

# Grace Ice & Water Shield®

## Self-adhered underlayment for premium protection

Grace Ice & Water Shield® has been the premier self-adhesive underlayment product used in domestic roof protection under shingles for more than 30 years. It has performed in the critical areas under the most severe climatic conditions to protect against wind driven rain and the effects of ice dam build up beneath the shingles.

Because of the unique properties of Grace Ice & Water Shield, these benefits are also applicable in its use under a wide range of metal roofing materials, on low and high slope designs.



### Advantages

- Easy to handle and apply
- Foldless release paper
- Seals around nails
- Dual barrier protection
- Membrane will not crack, dry out or rot
- Protects under all standard sloped roof coverings
- Slip resistant surface
- Proven track record
- Reroofable
- Grace technical support

### Product Description

Grace Ice & Water Shield membrane is composed of two waterproofing materials - an aggressive rubberised asphalt adhesive backed by a layer of high density, cross-laminated polyethylene. The rubberised asphalt surface is backed with a release paper that protects the adhesive quality. During application, the release paper is removed allowing the compound to bond tightly to the plywood deck. The membrane is supplied in 20 metre rolls, 1 metre in width.

### Features & Benefits

- **Easy to handle and apply** – The self-adhesive membrane bonds firmly to the roof deck without heat or special adhesives. **RIPCORD®** is a unique, patented feature that makes Grace Ice & Water Shield easier to apply by giving the applicator a split release on demand. Faster application of the membrane in the straight-aways, as well as ease of membrane positioning in detailed areas (valleys, around dormers, etc.), are just some of the benefits.
- **Foldless release paper** – The foldless release paper provides multiple performance enhancements: fewer edge catches, 180° pull-back, ease of membrane cutting (single cuts) and membrane positioning, quicker “one-man installs” resulting in an easier, more productive release.
- **Seals around nails** – The rubberised asphalt layer in Grace Ice & Water Shield seals around roofing nails, resisting leakage caused by water back-up behind ice dams, or from wind-driven rain.
- **Dual barrier protection** – Rubberised asphalt and polyethylene are combined to form two waterproofing barriers providing maximum protection.
- **Membrane will not crack, dry out or rot** – Grace Ice & Water Shield resists attacks from fungus and bacteria; maintains its integrity for long lasting protection.

## Physical Properties

Property	Typical Values	Test Method
Colour	Grey-Black	-
Nominal Thickness*	1 mm	ASTM D 3767 Method A
Tensile Strength, Membrane	2N/mm <sup>2</sup>	ASTM D 412 (Die C Modified)
Elongation Break of Membrane	200%	ASTM D 412 (Die C Modified)
Low Temperature Flexibility	Unaffected @ -29°C	ASTM D 1970
Adhesion to Plywood	525 N/m	ASTM D 903
Permeance	2.5 ng/m <sup>2</sup> s Pa (0.08 Perms)	ASTM E 96

\* Nominal thickness refers to the thickness of the membrane without release liner.  
Typical test values may represent average values from samples tested. Test methods noted may be modified.  
The test is run at a rate of 50 mm per minute.

- **Protects under all standard sloped roof coverings** – Grace Ice & Water Shield protects under slate, tile, cedar shakes or metal, as well as under conventional asphalt shingles.
- **Slip resistant surface** – Grace Ice & Water Shield has a slip resistant embossed surface to maximise traction and safety for applicators.
- **Proven track record** – Grace Ice & Water Shield is the name brand in roofing underlayments with a 30-year track record of protecting roofs from ice dams and wind-driven rain.
- **Reroofable** – Unlike some granular surfaced membranes, Grace Ice & Water Shield will not adhere to the underside of the exposed roof covering. Grace Ice & Water Shield can be applied over the old Grace underlayment (except over Grace Basik®) in retrofit applications, making reroofing easier, less costly (since there is no need for removing the existing underlayment), more durable and environmentally friendly (as the structural deck remains intact avoiding the need to purchase additional wood decking).
- **Grace technical support** – Grace Ice & Water Shield is backed by a team of local technical support personnel that help ensure every application goes smoothly.

## Installation Procedure

### Surface Preparation

Install Grace Ice & Water Shield directly on a clean, dry, continuous structural deck. Some suitable deck materials include plywood, wood composition, wood plank, metal, concrete, or gypsum sheathing. Remove dust, dirt, loose nails, and old roofing materials. Protrusions from the deck area must be removed. Decks shall have no voids, damaged, or unsupported areas. Wood planks should be closely butted together. Repair deck areas before installing the membrane.

Prime concrete, masonry surfaces and DensGlass Gold® with Perm-A-Barrier® WB Primer. Prime wood composition and gypsum sheathing with Perm-A-Barrier WB Primer if adhesion is found to be marginal

(refer to Technical Letter 12, Use on Oriented Strand Board (OSB) Roof Sheathing). Apply Perm-A-Barrier WB Primer at a rate of 6–8 m<sup>2</sup>/L. Priming is not required for other suitable surfaces provided that they are clean and dry.

### Membrane Installation

Apply Grace Ice & Water Shield in fair weather when the air, roof deck, and membrane are at temperatures of 5°C or higher. Apply roof covering material at temperatures of 5°C or higher.

Cut the membrane into 3–5 m lengths and reroll loosely. Peel back 300–600 mm of release liner, align the membrane, and continue to peel the release liner from the membrane. Press the membrane in place with heavy hand pressure. Side laps must be a minimum of 90 mm and end laps a minimum of 150 mm. For valley and ridge application, peel the release liner, center the sheet over the valley or ridge, drape, and press it in place. Work from the center of the valley or ridge outward in each direction and start at the low point and work up the roof.

