free formulation** — does not become brittle with age and remains flexible to -23°F (-30°C)
- **Chemical cure** — no loss of volume; wet thickness = dry thickness
- **Reinforced** — reduced risk of membrane puncture due to site traffic
- **Quality controlled** — reinforcement mesh provides visual check on thickness
- **Seamless** — continuous waterproofing integrity with easy detailing
- **Damp surface tolerant** — can be applied to damp-to-touch surfaces
- **Cold applied**—eliminates fire hazards during application
- **Quick and easy application** — by airless spray for trowel
- **Wide application window** — can be spray applied down to 20°F (-7°C)
- **ASTM C837** — meets or exceeds all physical performance criteria
- Installation only by approved applicators
- Material and installation warranties available

System Components

- **Procor 75 Spray Grade** — for horizontal and vertical applications
- **Procor 10 Pourable Grade** — for horizontal applications
- **Procor 20 Trowel Grade** — for vertical applications
- **Procor Reinforcement Mesh** — high strength reinforcing fabric provides extra strength and thickness control
- **Hydroduct® 660** — high compressive strength, high flow geocomposite drainage sheet
- **Bituthene® Liquid Membrane** — for detailing at pipe entries, etc.



Drawings are for illustration purposes only. Please refer to gcpat.com for specific application details.



Installation

Procor Deck System 3R can be installed by hand or using airless spray application. Contact GCP or an approved System applicator for further details of application techniques.

Safety

Refer to product label and SDS (Safety Data Sheet) before use. All users should acquaint themselves with this information prior to working with the material. Carefully read detailed precaution statements on the product labels and SDS before use. SDSs can be obtained from our web site at gcpat.com or by contacting us toll free at 866-333-3SBM (3726).

Decks

The Procor Deck System 3R is intended for cast-in-place or pre-cast concrete decks. All decks shall be prepared to provide a clean, firm, smooth surface to accept the Procor application. In accepting any deck as satisfactory to receive Procor, only the deck surface is accepted, not the design or construction. GCP recommends the following:

- No excessive deflection or movement of the deck or other structural problems.
- The deck shall provide for support of the maximum anticipated dead and environmental loads and for expansion and contraction suitable for the roof system structure.
- All projections, penetrations and openings in the deck should be completed before the Procor application begins.
- Joints in pre-cast/pre-stressed concrete decks are to be grouted so that the top surface is level and smooth before membrane application.

Slope for Drainage

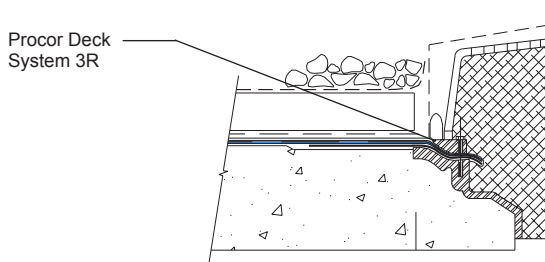
A minimum slope to drain of 1/8 in./ft (11 mm/m) should be used on all concrete decks. This is best achieved with a monolithic structural slab and not with a separate concrete fill layer. The technical recommendations contained in ASTM C898, *Standard Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane With Separate Wearing Course* should be observed.

Surface Preparation

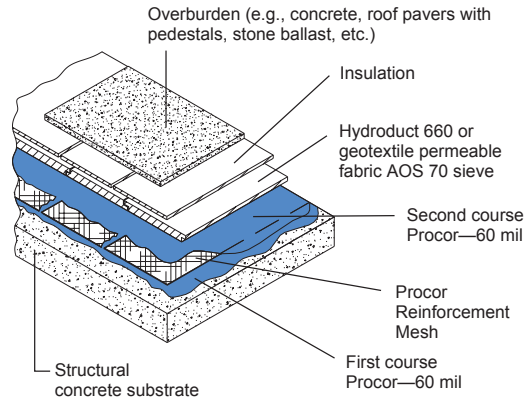
All cementitious surfaces must be wood float or shutter finish and free from frost, dirt, grease, oil or other contaminants.

Surface irregularities and voids greater than 1/2 in. (13 mm) in depth should be pretreated with Procor membrane or repaired with a lean concrete mix or grout. Remove windrows, form match lines and high spots greater than 1/8 in. (3 mm) in height. All substrates

Typical Drain Detail



Typical Procor System 3R Assembly



must be wire-brushed, swept with a stiff broom or blown off with low pressure air to remove dirt, dust and loose stones.

Poor quality surfaces with excessive laitance may require shot blasting or pressure washing to provide a dense smooth surface, free from contaminants.

On highly porous and rough substrates it may be necessary to apply Procor Concrete Sealer or a scratch coat of Procor before applying the full thickness Procor membrane. Contact your GCP representative if in doubt about the suitability of the substrate.

Detailing

Detailing should be completed prior to applying the full coverage of Procor membrane.

For a complete description and instructions on Procor Deck System 3R details, consult the separate detail sheets

Inside and Outside Corners

- Refer to Detail Sheets PRO-102 and PRO-103.

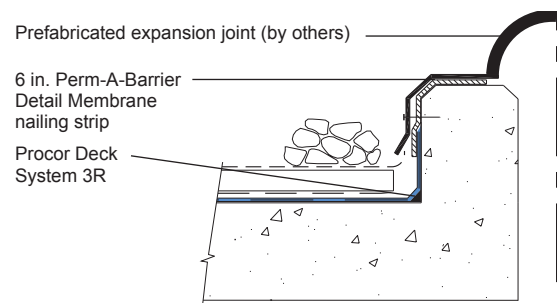
Drains and Penetrations

- Refer to Detail Sheets PRO-109 and PRO-110, respectively.

Non-moving Joints and Hairline Cracks

- Non-moving joints are defined in ASTM C898, *Standard Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane With Separate Wearing Course*, as cold joints, construction joints, isolation joints and control joints held together with steel reinforcing bars or wire fabric. These joints are generally considered by the designer of the structural system as non-moving or static joints. Hairline cracks are defined as cracks less than 1/16 in. (1.5 mm) in width. The standard field coverage will accommodate non-moving joints and hairline cracks, no special pre-treatment is needed.

Expansion Joint Detail



Moving Joints (Width up to 1/2 in. (13 mm), movement up to 1/8 in. (3 mm))

- Moving joints are defined in ASTM C898 as butted construction joints and isolation joints not held together with steel reinforcing bars or wire fabric. Although these joints are generally considered by the designer of the structural system as non-moving or static joints, they are capable of having some movement. Refer to Detail Sheet PRO-112.

Expansion Joints (Width up to 2 in. (50 mm), movement not to exceed \pm 25% of width)—

- ASTM C898 provides design guidelines for expansion joints. The preferred design is the “water shed concept” with a seal at a higher level than the membrane. Procor membranes can, in most cases, be tied into, or used as a cover for, expansion joint systems. Refer to Detail Sheets PRO-113 and PRO-114.

Temperature

Hand Application — Apply Procor 10 and 20 membranes at ambient and substrate temperatures above 40°F (4°C). Do not apply the material if the ambient temperature is likely to fall below 32°F (0°C) within one hour of application completion.

Spray Application — In spray applications using Procor 75 it is possible to work at temperatures below 40°F (4°C) provided there is no frost or condensation on the substrate. The minimum temperature for spray application is 20°F (-7°C). Refer to Technical Bulletin 13, *Spraying Procor 75 at Low Temperatures* or contact your GCP Procor representative for details on cold weather spraying.

Application of the Procor Deck System 3R

Once detailing is complete the full field of the membrane is applied. This is achieved with a wet-on-wet technique, working across the deck in a series of stripes. The full build-up is completed with each stripe before moving on to the next.

Plan the application sequence so that there is no need to walk back onto the membrane. This is best achieved by marking a width slightly over the width of the mesh and ensuring you do not apply Procor beyond this line. Work to this width and in lengths of reinforcement mesh that are easily handled (typically 66 ft [(20 m)] or shorter in high winds). Overlap subsequent bands by approximately 2 in. (50 mm) to ensure continuity of the membrane.

Application of the First Layer

Apply the first layer of Procor at a minimum thickness of 60 mil (1.5 mm). Coverage will be approximately 25 ft²/gal (0.6 m²/L) to wood float finish substrates. This coverage will reduce if the surface has a poor quality finish. Application thickness is controlled by spot checking with a wet film thickness gauge as work proceeds.

Application of the Procor Reinforcement Mesh

Working in an area away from the wet Procor, unroll the Procor Reinforcement Mesh to the correct length and cut with a utility knife or sharp scissors. With a worker at each end, pick up the mesh, pull it taut and position it above the wet Procor. Carefully place the mesh into the wet Procor first layer, ensuring an overlap of 2 in. (50 mm) onto the previous strip of reinforcement.

Using a flat edged bristle brush, brush the Procor Reinforcement Mesh to embed it into the wet Procor and remove any creases.

It is acceptable to walk back onto the first layer of wet Procor, as long as spiked shoes are worn. Do not walk on the second layer until it is cured.

Application of the Second Layer

Working from the edge of the first layer of Procor, apply the second layer as described above. Ensure the reinforcement is fully covered by the second layer of Procor.

The membrane can typically accept foot traffic after 24 to 48 hours. However, in temperatures above 70°F (20°C), the membrane can accept foot traffic in less than 24 hours.

Flood Tests and Overburden Placement

Flood test all horizontal applications with a maximum 2 in. (50 mm) head of water for at least 24 hours. If possible flood test before the protection layer is placed, particularly around detail areas. Mark any leaks and repair when the membrane is dry. Before flood testing, be sure the structure will withstand the dead load of the water. For well-sloped decks, segment the flood test to avoid deep water near drains. Start flood test 48 hours after completing the application of Procor fluid applied waterproofing.

Protect Procor membranes to avoid damage from other trades, construction materials and backfill. Before application of protection, wait until the Procor membrane surface is no longer tacky (usually the next day).

If some slight surface tack remains spread cement dust or lime to remove the tack prior to applying the protection layer. If possible, work across the deck, walking on previously placed protection as you go, to avoid excess trafficking of the membrane. Take care not to displace the Procor membrane. Tape all protection board joints.