Alternatively, starting with a full roll of membrane, unroll a 1–2 m piece of membrane leaving the release liner in place. Align the membrane and roll in the intended direction of membrane application. Carefully cut the release liner on top of the roll in the cross direction being careful not to cut the membrane. Peel back about 150 mm of the release liner in the opposite direction of the intended membrane application exposing the black adhesive. Hold the release liner with one hand and pull the roll along the deck with the release liner, leaving the applied membrane behind. Use the other hand to apply pressure on the top of the roll. Stop frequently to press the membrane in place with heavy hand pressure. When finished with the roll go back to the beginning, reroll and pull the remaining release paper from the material, finishing the installation. For successive membrane courses, align the edge of the release liner with the dashed line provided on the surface of the membrane to achieve the 90 mm side lap.

Consistent with good roofing practice, install the membrane such that all laps shed water. Always work from the low point to the high point of the roof. Apply the membrane in valleys before the membrane is applied to the eaves. Following placement along the eaves, continue application of the membrane up the roof. The membrane may be installed either vertically or horizontally.

Use smooth shank, electro-plated galvanised nails for fastening shingles to get the best seal. Hand nailing generally provides a better seal than power-activated nailing.

If nailing of the membrane is necessary on steep slopes during hot or extreme cold weather, backnail and cover the nails by overlapping with the next sheet.

Extend the membrane on the roof deck above the highest expected level of water back-up from ice dams and above the highest expected level of snow and ice on the wall sheathing on vertical side walls (dormers) and vertical front walls for ice dam protection. Consider a double layer of membrane in critical areas, such as along the eaves or in valleys and in climates where severe ice dams are anticipated. Apply the membrane to the entire roof deck for wind-driven rain protection. Apply a new layer of Grace Ice & Water Shield directly over the old Grace underlayment in retrofit applications following the standard membrane application procedure.

### Precautions & Limitations

- Slippery when wet or covered by frost.
- Consistent with good roofing practice, always wear fall protection when working on a roof deck.
- Release liners are slippery. Remove from work area immediately after membrane application.
- Do not leave permanently exposed to sunlight. Cover within 30 days.
- Place metal drip edges or wood starter shingles over the membrane.
- Do not fold over the roof edge unless the edge is protected by a drip edge, gutter or other flashing material.
- Do not install on the chamfered edges of wood plank.
- Do not install directly on old roof coverings.
- Certain product applications are prohibited in hot desert areas. Check with your Grace Construction Products representative.
- Check with the manufacturer of the metal roofing system for any special requirements when used under metal roofing. Do not install directly under roof coverings especially sensitive to corrosion, such as zinc, without providing proper ventilation.
- Do not install under copper, Cor-Ten®, or zinc metal roofing in high altitudes. These roofs can reach extremely high temperatures due to the low reflectivity, high absorption, and high conductivity of the metals. Use Grace Ultra for these roof types. Check with your Grace Construction Products representative.

- Provide proper roof insulation and ventilation to help reduce ice dams and to minimise condensation. Grace Ice & Water Shield is an air and vapour barrier.
- Repair holes, fishmouths, tears, and damage to membrane with a round patch of membrane extending past the damaged area 150 mm in all directions. If fasteners are removed leaving holes in the membrane, they must be patched. The membrane may not self-seal open fastener penetrations.
- Do not install fasteners through the membrane over unsupported areas of the structural deck, such as over the joints between adjacent structural panels.
- Due to its slight asphaltic odor, do not apply where the membrane is exposed to interior living space. Refer to product literature for more complete information.
- Not compatible with EPDM or TPO; use Grace Ultra for tie-ins (refer to Technical Letter 5, Chemical Compatibility).
- Not compatible with polysulfides, flexible PVC, or high concentrations of resin (pitch). For more information, refer to Technical Letter 5.

### Code Compliance

Grace Ice & Water Shield meets the following standards:

- Underwriters Laboratories Inc. Class A fire classification under fiber-glass shingles and Class C under organic felt shingles (per ASTM E108/UL 790)
- Underwriters Laboratories Inc. Classified Sheathing Material Fire Resistance Classification with Roof Designs: P225, P227, P230, P237, P259, P508, P510, P512, P514, P701, P711, P717, P722, P723, P732, P734, P736, P742, P803, P814, P818, P824
- Miami-Dade County Code Report NOA 09-0107.08
- Canadian Construction Materials Centre (CCMC) 12693-R
- U.S. Department of Housing and Urban Development (HUD) Materials Release 1068g
- City of Los Angeles RR 25330
- Florida State Approval Report No. FL298-R3
- International Code Council Evaluation Services (ICC-ES) Report No. ESR-1677

## Supply

<b>Pack Size</b>	1m x 20m roll (20 sqm)
<b>Gross Weight</b>	26 kg
<b>Storage</b>	Dry conditions below +35°C

## Health and Safety

Refer to relevant Material Safety Data Sheet.

## Quality Assurance

W. R. Grace (Singapore) Pte. Ltd. is certified to ISO9001 Quality Systems by the Singapore Productivity and Standards Board for the manufacture of Bituthene Waterproofing Membranes under the registered certification number ISO 93-2-0268.

## Grace Technical Services

For assistance with working drawings for projects and additional technical advice, please contact Grace Technical Services.

[www.graceconstruction.com](http://www.graceconstruction.com)

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