Finish Build-up and Overburden Placement

There are many potential overburden and finish designs that can be used over the Procor Deck System 3R waterproofing membrane depending on application and the designed use of the areas above and below the deck. Key considerations to be taken into account in designing the system build-up are:

- A protection course should always be installed as soon as possible after completion of the waterproofing installation and flood testing to protect the membrane from mechanical damage and UV.
- When using Hydroduct Drainage Composite directly above the membrane as combined protection and drainage, extreme caution should be used during subsequent operations to prevent damage to the drainage and the membrane by site traffic. An additional slip-sheet may be specified to reduce the amount of load transmitted to the membrane.
- When insulation is used directly above the membrane a slip-sheet (4 mil polyethylene) should always be used to prevent adhesion between the membrane and the board. Without the slip-sheet the differential thermal expansion properties of the two materials may, with time, cause damage to the membrane. If the insulation board is expected to also act as protection, the final weighted finishes should be installed immediately to prevent board movement due to site traffic or wind up-lift.
- A geotextile filter fabric should always be placed above the insulation if soil, sand, stone or concrete are to be placed above it.

Supply

Product	Unit of Sale	Approx. Coverage	Weight	Palletization
Procor 75	75 gallon kit	975 ft ² /kit	748 lbs/kit, net (573 lbs Part A + 175 lbs Part B)	1 or 2 kits/pallet, for orders of 1 or 2 kits only
Procor 10	5.3 gallon kit	70 ft ² /kit	53.4 lbs/kit, net (41.3 lbs Part A + 12.1 lbs Part B)	16 kits/pallet (16 pails Part A + 16 pails Part B = 32 pails total)
Procor 20	1.9 gallon kit	25 ft ² /kit	18.4 lbs/kit, net (14.0 lbs Part A + 4.4 lbs Part B)	40 kits/pallet (40 pails Part A + 40 pails Part B = 80 pails total)
Procor Reinforcement Mesh	Case of 6 rolls (3 ft x 150 ft rolls)	2,700 ft ² /case (450 ft ² /roll)	42 lbs/case (8 lbs/roll)	15 cases/pallet (90 rolls/pallet)
Hydroduct 660	1 roll (4 ft x 50 ft roll)	200 ft ² /roll	54 lbs/roll	6 rolls/pallet

Footnote: Nominal coverage based on 13 sf/gal for smooth concrete. Coverage will vary with substrate condition.

Physical Properties

Property	Typical Value	Test Method
Puncture resistance	38 lbs (170 N)	ASTM D4833
Resistance to hydrostatic head over ⅜ in. (3.2 mm) post formed crack	197 ft (60 m)	ASTM D5385
Water vapor permeance	0.08 perms (4.6 ng Pa.s.m ²)	ASTM E96—method B
Peel adhesion to concrete	5 lbs/in. (880 N/m)	ASTM D903 modified ²
Pliability, 180° bend over 1 in. (25 mm) mandrel at -23°F (-30°C)	Unaffected	ASTM D1970
Low temperature flexibility and crack bridging ⅜ in. (3.2 mm) crack cycling at -15°F (-26°C)	Pass	ASTM C836
Extensibility over ¼ in. (6.4 mm) crack after heat aging	Pass	ASTM C836
Solids content	100%	ASTM D1644

Footnote: 2. Procor waterproofing membrane is applied to concrete and allowed to cure. Peel adhesion of the membrane is measured at a rate of 2 in. (50 mm) per minute with a peel angle of 90° at room temperature.

- In selecting drainage composites and insulation materials full consideration should be given to the loadings created by the full overburden thickness.

Storage and Handling Information

Procor waterproofing membranes (Part A and Part B) should be stored under cover in original sealed containers above 40°F (4°C) and below 100°F (38°C). Keep Part B from freezing during storage. The shelf life is 9 months in unopened containers.

Warranties

Five and 10 year Material Warranties and 10 and 15 year Performance Warranties are available on request for suitable projects.

Refer to the Procor Deck System 3R warranty system overview or contact your local GCP representative for details.

Limitations

Procor Deck System 3R should not be installed over decks with insufficient load bearing capacity to accommodate required flood testing, nor should it be installed over metal decks or gypsum board decks.

Procor Deck System 3R is not intended for repair or retrofit applications over existing roofing or waterproofing membranes. Removal of existing membranes and confirmation of suitable roof decking are required prior to acceptance of the Procor Deck System installation.

Procor Deck System 3R is not to be used as an expansion joint system.

Procor Deck System 3R shall have clearly defined termination points such as expansion joints, parapet walls, walls or building edges.

Procor membranes should not be used in areas where they will be permanently exposed to sunlight, weather or traffic.

Specification Clauses

All inverted roof/elevated concrete deck areas shall be waterproofed with Procor Deck System 3R.

All Procor Deck System 3R materials shall be supplied or approved by GCP Applied Technologies. All detailing, application and protection shall be installed by GCP approved applicators and in strict accordance with GCP instructions. Sample performance and formatted clauses are also available.

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